THE WHOLE CHILD DEVELOPMENT GUIDE

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LEGO®

The Whole Child Development Guide is grounded in research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.
Author: Prof. Edith Ackermann, with contributions from Dr. Dorothy Singer.

Foreword

For over 70 years the people of LEGO Company have created fun and imaginative play experiences that support children's learning and development.

In the past, LEGO Company has found it difficult to consolidate and apply the mountain of child development knowledge that exists. In 2001, the LEGO Learning Institute was established to collect the knowledge our people have built up over the years; to generate new insights into children's play and learning; and to disseminate this knowledge within LEGO Company. Thus, it became apparent that a guide to children's development would be an invaluable tool to aid people in their decision making and creative processes.

We have all been children, but what was it like actually being a 'terrible two year old' understanding most things but lacking the ability to make yourself understood, or an eager seven year old looking for recognition from your peers? And how can we support each age group in their personal growth and make it fun at the same time? The Whole Child Development Guide will help you in finding the answers.

We live in a society with increasing performance pressures, not only on adults but also on children. Children now have to thrive in a world defined by innovative and creative thinking; where they must draw on all their experiences and apply what they have learned in new and creative ways.

As LEGO Company enters the 'Creative Age' it is imperative that we continue to provide children with play and learning experiences that are relevant for each stage of their development and relevant to the world they are growing up in.

With this challenge in mind, I commend this innovative new book to you.

Kjeld Kirk Kristiansen

LEGO Company was founded in Denmark in 1932 by the Kirk Christiansen Family and remains family-owned today.

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The Whole Child Development Guide

Part 1.:

Introduction to Whole Child Development

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Children Are Natural Born Learners

Look at a newborn baby. Few competencies are apparent when you look at that innocent little being, but their inherent capacity is enormous! Within four years this baby will have developed into a person who will run, jump, ask questions all day long, play princesses or superman and twist you round her little finger!

A baby comes into the world with a powerful urge to learn, to explore, to relate, to participate in and contribute to the buzz of activity going on around her.

Young children may have little knowledge or experience, but they have truly amazing talents as learners. Their abilities to self-improve are endless! Children seem to be born with a natural curiosity and an ability to consistently "do the right thing" in order to get to know more about what they don't know yet. For example, they love to do the same things over and over again, and in so doing they gain mastery and competence.

Children naturally seek new challenges and invent new ways of achieving their goals. At once creators and builders, artists and scientists, children soon learn to imagine alternative worlds. They engage in fantasy play to understand their world and their feelings, which often takes the form of role-playing games. Making things up (imagining) and working things out (exploring and investigating) go hand in hand. Both ultimately contribute to helping children find their place in the world. Young children are also good communicators: They will tell their stories to those willing to listen, and they will share their feelings with their peers and parents. Narration and construction go hand in hand. So do identity formation and knowing about the world.

The Whole Child Development Model

The Whole Child Development Model identifies four natural urges, or sets of curiosities, that drive human growth throughout childhood into adult life: the urge to learn about and explore Me, Us, World, and Creations or to use one's imagination.

Each of these urges is then divided into two sub-categories as follows:

Me	- Using My Body - Knowing Myself
Us	- Relating To Others - Understanding Others
World	- Exploring and Investigating - Seeking Logic
Creations	- Imagining - Enacting and Creating

The model is illustrated in the fold-out chart.

Each urge has a life of its own. A child draws upon each to better interpret and relate to the sights and sounds of the world around him, and to understand his place among other people. At the same time, urges also feed one another. As a child grows in one area, he indirectly learns something in related domains. This system-like behaviour of these natural urges ultimately contributes to strengthen and broaden children's eagerness and ability to act in the world and to become active members of their communities.

In each of the urges; Me, Us, World, Creations, we will consider three related aspects of a child's interests and abilities, at any given age, or developmental stage:

1. Competencies:
   What does a child of a given age naturally strive to learn?

2. Manifestation:
   What actions will the child undertake to attain and nurture these competencies?

3. Support:
   What can care-givers do to support a child's natural interests, abilities,or urges?

When we say a baby "learns" something or "strives to learn" something, clearly we are not suggesting that a baby engages in conscious or deliberate

study of something! Rather, by such phrases we refer to the exploratory activity of a baby in a world where everything is new. In particular, we refer to the sort of activity that leads to further, and progressively more complex, engagement and exploration.

Throughout this book, we will explore the four natural urges and their sub-categories and see how the child develops in each. In other words, we shall look at what competencies children are pursuing or exhibiting at different ages and how we can support them along the way.

Important Note

While developmental stages offer a useful framework to highlight the milestones that mark a child's growing abilities to control her body and to expand her mind, we also know that ages and stages are only loosely connected. There are at least two reasons for this. First, all children are unique and different. Some "grow older younger" while others are "late-bloomers". Some grow evenly across domains while others don't. Some skip developmental milestones altogether, like crawling. The second reason is that researchers, parents, and caregivers often disagree about when a given behaviour emerges for the first time in a child's life. Some may identify a baby's first smile after a few days, whereas others see it emerge only after a few weeks. Some claim that babies "recognize" their care-givers— or themselves—early on. Others doubt this. It is mostly a matter of projected intentions and definitions.

A General Overview

Being Me

Being Me is about being physically engaged in an activity, as a way of learning. In using their bodies, children learn to control their actions, and thus develop awareness of their body's capabilities to help them reach their goals and to impact their world. Being Me is also about getting to know who one is as a means to find one's place and voice in the world. Knowing who one is involves understanding one's own subjectivity, i.e. the needs, wants, and potentials one has as a person. Knowing oneself also involves learning about one's abilities and preferences as a learner.

Both aspects are equally important in helping children gain the physical and mental autonomy and the flexibility required to become successful players in today's changing world. Let us now look at how children learn to become Me, from the day they are born to the day they go to school. In other words, how do they use their bodies to control their action in the world; and, how, in doing so, do they get to know who they are.

Me - Using My Body

Children actively explore things, using their bodies. They start as babies and they continue throughout their lives. Babies move their arms and feet. They try to keep their head up, to sit, and to grasp things. They try to put everything in their mouths—their chief exploratory organ. At the age of one, they can stand on their feet and they start moving around. Without much help, they learn to crawl, walk, run, jump, climb, and pick up and throw things. Young children also like to dance, move to music, and explore rhythms with their bodies. When older, they may engage in ballet, athletic teams, or become a drummer in a band. Children also progressively refine their fine-motor skills. They learn to pick up tiny objects between their thumb and index, finger and to use a pen or a pencil to draw or paint. Later on, they may refine their dexterity even further, by learning to knit, to type on a keyboard, or to play a musical instrument, such as the piano or the violin. As we focus on a child's physical-motor development, we shall keep in mind that mind and body work together all the time.

Me – Knowing Myself

Getting to know one's self, or identity formation, is about learning to know who one is and what one wants, both of which are needed to find a voice, and

a place, in the world. Knowing who one is involves understanding one's own subjectivity, i.e. the needs, the wants, and the potentials one has as a person. It also involves awareness of, and control over, one's intellectual abilities and preferences as a learner, often referred to as meta-cognitive skills.

At birth, infants cannot distinguish between self and other. They are at one with the world. As they grow older, children progressively learn to set boundaries between "me" and "not me". They come to realize what makes them unique and different from other people. They develop a sense of self, without which they could not live or love. Some authors refer to this natural quest as "process of individuation".

In Damon and Hart's words: "Self-understanding is a crucial constituent of a person's adaptation to his or her world. […] The concept of self provides one with an understanding of one's differentiation from others in society. In this way, it establishes the cognitive basis for one's identity as a unique individual and for one's own special position, status, and role within the social network" (Damon and Hart, 1982. p. 843).

The focus is on how children's increased physical and mental autonomy contribute to shaping their budding sense of self—as a person, as an agent, as an actor in the world. In other words, as they venture into the world and relate to people and things, how do children come to know themselves? What milestones mark the journey from being self-less (yet self-absorbed) to becoming someone with an identity over time? Our assumption is that becoming social and forming an identity are related but not identical: Understanding others and understanding oneself require different sets of competencies, each of which evolve independently, as a child develops.

Us - Growing Together

Us - Growing Together is about every child's natural urge to relate to other people. It involves seeking and sustaining social interactions, and learning to share with others. It also involves learning to care and to belong, i.e., become a member of a social group, while keeping one's identity as a person. Babies are born with an instinct to bond with whomever shows them care and affection, even if they do so involuntarily at first. As they grow older, children become increasingly sophisticated at cultivating more nuanced relationships with people, and at negotiating their needs and wants. They are active partners.

This urge is also about the importance of understanding other people's emotions, intentions, and ways of thinking, acting, and being. It involves an ability to "de-centre" or move away from one's own limited standpoint to integrate other people's perspective, or points of view. Perspective-taking, or the ability to put oneself in other people's shoes, is a key to moral, social and emotional development. Very early on, children build their own intuitive theories of how other people think, feel, and act, often referred to as "theories of mind". They acquire a growing sense of others.

The two aspects, learning to relate and building a growing sense of others are related, yet each requires a specific set of skills that deserve to be studied in their own right. Both are equally important in helping children become active and caring members of their communities. As children become more aware of who they are, they also become better at relating to, and caring for, others.

Us - Relating To Others

From birth, children are "primed" for social activity: They yearn to communicate, be nurtured, and feel needed and loved by others. They strive to belong. Early on, human infants attune to, or enter in resonance with, other people. Before long, they become eager and active participants in early give-and-take rituals. Later on, children experiment with what is acceptable or not—they "test the limits," as we adults like to say—as they seek membership in a group of some sort, while not losing their identity as persons. They learn to respect social or cultural norms and values, and to negotiate their own and other people's needs and wants.

According to Erikson, a person's socialization process is marked by eight breakthroughs or "crises," each of which demands resolution before the child can progress to the next developmental juncture. For the ages that concern us, three Eriksonian stages are at play: 1) building trust around 1-2 years, 2) building autonomy starting as early as 18 months, up to 2 to 3 years, and 3) building initiative preschoolers, 3 to 4 years. (Erikson, 1977)

Us - Understanding Others

"The human baby seems to be social from the start. She spends much time watching other people, but she actually understands very little about them at first. She can't take their perspective, only her own. She doesn't even know that the baby she sees when she is in front of a mirror is, in fact, herself. She doesn't know that other people have minds and feelings of their own". (Karmiloff-Smith, 1994. p. 201).

Over the first 3 or 4 years of their lives, children develop a growing sense of other, as distinct from themselves. At first, babies are fused with the world, so that neither people nor things exist as independent entities. At the same time, even very young babies respond to other people's moods, often by becoming "sad" or "happy" themselves. An infant hearing another baby cry will often cry himself, as if by suggestion, even though nothing ails him. Likewise, a baby will smile and giggle if it sees others smile. But such mimicry can hardly be called empathy. Over the next few years, children gradually acquire a sense for what other people think and feel. They learn to empathize, to understand the expectations or intentions of others. In their third year, children can take on the role of others in their play, and influence other children or their parents by using persuasion, deception, and even humour. By their fourth birthday, children understand not just that others think differently, but they are able to characterize these differences in thinking from their own. This is a huge leap!

In sum, early on, children respond to, and become aware of, 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-centering".

World - Making Sense of It All

Making sense of the world is a basic human activity in which we all engage. It means figuring out how things work, and why things are the way they are, through exploration and experimentation. In children, the urge to make sense of things is so strong that it can properly be called a biological instinct. That's why children play! In their play, children don't just pretend or role-play. Nor do they just set the stage to act out their fantasies through playful dramatization, as artists do. In addition to all of this, children inquire and investigate. Like little scientists, they spend hours messing around with things for the mere joy of figuring things out. More generally, children are very curious about the world in which they live. They want to understand its workings.

Making sense of the world also speaks to the importance of imposing an order, or logic, upon things otherwise too hard to grasp. It involves an ability to build mental categories known as knowledge structures. This ability is an all-important and necessary feature of human intelligence: Unless children impose some sort of order on their observations, a child's explorations may

drift endlessly and randomly. More to the point, humans seek consistency and coherence even where consistency and coherence don't reign: They schematize, classify, and order things. They play logical games and they build mathematical formula. Early on, children tap into their own growing sense of orderliness to interpret and gauge what they feel and sense.

The two aspects, Exploring and Investigating and Seeking Logic are deeply related yet they gain to be distinguished. In the first case, the focus is on children's practical and mental grasp of how things work, and why they work the way they do. In the second case, the emphasis is on children's urge to bring order into a "sea of chaos," i.e. to make things cohere. Both are equally important means for understanding the world around them.

World — Exploring and Investigating

Children have a natural urge to explore the world around them, or mess around with things. They try out whatever they come across that captures their attention. Early on, babies put things in their mouths, and they grab and shake things. Mouthing and grabbing are a baby's first means to learn about important properties of the objects she explores: some taste good, others don't; some feel hard, others soft; some are warm, others cold, some can be touched, and others slip out of the hand, and so on.

As the babies perfect their manipulation techniques, and as they themselves become more mobile, and start cruising around, they will also learn a great deal about the causal, spatial and temporal qualities of their environment. They will come to understand how things relate (i.e., how they impact one another), how they are located and configured (i.e., how they hang together in space), and how they evolve and change over time. They will realize that some things change while others remain the same. Still later, they will ask many questions, and they will start wondering what will happen if or when they intervene in a certain way.

When they have found out how a certain thing works, they might still keep investigating it over and over again—as if to make sure that this is really how it is—or they might move on to a new challenge. Through actively exploring and experimenting, children create variations on a theme or situation, and thus learn a great deal about the focus of their inquiry!

World – Seeking Logic

Children don't just discover what happens in the world and strive to explain why things happen the way they do. Children also tend to impose consistency

and coherence even where there is little. Beyond making sense of the world, that is, they are also world makers in Nelson Goodman's sense (Goodman 1978). They craft their own lenses—or mental categories—through which they filter, interpret, and reconstruct the world.

In sum, beyond figuring things out through inquiry, or trial and error, as natural scientists do, children also draw lessons on the art of rigorous thinking itself, as logicians do. Beyond experimenting, they mentally reorganize what they have learned. They impose categories, they infer rules, and they establish laws. And once a child's newly built order prevails, the world will in turn be seen through those lenses. This is what Piaget refers to as "the adaptive cycle of assimilation and accommodation" (Piaget 1960b).

Creations - Realising Visions

Creativity speaks to a child's imagination as a vital source of mental livelihood and intelligence. To imagine is to envision alternatives in the head, or "think out of the box". It requires an ability to think things that don't exist, and to dream up what could be. Imagination is about suspension of disbelief: From making things up or fantasizing, to pretending and joking; all of which demand that one dissociates reality from make-believe. Without imagination, there is no way anyone could ever distinguish what is possible from what is actual, or fancy from facts. Intelligence itself is about "envisioning alternative ways of doing things."

Creativity also speaks to a child's urge to give form, or expression, to the products of her imagination, by projecting them outward: To enact is to make dreams come true. It involves bringing inner feelings and ideas into being. Enactments come in many shades, such as performing, narrating, notating, and simulating. In Malaguzzi's words, children express themselves "in a hundred languages." (Malaguzzi, and All., 1987). They tell their stories to those willing to listen and they like to mix and match media. Without the ability to stage intriguing mental events by playing them out on safe ground, as in theatre, children would have few opportunities to come to grips with them.

Both aspects of creativity, Imagining, and Enacting and Creating, are intricately related. In the first case, the focus is children's ability to "think out of the box," to play "what-if", and to let their fantasies roam—in general, all mental acts that require suspension of disbelief. In the second case, the

focus is on the realization of inner dreams, on what it takes to make original ideas come true, on externalising fantasies, expressing imaginative ideas and making them concrete. Children do so through enacting and telling, drawing and writing.

Creations - Imagining

Too often, a child's imagination is seen as merely a passing phase of childhood that has little to do with the real work of learning. Too often, we educate the imagination out of children, thinking it has no practical role in how they ultimately perceive the world and create meaning in it. In this section, we speak to the vitality of a child's imagination as a source of learning and understanding.

Unlike other areas of development, imagination, one of homo sapiens's highest achievements, sets in relatively late. It takes the emergence of the symbolic function, between 18 and 24 months, for children to be able to internalise their actions, or think, and to invent alternative scenarios in their heads, or imagine. Only then, will children start to revisit past experiences and events, perhaps adding a new twist or changing the ending in some way. Piaget referred to this new ability as "deferred imitation", i.e. the capacity to create variations on an original scene, in the absence of the model. Imagination proper sets in when, beyond creating variations, children start to "produce fiction" or invent scenarios that don't exist in reality. (Piaget, 1962)

Some of the first manifestations of human imagination appear in a child's make-believe activities, such as fantasy or pretend play, in her budding sense of humour and ability to tease, as well as in her urge to mediate actions and events through symbol-use and converse with imaginary companions.

As they reach their second birthday, most children start to engage in such activities as feeding and talking to their dolls, drinking out of empty cups, teasing siblings, and cracking their first jokes. In other words, as soon as children are ready to speak, plan ahead, and think, they also learn to "think out of the box" or imagine. The ability to think creatively does not decrease with age, nor is it a quality reserved to poets alone. Instead, it permeates all walks of life, from scientists to gardeners, and becomes ever more elaborate as the child grows older. Moreover, without imagination, there is no innovation.

All forms of human imagination, from fantasy play to musing about incongruities, are based on a unique mental process that writer Arthur

Koestler called "bisociation," and which consists of "perceiving a situation or idea … in two self-consistent but habitually incompatible frames of reference" (Koestler, 1964. p. 95). Also note that while some form of unexpected, surprising, or incongruous relation is always present in a child's pretend play, teasing, and joking, the presence of incongruity alone won't suffice to create humour or playfulness. Incongruity can be perceived in any of three ways: interest, fear, or amusement, depending upon context. This is why a safe and relaxed atmosphere, as well as very clear "play signals", implicit or explicit, are important to communicate to a child: It's OK, we are in play mode.

Let us now look into a child's ability to think creatively through the lens of their pretend and fantasy play, and his ability to appreciate and produce jokes. Make-believe and humour indeed are two privileged behavioural windows into a child's creative mind.

Creations – Enacting and Creating

Children not only like to make up things in their heads, or fantasize, they like to express their fantasies, or project them out, thus, making them tangible and shareable. Children express what's in their minds in many ways, and they use a variety of media to do this. For this reason, they are said to speak "in a hundred languages." (Malaguzzi, and All, 1987). They speak in gestures and in voice, in pictures and in words, picking whichever medium conveys their ideas the best. More impressive, as soon as infants learn to walk and to talk, they start to leave their marks on their environment. Eventually they will use a whole array of expressive tools and media, from sticks to pencils, from paper to the walls of their room, to make their mark in the world.

Through their creations, children, like artists, bring their imagination to life and realise what's in their minds. Yet, unlike scientists, a child's creative expression is less about building models to mimic reality or to seek truths than it is about exploring possibilities within, or perhaps re-digesting or reverberating, human experience. In other words, creative expression is the visible face of imagination at work!

This aspect speaks to the importance of creative expression, or artistic power, as a source of a child's personal and intellectual growth. Of particular interest is the lengthy path that brings an infant to becoming "literate" in the sense of becoming acquainted with, and fluent in, the usage of available cultural tools as a means of self-expression. We define literacy in the broadest possible sense to mean the ability to make and derive meaning in any

symbolic, expressive, or artistic medium. 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 within the constraints proper to each medium. More importantly, children know how to use the progress they make in one language as a lever to enrich their expressiveness in others.

The first obvious manifestations of a child's creative expression appear around 18 to 24 months of age. Yet, many precursors announce this visible achievement. Even very young babies can be said to express themselves creatively as soon as they engage in "theatrical" crying and smiling games, or as they start banging on a box to create interesting sound effects. This 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. They scribble on any surface, and they start to "read," i.e. make sense of other people's traces and scribbles. These acts mark the true beginning of literacy, as we have defined it.

As they reach their second year, children speak not so much through words as through enactments: they perform, sing, and dance. Yet, they also start to "freeze" otherwise fleeting events through drawing, and writing. Again, as soon as they talk, they become fascinated with writing and reading. As they sing and listen to music, they want to record rhythms and sounds, or even draw the noises and rhythms they hear on a sheet of paper. Later in their lives, creative people will express themselves through drama, poetry, painting, literature, design, and music, to name just a few possibilities.

In later sections, we shall look into children's growing abilities to speak their imagination "in a hundred languages," to use one language as a lever to augment their expressiveness in others, and to becoming literate. Let us focus on their artistic sensibility and creative expression as narrators and notators, as composers and performers, and as visual artists and designers. Becoming literate in this sense means much more than just learning to read and write as we think of it in schools!

Part 2.:

Babies 0 - 12 Months

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PART 2 .:

Overview of Babies 0-12 Months

Me - Being Me

Me - Using My Body

Becoming Mobile. In the first year of their lives, radical changes take place in children's abilities to control their bodies and to monitor their actions. From lying on their backs to moving around, from being driven by reflexes to voluntarily controlling their movements, babies gain increasing mobility and autonomy. This in turn unlocks their power to act in the world and to get to know themselves as agents. Much of this development is taking place without any „teaching" or direct guidance.

While we fully expect that healthy babies will greatly increase mobility during their first year of life, the process by which they accomplish this is nonetheless astonishing. Indeed, as Karmiloff-Smith notes, „The average human baby achieves in about twelve months what it took the human race millions years of evolution to accomplish: the ability to turn the skeletal structure upright and move about freely on two legs. Yet, unlike most other mammals, the human is born virtually helpless. Paradoxically, at birth babies hardly move at all and show very few signs of the efficient biped that they will eventually become" (Karmiloff-Smith, 1994. p. 57).

In sum, becoming mobile and gaining dexterity are a baby's two most significant physical-motoric developmental tasks, and a great deal of an infant's energies goes into trying to make her body do what she wants it to do. As they come to control their bodies, babies also gain new windows into the world, which in turn fuel the urge for further expanding their experience. The cycle of self-directed learning has started.

Me – Knowing Myself

From Being "Fused" to Recognizing "Me" in the Mirror. During their first year, human babies complete two major developmental tasks: They move from being at one with the world and totally dependent on their caregivers to acting on their own and at their own will.

Infants cannot reflect or verbalize on the nature of self. Thus, the most common and oldest technique used for gauging babies' self-understanding

is visual self-recognition. Researchers or parents closely observe babies' reactions (such as smiling, grabbing, babbling, or increased sucking on a pacifier) to their own mirror images, and to photos or videos of themselves. In the case of the mirror, the image-of-self one sees always moves in tandem to one's own physiological sensations of movements. With photos, this contingency doesn't exist, but with videos, it can or cannot exist, depending on whether the shots are "live" or not.

In addition to visual self-recognition, babies learn how to protect and comfort themselves, when in distress, or left alone, and how they act-out and express themselves, even in absence of a conscious self-regard. This primitive ability to take care of oneself marks an early step in the long process of identity formation.

Us – Growing Together

Us - Relating to Others

From Tuning In to Building a Relationship. During their first year, babies' ways of relating undergoes a true revolution: starting from a built-in ability to respond to the human voice and to recognize the features of a human face, babies become, over the course of 12 months, eager, active, and selective social partners. By the third month, they engage in pre-verbal conversations, or give-and-take games. By the eighth month, they become strongly attached to their primary caregivers. By their first birthday, this attachment manifests itself as genuine laughter, clowning, coyness, and various forms of what parents would call "mischief making" (Karmiloff-Smith, 1994. p. 208). In sum, from automatically tuning in, human infants have learned to build and sustain a relationship.

Us - Understanding Others

Human Infants Are Born to Be Social. Early on, they respond to other people, engage in pre-verbal conversations, and partake in relational give-and-takes. There is a difference, however, between getting attuned to others, i.e. be a partner-in-relation, and showing empathy and understanding of how other people feel and think. It will take months before human babies develop a sense of others, and even longer before a child can put himself in other people's shoes, or minds.

A first manifestation of a baby's budding sense of other appears around the age of 8 months, when most infants become "attached" to the people who are constant in their lives and, by the same token, fearful of strangers. Early attachment and

strangers fear mark the beginnings of a child's ability to discriminate among people as individuals. That's when babies become picky about whom they give their favours to. That's also when babies start changing their own ways of being, and relating, depending on whom they have in front of them.

As they reach their first birthday, most babies have acquired a fairly rich repertoire of relational strategies that they put into practice in different ways with different people. This, in turn, teaches them a great deal about the idiosyncrasies of each relational partner (some are "feel good" folks while others make you tense, or bored. With some you get your way with smiles, and with others with cries). Once a baby knows how different individuals make her feel, it won't take too long before she also knows how each may feel, and feel for them.

For these reasons, Understanding Others is only explored in a broader sense covering the entire 0-12 months age period in the next section.

World – Making Sense of it All

World – Exploring and Investigating

From Visually Scanning to Hands-on Exploration. In their first year, children's explorations of the world are mostly "hands on" (or, more often, "mouths-on") and their knowledge is of a sensory-motor or action-oriented type. Yet, as they reach their first birthday, infants have elaborated several basic dimensions of reality, such as object permanence and a rudimentary grasp of space, time, and causality. These "understandings," needless to say, are still closely related to the infant's direct actions, to the movements of his arms, legs, fingers, and eyes.

At first, newborns scan the world through visual tracking, and they grasp or mouth whatever touches their hand or mouth. Before long, however, babies start mouthing and grabbing things deliberately, as if for the sake of exploration itself, using all their senses: seeing, smelling, hearing, tasting, touching. They do so relentlessly, which, in turn, enables them to learn a great deal about the world, as well as about their abilities to impact the world. In this sense, self-knowledge and knowledge about the world go hand in hand.

World - Seeking Logic

From "Feels Good" to Order and Coherence. During the first year, a child's logic is a logic-in-action. The first logical categories that babies

establish are based on how objects, including people, resist or yield to their explorations, and solicitations. In other words, the world is divided into feel-good objects and feel-bad objects: a very binary logic indeed! By the end of their first year, however, babies have come a long way in refining their logic-in-action: They have learned to engage in detours and to overcome obstacles, and they can interrupt an action and pursue it a later stage. All these achievements require some rudimentary form of "reversibility" and cannot be accounted for without reference to a minimum of thinking or logical reasoning.

To this day, researchers disagree on what babies know, let alone what they think, at different stages of their early development. And babies are not able to tell anyone! As will become apparent in what follows, there is much speculation about young babies' reasoning or logical abilities. Whatever the claims may be, the question remains: How does a baby turn her exploratory activity into a conceptual representation, mental model, or knowledge structure that brings order and coherence to her understanding of the world?

Later in this Part, we shall look at how a baby's "logico-mathematical" capabilities (to use Piaget's term) evolve during the first year of his life. When do they appear? How does the child use them to bring order into a world too bewildering and complex to be grasped?

Creations – Realising Visions

Creations – Imagining

Acting Without Thinking. During their first year, children's ability to imagine, or envision alternatives in their minds, is practically nonexistent for the simple reason that babies, as far as we can tell, do not yet form symbolic representations of external reality, let alone think of things that don't exist!

Instead, babies interact with people and objects in their environment in just the right way so as to maximize their learning: They do so in the here-and-now, in the immediacy of lived experience. They do not contemplate or think about things that are not right in front of them, again, as far as we can tell!

For this reason, Imagining is only covered in greater detail in the Babies age period 9-12 Months.

Creations – Enacting and Creating

"Say it with cries, bangs, smiles, and laughter." Like imagination itself, creative expression sets in relatively late in an infant's life. It takes the ability to speak and to think to be able to play out one's fantasies. This being said, a close look into some early precursors of creative expression helps reveal how babies evolve from merely acting out to becoming actors, from cooing and babbling to becoming speakers, and from listening to becoming readers.

During the first six months of their lives, our artists in the crib express themselves in a rather direct fashion, through cries, bangs, smiles, and laughter. And their purpose, if any, remains mostly instrumental. In other words, young babies, up to the age of 6 months, are not really creative. Their primal screams need further elaboration to gain the status of "artistic expression."

For this reason, Enacting and Creating is only covered in greater detail in the Babies age period commencing 6-9 Months.

The Whole Child Development Guide is grounded in research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.
Author: Prof. Edith Ackermann, with contributions from Dr. Dorothy Singer.

PART 2 .:

Babies - the First Twelve Months

0 – 3 Months

Me – Being Me

Me - Using My Body

Lying Down on the Job. Newborns spend most of their time sleeping and eating. Their mobility is quite limited at this stage. Their first movements are jerky, and their heads oversized in relation to the rest of their body, making it hard to sit up or even hold their head up to look around. Their bodies are flabby and in constant need to be held. From day one, however, newborns are also very active. They relentlessly try to get their bodies to do what they want, even if unconsciously, which lends them greater autonomy to act in the world, to relate to people, and to get to know themselves. How exactly does the exciting journey start for a newborn baby?

Competencies:
What does the 0-3 month-old baby naturally strive to learn?

Each and every action that babies engage in seems geared toward helping them grow. A newborn's natural tendency to randomly move legs and arms strengthens her muscles. Her initial reflex to turn the head toward a finger that strokes her cheek is essential for feeding. Her later attempts to deliberately lift her head gives her a new view on the world. Before you know it, a newborn's initial reflexes turn into increasingly flexible action-patterns, or habits, that become ever more differentiated. By the age of 3 months, our infant has learned to lift her head and to grab and reach out for things. She now actively attempts to roll over on her side! She is soon ready to sit.

Manifestation:
What actions will the baby do to attain these competencies ?

From day one, newborns can follow objects with their eyes that cross their visual field, at first horizontally. They move their arms and legs, apparently randomly, and they grimace and scream when tense, in pain, or hungry.

By their third week, babies have "loosened" most of their initial reflexes, through intelligent practice. They now deliberately follow specific objects with their eyes, ignoring others. They look at their fingers and try to move them. They manually explore objects that are at an easy hand's grasp.

By 10 to 12 weeks, babies engage in finger play, scratch at a quilt, grasp a rattle and shake it.

SUPPORT:
What can care-givers do to support or enhance this natural urge?

Provide babies with an interesting and varied visual field. Provide them with soft objects (blankets, quilts, stuffed toys) that they can explore with their fingers or their mouths. Babies like to be active: don't leave them lying in one place for too long!

ME – KNOWING MYSELF

Self-absorbed Yet Self-less. At birth, infants are fused with their world and are at one with people: They cannot distinguish between self and other, nor can they appreciate or respect other people, or themselves, for who they are. At the same time, newborns come to the world endowed with a built-in reflex to protect themselves from inputs that are perceived as threatening. They close their eyes when objects come at them too close or too fast. They scream when hungry, in pain, frustrated, or uncomfortable, and they shut down altogether when over-stimulated. This built-in ability to regulate amounts of input, in transactions with people and with things, is a key to a child's forming identity. Obviously, it will take much practice and support from caring others for such early protective reflexes to turn into effective self-preserving mechanisms.

COMPETENCIES:
What does a 0-3-month-old naturally strive to learn?

"From birth to 3 months, the initial organizing principle to appear in infants' self-knowledge is an unlearned attraction to the images of other people and especially to the images of young babies. This attraction shows up with young infants' fascination with mirror images, drawings, and pictures of faces, especially when the face is that of the self or of another young infant." (Damon and Hart, 1982, p. 848).

At 3 months of age, most babies have learned to use their sucking reflex to comfort themselves, even when not hungry. They can "sing" to themselves, or modulate their voices, to release tension when left alone.

Around 3 months of age, babies start recognizing their mother's reflection in the mirror: the infant smiles, looks, and vocalizes at the mother's image as soon as it is presented.

MANIFESTATION:
What actions will the baby do to attain these competencies ?

The newborn will spontaneously suck on his hands or fingers. This doesn't necessarily mean he is hungry: he associates the sucking feeling with comfort. The baby will track moving objects with his eyes and focus on static ones, especially faces. The baby will soon associate his crying with the response of his care-giver.

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

Comfort the baby when she is distressed, but also allow her to comfort herself by sucking on hands or fingers. Respond to your babies cries. Don't let her "cry herself out."

Us – Growing Together

US - RELATING TO OTHERS

Cuteness as a Survival Mechanism. At birth, human babies are entirely dependent upon other people to survive. Their ability to motivate others to care for them is one of the most crucial social skill with which babies are born. Clearly, a newborn's social needs and skills are unconscious. Yet as care-givers respond to their built-in "cuteness" and unself-conscious solicitations, babies are quick to learn that they can exploit their own cuteness. By their third month, they use communicative gestures, unique to our species, such as smiles and eyebrow flashes (i.e. if the mother raises her eyebrows, baby raises his eyebrows too!) to attract attention. As babies' first incidental smiles impact people around them, babies learn to produce genuine smiles of pleasure, and later, they modulate their smile to convey specific needs and wishes.

COMPETENCIES:
What does the 0–3-month-old naturally strive to learn?

At this stage, relating to others is much about controlling the quality and amount of care and stimulation needed to survive. Newborns come into the

world with a series of reflexes, such as shutting their eyes when someone gets too close too fast, smiling when they see a configuration that mimics a human face, or screaming when hungry, tense, uncomfortable, or sleepy. The baby's first pre-verbal "conversations," or turn-taking games, start early on, and it won't be long before the baby's tuning-in, at first automatic, turns into full-fledged social behaviour, which the baby increasingly controls.

MANIFESTATION:
What actions will the baby do to nurture these competencies ?

Practically at birth, newborns are able to imitate facial expressions, such as sticking out their tongues. Their first smiles appear as early as three weeks. Yet, true social smiles only appear at about six weeks.

After only a few days, newborns recognize their mother's voice and distinguish its pitch and tone from those of other people. Newborns are generally fascinated with human faces, and by two months of age they recognize the internal features of a familiar face: They start crying when mom puts on a hat or sunglasses! (Karmiloff-Smith, 1994).

Around six weeks, babies attentively watch their mother's face during nursing. And by eight weeks, they start responding to turn-taking games initiated by the adult.

By two to three months, babies make their first language-like sounds. They coo, i.e., modulate their voices, and they respond to people's cooing by cooing back.

SUPPORT:
What can caregivers do to support a child's natural interests and abilities?

Babies are pretty good at controlling amounts of input for optimal comfort in their social relations. Still, parents can help by making sure they provide "neither too much nor too little" stimulation. Most parents know very well, by watching their babies for cues, not to over or under-stimulate their babies and they know when to engage their babies in social games! They need only remember: it is never too early to initiate and encourage joyful turn-taking games.

US - UNDERSTANDING OTHERS (0-12 MONTHS)

From Mimicry to Understanding Intentions. "From birth, babies find themselves surrounded by people who can sympathize with others, are aware of themselves, share emotional bonds and, unlike other species,

know that other people have thoughts and memories different from their own. How does the baby acquire the mental skills that underlie this social understanding?" (Karmiloff-Smith, 1994. p. 201).

Between 0 and 9 months, the baby relates to others strictly through the self: others are seen and understood in terms of what they provide for the baby. Here is a baby's-eye view of her social world: "Mom provides me with food, warmth, and comfort. Mom and Dad come running whenever I cry. They change my diaper when I am wet. They pick me up and keep me entertained when I am bored. They talk to me and play games with me. Other people smile at me, make funny faces, and talk in high-pitched voices." The baby's view of the world is still highly egocentric, meaning that everything is mediated through the self. The baby emerges from this egocentricity only gradually.

"When they are just a few months old, babies already seem to be sensitive to other people's emotions. Not only do babies smile when her mother smiles at her, but she reacts to her angry expression by looking angry and upset herself. But it would be premature to conclude from this behaviour that babies know how their mothers are feeling in such circumstances. It will take long before they can put themselves in other people's shoes" (Karmiloff-Smith, 1994. p. 201) Much of a newborn's sense of others is based on reflexive imitation. As we noted earlier, a newborn baby will stick out her tongue if she sees her mother (or someone else) do this. Through imitation, babies come to feel the sensation of what they imitate, and thus build associations between muscular reactions and emotional expressions. Through this automatic tuning in, they can feel the moods of others, as if under their skin. This sort of mimicry can be seen as a precursor to empathy, even though, at this stage, the baby is not aware that others possess thoughts and feelings distinct from their own.

Around 8 months, however, things start changing as babies build their first attachments, which coincides with the beginnings of object permanence. That's when, as we have already noted, for a while at least, anyone unfamiliar is perceived as a threat. The world seems to be split between familiar people and other scary people who come and interrupt the baby's normal, familiar routines. Such interruptions are very upsetting to babies at this age. They seem to crave familiarity, routine, constancy, and repetition.

Then, at nine months, a significant breakthrough occurs: babies develop the capacity to sustain their attention on a shared topic. This hugely increases the baby's ability to monitor and understand other people's intentions and moods. Babies now deliberately search for the aim of a partner's gaze. In

other words, they seek to understand what the other wants, or is interested in. This newly emerging ability is manifested in many contexts.

COMPETENCIES:
What does the 0–12-months-old naturally strive to learn?

The baby is naturally attracted to others. He is interested in observing what others are doing, even if much of it seems bewildering. Even a hungry baby will stop nursing if someone new walks in the room, or if something interesting happens.

Early mimicry gradually gives way to observation and understanding. By the end of their first year, babies begin to understand that others have intentional states, which they can begin to relate to their own. Starting at 9 months, infants begin to understand the instructive intents of the mother's behaviour. For example, when the mother points from a peg to a hole into which the peg fits, 9-month-olds do not slavishly imitate her incomplete demonstration. Instead, they display their understanding of mothers' instructive intent by placing the peg in the hole (Bretherton and All, 1981. p. 55).

Nine-month-olds recognize and, to a certain extent, respect the mental states of others: they understand their expectations, needs, and wants. At this stage, babies actively explore how it feels to "deal with" different kinds of people, and they mediate their relations in new ways. Their newly acquired ability to sustain attention on a shared topic, and to deliberately search for the object of a partner's gaze, offers a new means to get to know others. In turn-taking games with an unfamiliar adult, 12-month-olds employ a whole variety of strategies for reviving interrupted reciprocal games: they know not just when it's the partner's turn, they also know what the partner wants, expects, and likes.

MANIFESTATION:
What actions will the baby do that nurture these competencies?

After a few days only, newborns will stick out their tongues at whoever does so. This reflex will eventually allow them to associate their own feelings and sensations with those of others. Newborn infants also move their limbs synchronously with a partner's speech rhythm, as if it needs to be "on the same wavelength" (Condon, 1979).

By 2 months, babies respond differently to a person who intends to speak to them and one who speaks to someone else (Dunn, 1988).

Shared reading of books, or pointing at objects in pictures, are often the first joint enterprises in which babies can share the objects of attention. Soon the baby learns to point at objects herself. Pointing represents an intentional state, or mental directedness. At first the baby simply copies such behaviour, but before long appropriates it as her own, thus acquiring her own intentional states.

SUPPORT:
What can care-givers do to support a baby's natural interests and abilities?

At eight or nine months, or even earlier, read books and look at pictures with your baby. Point to familiar objects and name them. Baby will spontaneously copy this behaviour, at firsts mechanically, but with increasing understanding and intent.

World – Making Sense of it All

WORLD – EXPLORING AND INVESTIGATING

See How it Feels. It is now established that, soon after birth, babies can see objects around them. Also, newborns know more about shape, size, and depth than earlier studies suggested. Along the same line, research indicates that after only a few days, babies apparently reach for objects located within their reach, as if they know that some objects are within arms length, while others are not. In spite of this amazing head start, the question still remains: how do babies interpret what they see, mouth, or grasp? And how do their early reflex behaviours, such as crying, sucking, or grabbing, turn into deliberate and efficient explorations, geared at understanding the world around them?

COMPETENCIES:
What does the 0–3-month-old naturally strive to learn?

It only takes a few days before infants actively scan objects with their eyes, especially objects that move. And as time goes by, babies scrutinize objects ever more selectively. As eye-hand coordination is achieved, two-month-olds start grabbing and shaking whatever they see, and they mouth whatever they grab. In so doing, they learn a great deal about the properties of the objects explored. They get a first "feel" for how different objects respond to their varying approaches.

By the third month, babies start to use their actions as a means to make things happen in the world, which, in turn, requires some rudimentary

understanding of cause and effect, as well as a primitive sense of time, or duration, as related to the satisfaction of needs and expectations.

MANIFESTATION:
What actions will the baby do to attain these competencies?

From 0-3 months, babies explore and gaze at objects for long periods of time. However, they do not yet realize that objects have a reality of their own. Objects are "points of contact" and are gauged, for the most part, according to whether or not they bring the baby pleasure.

Initially, a baby will only grasp a rattle if it is put into his hand. He does not yet know that he can reach out for it himself. This is something he must discover!

As they reach 4-7 weeks, babies actively grab whatever they see. At the same time, they also mouth, shake, and bang whatever they grab, thus "feeling" out the object's qualities. They discover that different objects respond differently to their solicitations: a first subjective way of making distinctions, or categorizing by use.

In sum, even very young infants act as little scientists and engage in "experimentation." Karmiloff-Smith describes how babies, at this stage, use crying in an experimental way to achieve the results they want, and to relate cause and effect:

"At roughly six to eight weeks of age, babies often pause between bouts of crying and quieten down for a moment as they try to attract attention. If they can't hear their parents' footsteps, they will cry a little more and pause again, until they have succeeded in getting what they want. Crying is the first outward sign that babies are gaining control and organising their world through intentional action." (Karmiloff-Smith. 1994. p. 168–9)

SUPPORT:
What can care-givers do to support a baby's natural interests and abilities?

Provide your baby with toys or object that will allow her to make useful distinctions, for example, between soft & hard, reachable & non-reachable, smooth & rough, etc.

Play with your baby by putting different objects his hand, or have him listen to and look at different sounds, colours and movements. Interesting

objects for 0–3-month-olds include mobiles, music boxes, rattles, and shakers, anything that allows infants to make enjoyable associations, say, between sound and movement, or to feel the differences between various textures.

In cultivating play routines in which they both learn, parent and child can jointly establish the meanings of different cries, smiles, grabs, or bites. Parents can help this "negotiation-in-action" by responding very consistently to certain variations of the baby's actions and expressions.

World - Finding the Logic

Logic of the Senses. Do newborn babies have a sense of depth? Do they distinguish between geometric forms, such as a circle, a square, or a triangle? Do they have a sense of quantities? Can they recognize a musical pattern beyond the individual sounds that make it? All these questions require some "computation" on the part of the baby to organize the world into logical categories, beyond what can be seen or done. Current baby-research, especially in the U.S., indicates that, indeed, very young babies know much more about logic, or mathematics, than earlier studies suggested.

Competencies:

What does the 0–3-month-old naturally strive to learn?

Studies bring evidence to the idea that soon after birth, babies perceive global configurations, or whole forms [Gestalt in German], and hear rhythmic patterns and melodies. Newborns also discriminate figures from background. (Mehler J., Dupoux, E.. 1994. p. 53-69)

In essence, from the moment they leave their mother's womb, newborns show great sensibility to their acoustical environment. They perceive temporal rhythms and variations in incoming streams of sound, i.e. they group sounds into melodic patterns and rhythms. Babies also seem to have an innate sense of depth: a built-in logic that "computes" distances and angles to provide a 3-D vision—even if the infant herself will learn, in a formal sense, about angles and distances at a much later stage.

This being said, newborns don't see the world as we do! Far from a logical arrangement of identifiable forms with defined contours, a newborn's visual environment is more like a fuzzy maze of partially overlapping forms, none of them truly regular, or geometrically simple.

MANIFESTATION:
What actions will the baby do to attain these competencies?

Newborns turn their heads in the direction of sound inputs. This reflex disappears at around 2 months, to reappear at around 4 months under voluntary control. More impressive, newborns will gaze much longer at a simple pattern than at a plain surface. However, too much patterning tunes them out

To a 4-week-old baby, the dissociation of visual and auditory data is disturbing, showing that his perceptual space is already quite organized. What's more, four-week-old babies show signs of anxiety if they see their mother in one place while her voice comes from another location: Her voice should come from where she stands! This indeed is a rudimentary form of logical necessity.

After 4-7 weeks, babies perfect their manipulation techniques (they mouth and grab things) and apply them systematically to many different objects within their reach: a great way into making distinctions, or categorizing things by use.

SUPPORT:
What can care-givers do to support or enhance this natural urge?

Provide the baby with an interesting and stimulating milieu, but not over-stimulating. Babies get bored easily, but they also like constancy and repetition. A "simple but varied" environment is a good rule of thumb to guide parents and care-givers. Provide toys or objects with stark colour contrasts (or black-and-white) and textures, and rattles, shakers, and music boxes that make a variety of sounds. Don't overload the baby with objects. A few well-chosen ones will be sufficient.

Creations – Realising Visions

CREATIONS – IMAGINING
Imagining is only covered in greater detail in the Babies age period 9-12 Months.

CREATIONS – ENACTING AND CREATING
Enacting and Creating is only covered in greater detail in the Babies age period commencing 6-9 Months.

3 – 6 Months

Me – Being Me

Me - Using My Body

The Sitters. As babies start to roll on their side and kick their legs rhythmically (starting at 3 to 4 months), they are soon ready to sit. In Karmiloff-Smith's words: "The next step toward moving around independently comes at about four months when babies start to roll, first from side to back, and then from back to side (…) Most of their waking time is now spent moving their limbs and learning new rhythms. They gradually discover that they can make their legs do things for them – like remove covers or make a baby-chair bounce" (Karmiloff-Smith, 1994. p.65). From being an expert roller to becoming an unstable sitter surely requires further coordination and control, but it does not take much "developmental" time. At roughly 6 months, most babies can balance in a seated position, at least for short periods of time. As they free their hands when seated, babies also make huge progress in controlling their fine-motor skills: they start exploring things with both hands, which opens a whole wealth of possibilities.

Competencies:
What does the 3-6-month-old baby naturally strive to learn?

By the age of 6 months, babies reach out for their favourite objects, and they use both hands to explore them. When seated, they play with spoons and food, and they drop objects from their highchairs to see them fall. They bang objects against one another. This exploratory play with objects marks the beginnings of object-mediated tool-use.

The ability to sit gives the baby a whole new grasp on things. It puts her upright (at least from head to bottom) and it frees her hands. That's when the joy of banging and dropping objects from the highchair starts.

Manifestation:
What actions will the baby do to attain these competencies?
At about 5 months, babies like to kick both legs simultaneously, like a frog, when held in the air, and they systematically exercise rolling and kicking, when lying on their backs. They do so for the sheer joy of it. At the same time, as they kick, they may notice that their legs push away a blanket. So

they start using their legs to push other things. Similarly, as they roll, they may land in unknown territory, so they start using rolling to go places. This ability to learn through "circular reaction" marks the beginning of purposive activities and means-ends coordination.

Through rolling, babies increase their mobility, which changes their stance in the world. As they roll off, babies also soon come to realize that they can use their rolling to get places: two exciting discoveries.

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

Maintain a safe play area where the baby can roll around without banging into anything that might hurt them or cause damage. Let them play with soft objects that they can grasp, drop, hit, kick, roll over, or bump into.

ME – KNOWING MYSELF

Mirror Image as Playmate. Around 4 to 6 months, infants enter in a phase called playmates by Dixon (Dixon, 1957). The child is now fascinated by the fidelity or contingency of his mirror image, i.e. by the immediacy of its response to his own movements or expressions. According to Lewis and Brooks-Gunn this is an early form of self-knowledge through contingency clues. The essence of this ability is to understand that the self is the origin and cause of the moving image that the baby sees in the mirror, or on a TV screen (Lewis and Brooks-Gunn, 1979).

COMPETENCIES:
What does the 3-6-months -old naturally strive to learn?

At this stage, babies become interested in their mirror image, which they treat as an interacting peer (they do not "really" recognize it as being themselves). This lasts until about 6 months. This early form of self-recognition is entirely contingent upon the here and now, and doesn't involve any sense of a stable identity over time.

The infant's reaction to his mirror image is often indistinguishable from that when placed before another infant.

MANIFESTATION:
What actions will the infant do to attain these competencies?

The baby will try to interact with the "other baby" in the mirror. The baby will stare at faces and learn to respond to various nuances of expression (smiles, frowns, etc.) often copying them, perhaps unconsciously, on her own face.

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

Play "contingency / non-contingency" games. Play smiling games, with your baby, in front of mirrors. Use mirrors to reflect the baby 's own face, another baby's face, and mom's face. See how the infants reacts

Us – Growing Together

Us - Relating to Others

Social Butterflies. Between 3 to 6 months, babies perfect the art of relating by taking increasing initiative in pre-verbal turn-taking games. It's no longer just mom who directs the dance: the baby can now initiate and sustain the game. Also, starting at about 4 months, babies can use their own emotional states, such as smiling and crying, as a means to communicate their needs and wants and, more impressive, as a bonding technique for the mere sake of bonding. At this stage, babies recognize their primary care-givers in the sense that they seem most comfortable and happy when with them. Yet, they remain "social butterflies" in that they tend to distribute their favours to anyone who knows how to engage them. They have not yet built a solid enough sense of self, or other, to be picky and selective.

Competencies:
What does the 3-6 month-old naturally strive to learn?

At this stage, any occasion to get the cycle of pre-verbal dialogue going is welcomed by the baby. And, provided the partner is a "good dancer," almost anyone is good enough to "dance" with! As adults coo or smile at the babies, the latter become immediately and actively engaged. Babies also become better at initiating and modulating their smiles or coos for the mere sake of triggering and sustaining an enjoyable exchange.

Manifestation:
What actions will the baby do to attain these competencies?

At this stage, babies are particularly responsive to any forms of "Motherese"—the name given to the high pitched, sing-song manner in which mothers often talk to their babies (Karmiloff-Smith, 1994. p. 136). They actively sustain pre-verbal conversations, or turn-taking games. Their smiling and cooing moves from involuntary to voluntary forms of expression or attention-getting behaviour: "Play with me!" "I'm bored!", just as crying is used to get other forms of attention: "Change my diaper!" "I'm hungry!" "I'm overtired!".

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

Babies' openness to socialize is at its peak during feeding, bathing, and changing. So that's the time to play! They respond with smiles and giggles to any physical contact game such as tickles, blowing on or kissing the baby's tummy, bouncing, or making silly faces, and as before, they shut off or cry when over-stimulated. Since, at this stage, babies are particularly responsive to Motherese, it is a good idea to use this highly modulated way of speaking, even though it will be many months before the baby will be able to talk back to you.

US - UNDERSTANDING OTHERS

See Us – Understanding Others (0-12 Months) in the previous Babies age period 0-3 months.

World – Making Sense of it All

WORLD – EXPLORING AND INVESTIGATING

Manipulate to Discriminate. This stage marks a turning point in a baby's practical understanding of the world. As babies perfect their visual scanning and manipulation techniques, the objects submitted to their scrutiny start to exhibit some reality beyond immediate perception. More impressive, by the end of this stage, babies can anticipate the trajectory of a falling object, provided the child himself drops it. As babies themselves become more mobile and start to roll, they change their stance in the world, and space itself becomes organized. Finally, as babies perfect their fine-motor skills, they refine their "feel" for new objects' properties and enrich their bag of tricks to make interesting things happen.

By the end of this stage, the infant's sense of reality still remains subjective and action driven. Yet, babies have acquired a rudimentary notion of cause

and effect, and objects start to be defined in terms of how they are affected by a child's solicitations (object as Gegenstand, in German).

Competencies:
What does the 3–6-month-old naturally strive to learn?

Until recently, researchers thought that babies between 3 and 6 months of age could not possibly conceive of anything beyond "here and now," or the immediately visible and tangible. This meant that even very early forms of object permanence were out of the question at this age. More recent studies, however, suggest that early forms of anticipation, memory, and object permanence may already exist at this age.

Between 3 and 6 months, babies perfect their manipulations of objects by visually exploring whatever they hold in their hands and by "feeling out" whatever they see and grab. Their explorations become more directed. They are also more "creative." For example, by varying the distances and angles of things, by bringing them closer to their eyes, turning them around, and moving them from side to side, babies discover many "hidden" object properties, such as size constancy (i.e., the notion that objects don't change size when moved closer or farther away, even though they look bigger or smaller).

Three to six-month-olds cannot yet infer from their actions how objects may impact one another, independent of their own action on them. In other words, their notion of cause and effect is still egocentric and restricted to their immediate experience.

Manifestation:
What actions will the baby do to attain these competencies?

According to recent studies, babies as young as 4 months of age show surprise when a moving object, like a train-engine, passes through a toy-tunnel placed on a track (which in the child's eyes is perceived as an obstruction).

Even more surprising, babies apparently look astonished when things start to "behave" like pets or people, i.e., when inanimate objects initiate a movement "on their own," or when they leave their natural course, which, in a baby's eyes, means go straight and do not accelerate or change direction.

What we know for certain is that five-month-olds squeal with delight when, sitting in their high chair, they watch Mom take some of their toys, hide

them and say "all gone," and then, make them reappear again, showing the beginnings of an appreciation for object permanence. We refer to this as "object-mediated peek-a-boo."

By the end of this stage, babies visually follow moving objects that leave their visual field, and they anticipate the trajectory of objects that they themselves drop, by looking at where they will land.

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

As a way of preparing children to grasp the hidden properties of objects, such as size constancy and object permanence, parents can play "all gone" and other versions of object-mediated peek-a-boo. To keep things interesting, vary the numbers and qualities of toys that one makes appear and disappear.

More generally, let your child be active. Encourage her to become mobile—carry her around, if need be—and be patient as she experiments with dropping, throwing, and banging objects. Playful exploration in everyday situations is a child's natural science "laboratory." It is her experimental arena. Her knowledge of the world will follow automatically.

WORLD - SEEKING LOGIC
From Size Constancy to Quantity. Four to six-month-old babies display visual size constancy. The logic behind this apparently trivial ability resides in the fact that what the baby knows of the object, namely that it is the same, overrides what he sees, namely, that it appears different as his view of the object zooms in and out. The baby's mind corrects the perceptual changes that occur by imposing some principle of "invariance."

Experimental findings also suggest that, at this stage, some basic "understanding" of quantities—a feel for numbers and durations—may be present at a very young age. Not an easy thing to see in babies' everyday behaviour!

COMPETENCIES:
What does the 3–6-month-old naturally strive to learn?

Babies as young as 4 months of age seem to have a rudimentary sense of "two-ness" versus "three-ness." Here is how scientists bring evidence to this claim: "Babies of three to four months were shown an image of three

different toys which flashed up on a screen – say, a teddy, a ball, and a cube. The image then changed, and babies were next shown three new toys - say, a cup, a spoon, and a bottle. The image kept changing, revealing each time a new set of three different toys. The babies' interest gradually waned, and they paid less and less attention to the image. They became bored. At one point, however, the image changed in a new way. Instead of showing a set of three toys, it now showed only two toys. The babies suddenly looked for much longer - they seemed to be reacting to something new." (Karmiloff-Smith, 1994. p. 173).

Many experiments of this kind have been undertaken, all indicating that three to four-month-olds' sense of numbers, at least up to number three, may be quite sophisticated.

In one experiment, children are placed in front of two screens arranged side by side. Each screen shows a small number of toys: two or three. When babies hear two drumbeats, they automatically look at the screen showing two toys. When they hear three drumbeats, they look at the screen showing three toys. Researchers infer from this experiment that four-month-old babies have some primitive understanding of the cardinality of small quantities like "twos" or "threes." (The cardinality of a number refers to the amount represented by the number, as opposed to, say, the order.)

MANIFESTATION:
What actions will the baby do to attain these competencies?

Three-month-old infants can discriminate high and low pitches when hearing a melody, and they are ever more sensitive to auditory and visual patterns. They see the forest beyond the trees! Babies exhibit their understanding, or appreciation, through persistent gazes and high interest in anything patterned and ordered.

At this stage, babies are mesmerized by choreographed light-and-sound effects as appear in "Baby Mozart" or through watching a musical animation on TV. The appeal here resides in the synchronization of streams of sounds and images, moving in tandem.

Not much can be said about "infant mathematicians", except that music and geometric patterns share some underlying mathematical structure, namely, a physical or auditory embodiment of number, which babies can both sense and make sense of.

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

At this age, babies distinguish between different shades, shapes, and sounds, and they enjoy emergent forms, or "gestalts", like rhythms, melodies, and visual patterns. As in the previous stage, provide a rich and varied environment of toys and objects with stark colour contrasts (or black-and-white), varied textures, and rich patterns.

Even such "pacifiers" as "Baby Mozart" can be beneficial at this stage. The idea is obviously not to turn your baby into a musical genius, but to offer a well-choreographed sound-and-light show (with streams of music and images "dancing" together).

Most important, keep your baby active by offering a rich set of simple "manipulatives," toys or everyday objects to play with in a safe and comforting ambience.

Creations – Realising Visions

CREATIONS – IMAGINING
Imagining is only covered in greater detail in the Babies age period 9-12 Months.

CREATIONS – ENACTING AND CREATING
Enacting and Creating is only covered in greater detail in the Babies age period commencing 6-9 Months.

6 – 9 Months

Me – Being Me

Me - Using My Body

The Crawlers. Crawling is another milestone in a baby's journey to becoming mobile. However, unlike sitting, crawling is highly individualistic. Babies start crawling at different ages, and they do so in many different ways. And some don't crawl at all! "Strategies for crawling often arise by chance. During the process of trying to sit, babies may overtilt by mistake and use their hands to break the fall. They may then suddenly find themselves in a crawling position. This is obviously not a voluntary act and, still without the strength actually to crawl, the baby's legs remain entangled and trapped underneath her body" (Karmiloff-Smith, 1994. p.73).

The benefits of learning to crawl are that babies no longer depend upon adults to move them places, or to bring their favourite toys to them. They can go places by themselves. Yet, greater mobility also brings about new challenges. "As the baby moves alone towards an object, she has to hold a goal in mind for longer than when she was immobile and things were brought to her" (Karmiloff-Smith, 1994. p. 75). In other words, as they become increasingly mobile, babies have to build stable references in the changing visual scene, so that they can keep track of where they go and where they come from.

Competencies:
What does a 6-9- month-old baby naturally strive to learn?

At 6 months, babies reach out for objects, and use two hands to explore them. As their mobility increases, babies seem to become better at keeping in mind a goal while engaging in detours, and at mapping their territory.

At 8 or 9 months, most babies have developed the strength to stay on all fours without falling. The challenge is now to move forward. And once that's achieved, through much practice, a whole array new opportunities open up for our four-legged "nomad".

One major developmental milestone that comes with a baby's increased mobility is the beginning of what researchers call "object permanency",

i.e. the realisation that out of sight is not gone forever. That's also when babies become anxious, for the first time, if approached by strangers. Object permanency and fear of strangers go hand in hand. Babies can only miss their mothers or care-givers, and thus fear strangers, once they understand that Mommy is still around but not in the immediate vicinity. Both have deep implications in all aspects of a baby's life.

MANIFESTATION:
What actions will the baby do to attain these competencies?

The kicking behaviour increases as the baby's leg muscles strengthen, so that eventually he can use his legs to push himself forward—the beginning of crawling.

As babies become more skilful at mapping their terrain, they develop a sense that objects "stay put" and can be returned to; the beginning of object permanency.

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

Although object-permanency starts only at about 8 months, and evolves till 10 to 13 months, it is important to engage babies in peek-a-boo types of games even earlier. This prepares the infant, emotionally and cognitively, to realize that things come and go: a step-by-step preparation to help babies build trust in an object's ability to come back once it has left. The baby will let you know when she is ready for peek-a-boo.

ME – KNOWING MYSELF

The "Who dat do dat when I do dat?" Phase. At this stage, which Dixon calls "Who dat do dat when I do dat?," infants move beyond self-recognition as the origin of paired causes and effects in the world. They begin to construct a sense of self as a permanent object, with enduring qualities. "In this manner the permanence of the self is realized and becomes an important organizing principle for the infants' knowledge of both self-as-subject and self-as-object" (Damon and Hart, 1982. p. 848)

COMPETENCIES:
What does the 6-9-month-old naturally strive to learn?

Beginning at about 7 months, the infant relates the mirror image to himself by repeating simple actions: e.g. opening the mouth while gazing in the mirror.

At around 8 months of age, the infant starts to distinguish between her mirror-image and that of another infant, whose face appears in the mirror. Interestingly, the baby now prefers to interact with the image of the other rather than that of the self. The fascination, in other words, is no longer just with the cause-and-effect action of her own body's movements, but with social interaction and play. Nine-month-olds recognize "live" TV images of themselves, provided the image moves along with the self, suggesting that self-recognition per se is still contingency bound. Starting at 8-9 months, the baby starts building object permanency and becomes afraid of strangers and bewildered by her own mirror image.

MANIFESTATION:
What actions will the baby do to attain these competencies?
The infant becomes much more playful and interactive at this stage. He plays with objects, with his mirror image, and, to a limited extent, with other infants. Cause and effect relationship becomes established through "contingency games": e.g. dropping objects from his highchair.

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

Provide opportunities for mirror play and for group activities with other infants. Bear in mind that, at about 8 months, the baby may start to be timid of strangers. This is entirely natural and is no cause for concern.

Us – Growing Together

US - RELATING TO OTHERS

Becoming Attached. Between six to nine months, a big change occurs in a baby's social life as, for the first time, she becomes securely attached to the few people who are constant in her life. Becoming attached is a major breakthrough in a child's life, and like most breakthroughs, it comes with its share of hardships and thrills. On the negative side, a sudden fear of strangers and a terror of being abandoned emerges. On the positive side, for the first time, the child builds a safe base from which to explore the world. "Paradoxically, the more the baby is attached, the more free she feels to explore the social and physical worlds" (Karmiloff-Smith, 1994. p. 205.)

COMPETENCIES:
What does the 6–9-month-old naturally strive to learn?

At this stage, babies are caught in a relational bind. For the first time, they feel a sense of longing because, in their mind, others continue to exist, even if absent. At the same time, their "trust" that others will survive separation and come back is not solid yet. They cling onto their primary care-givers, they fear being picked up by strangers, or being left unattended even for a few seconds. During this phase, babies also perfect their communicative skills with the selected few to whom they give their favours. Their repertoire of relational tools becomes more diversified using smiles, giggles, coos, facial expressions, and babbling etc.

MANIFESTATION:
What actions will the baby do to attain these competencies?

Eight months mark the beginning of a momentary fear of strangers and the accompanying "clinging" to familiars. There may be much crying, at this stage, when family members or friends try to pick up or cuddle the child!

Babies enrich their communicative vocabulary and gesture and smiling games become more nuanced. Babies also narrow down their babbling sounds to noises that are more tuneful, and in the realm of their native mother tongues: ba, do, ma, oo, ga, da. They can signal what they want using nonsense words, and they enrich their pre-verbal conversational skills.

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

Any variations on peek-a-boo that the child may enjoy are excellent at this stage. They help domesticate the child's uncertainties about object permanence. "The deep structure of peek-a-boo is the controlled disappearance and reappearance of an object or a person" (Bruner, 1983. p. 46). And kids love it, as if they knew that this is a safe enactment of the "gone/back again, gone/back again" scenario. Early forms of peek-a-boo games are direct. They don't involve objects but rather partner's face or body. Later forms may involve objects that go away and come back again, such as the Jack-in-the-box toy.

US - UNDERSTANDING OTHERS

See Us – Understanding Others (0-12 Months) in the previous Babies age period 0-3 months.

World – Making Sense of it All

World – Exploring and Investigating

A Sense of Reality Beyond "See and Grab". This stage marks the beginnings of object permanence and causality proper, and, with it, a growing ability to predict how actions unfold in time and space. The baby now constructs a sense of reality that transcends his immediate sensory input of seeing things and grabbing (or mouthing) them. Eight to nine-month-old babies are able to figure out how objects behave and impact one another, independent of the baby's direct action on them. These newly acquired abilities are an important breakthrough in a child's budding sense of reality, and will develop more fully between 9 and 12 months.

Competencies:

What does the 6–9-month-old naturally strive to learn?

This stage is characterized by the appearance of three new competences, which represent considerable progress in the practical foundation of the object concept and, consequently, in a child's practical sense of how objects exist and relate, in both time and space.

First, there is visual anticipation of rapid movements, or trajectories, and prediction of future "landing" positions of different kinds of moving objects. The child now anticipates that an object's movement will continue even though she is unable to see it.

A second novelty is the possibility to interrupt an action and to pursue or resume it at a later time or place, without an external trigger, and provided the lapse of time is not too long.

Lastly, the child now recognizes partially hidden objects by reconstructing an invisible whole from the part that is visible.

Manifestation:

What actions will the baby do to attain these competencies?

At this stage, infants will visually follow the trajectory of objects, even if the objects are dropped or launched by someone else. They anticipate its landing point.

If a baby plays with a toy and accidentally drops it, he will look for it—at least for a little while. And if the toy reappears, he will grab it and continue his play.

Six to nine-month-olds do not yet actively search for objects that have vanished for a longer period of time. They are still easily distracted and "forget" about objects they haven't seen for a while.

If presented with a toy that is then entirely covered with a cloth, babies, at this stage, lose interest rapidly. Yet, if only a small portion of the object remains visible, the child will go for it! At this age, babies will try hard to grab a toy that sits outside of their playpen. They will pass their arm through the bars, and pull the toy to the edge of the playpen. They will not always succeed to twist the object and get it through the bars, but they will try.

More than in the previous stage, infants look astonished if an inert toy suddenly moves, changes direction, accelerates, or interrupts its course. At this stage, babies start to cringe at the sight of animated wind-up toys.

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

Let them play, drop things, make a mess! Seat them comfortably and encourage them to use both hands to explore their toys, as well as everyday objects, such as spoons, pots, pans, etc. Let them roll off and come back, again and again, to teach them that the world is a stable place and their movements are reversible. Engage your baby in give-and-take activities, and peek-a-boo. Cultivate play rituals with very defined action sequences, like sing-songs, to sharpen their sense of time and rhythm.

WORLD - SEEKING LOGIC

From Quantity to Baby Arithmetic. Recent research findings suggest that 6 month-old babies have a rudimentary sense of arithmetic. They apparently know that two is more than one and that three is more than two, and, amazingly, that one plus two is the same as three!

Starting at about 8 months, babies develop the notion of object permanence. The logical aspect of this resides in the fact that the child imposes a principle of "continued existence", or identity, beyond what is actually perceptible – 'The object "has" to exist even if I don't see it because, so far, it has responded reliably'.

COMPETENCIES:
What does the 6–9-month-old naturally strive to learn?

Children's abilities to categorize, order, and quantify further expands at this stage.

In a recent study, 6-month-olds showed surprise when a small number of objects, that had been added, one by one, into a box, say 1+1+1, did not correspond to the expected total 3. More impressive, the babies also showed surprise when some objects were removed, say 2, from the box that contained 4, and the remaining total violated the expectation 2.

Here's how one experiment was conducted. The babies watched as a toy was placed on a table in front of them. A screen was then put in front of the toy, so that the babies could no longer see it. The babies then watched as a hand placed a second toy behind the screen. The screen was then removed. Apparently, babies showed surprise when, using a clever trick, the number of toys showing up at the end was not 2 but 1! Their expectation that 1+1 = 2 had been violated. The babies also showed surprise when 2+1 did not result in the expected 3. A similar procedure was used for subtraction, and babies showed surprise when say, 3 - 1 did not yield the expected result of 2. (Karmiloff-Smith, 1994. p. 174)

In sum, 6-month-old babies have a very primitive sense of adding and subtracting, as long as the total number of elements doesn't exceed 3.

MANIFESTATION:
What actions will the baby do to attain these competencies?

As babies realize that out of sight is not out of mind, they display a fear of strangers, an increased fascination with peek-a-boo, and, starting around 9 months, a growing trust that the object they long for will eventually reappear. Object permanence further develops between 9 and 12 months.

Children's abilities to categorize, order, and foresee the outcome of an action appear in the "drilling" quality of their manipulations, sometimes referred to as "circular reactions" ie. the child repeats an action that leads to a pleasant outcome. At first she may discover the action accidentally. She then uses her action as a means to produce the desired effect, this time on purpose, and can re-initiate the action at a later point in time. Circular reactions enable and mark the beginnings of intentional behaviour and, with it, the ability to coordinate means and ends.

As the baby starts to solve simple problems, like getting a toy through the bars of a playpen, he needs to keep his goal in mind while twisting the toy.

This requires an ability to conceptualise a reverse order: The goal comes first, and the means come afterward (unlike the natural order of simple trial-and-error, which proceeds step by step).

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

Caregivers naturally play counting games with babies, for example, at feeding time: "Now three are left… now two left… now one… all gone!" This game, played over and over, helps the baby understand quantity and primitive arithmetic operations. Note well that adults need not make any special effort to "teach" babies about numbers. Real life provides ample opportunities—eating, getting dressed, even diaper changes!—for babies to learn about this without explicit instruction.

Creations – Realising Visions

Creations – Imagining
Refer to the Babies age period 9-12 Months.

Creations – Enacting and Creating (6-12 Months)
Creative expression sets in as soon as infants move beyond instrumentality and start to modulate their voices, gestures, or bangings, for the sake of producing some "dramatic" effect (e.g., achieving variations around pitch, movement, or rhythm) merely for the sake of doing so. This behaviour appears at about 6 months, and evolves during the second half of a baby's first year to reach a peak somewhere between 9 and 12 months. By the time the baby reaches his first birthday, we will find him carefully turning the pages of a book as he "reads" all by himself.

Competencies:
What does the 6–12-month-old naturally strive to learn?

In the first 6 months, babies refine their coos, their cries, and their smiles in the light of care-givers' responses and, through circular reaction, they enlarge their expressive vocabulary. As they become more successful at getting what they want though specific types of calls, they will naturally start using those as a means to meet their ends. That's when intentional behaviour sets in.

Four to six-month-old babies can recognize familiar objects, such as a rattle or a bottle, on a photograph or a drawing. Yet, they respond to

pictures of things as if it were the real thing. So, for example, a five-month-old baby may scratch the image, pinch a small object, and bring it to her mouth. It has been shown that a baby's realization, through manipulating, that a photo or a colour drawing of an object, or person, do not carry all the properties of the object represented, such as temperature, dimensionality, or texture, is an important milestone in a baby's journey toward understanding the types of symbolic representation inherent in literacy.

In the second six months, a baby's intentional communication and expressive vocabulary further evolve, especially as adults interpret infants' earlier goal-driven actions and vocalizations as intentions to communicate. So for example, if an infant squeaks and vocalizes as he tries to reach an object, his mother responds as if the infant's behaviour were communicative (even if it's not). Based on this assumption, she will talk back to the baby and help him get a toy (or whatever the baby seems to want). This, in turn, helps the baby improve his communicative intents and further enriches his own expressive vocabulary. A key breakthrough occurs when babies start to make eye contact with their audience while they reach out for an object, or when they point at an object to bring their audience's attention in the same direction.

Research by Beilin and others shows that six to twelve-month-old children, when presented with pictures of objects, continue to scratch, grasp, smell, and look behind pictured surfaces. Yet, unlike younger babies, six to twelve-month-olds actively explore different printed surfaces, such as paper, cardboard, cloth, as if they wanted to grasp their properties as media. It is hard to tell if babies, at this age, understand the differences between a picture, or a photo, and the thing represented. What is clear is that they scrutinize pictures of things in a way that's different from the way they explore the things themselves.

In sum, during their first year, infants perfect the art of smiling cooing, and crying to assert greater control over their audiences. They produce new sounds, gestures, and mimic facial expressions, thus improving their expressive repertoire. After 6–8 months of age, they make eye contact to keep their audiences alert while they engage in various actions. As they approach their first birthday, babies are capable of selective listening, communicative pointing, and compliance with simple requests. They know how to recognize objects in photos and pictures, and they happily respond when asked to perform simple verbal commands, like "wave goodbye." Most important,

they point at things as a means of focusing other people's attention. As soon as this shared pointing sets in, the baby is developmentally ready to become a speaker, a performer, as well as on the path to becoming a reader.

MANIFESTATION:
What actions will the baby do to attain these competencies?

First six months: By four to five months of age, infants start to smile and coo as a means to attract attention.

Five to six-month-old infants recognize 2-D pictorial representations of familiar 3-D objects, like a rattle or a bottle. Such 2-D representations can take the form of photographs, simple colour drawings, or, in 3-D, holograms. Babies especially like photographs of themselves, of other babies, and of animals although, at this age, they do not really recognize themselves in a photo.

As they reach their sixth month, infants reflect a full repertoire of emotions in their vocalizations, including pleasure, anger, and surprise (Owens, 1984). They discriminate the sounds of human speech, and they babble: ma, pa, da. They recognize images of things, say, in a picture book, and point at them. In their sixth month, they are ready to start performing instead of acting out, and to start reading in its most primitive form.

Last six months: Babies at this age won't speak much, yet they understand far more than they can speak!

Ten to 12-month-olds like to play out variations around their voices and motions. Lots of nonsense chattering, at this age, that grows ever more sophisticated and expressive.

As babies approach their first birthday, they will still speak baby talk, but with intonations and emphases that resemble adult speech, sometimes called "shaped babbling" or scribble-talk. At this age, for example, we find quite sophisticated mimicry of adult behaviour over the phone, like pressing the "on" button on a cordless telephone and talking into it. Babies also start talking or babbling to one another, and they become increasingly attentive to adults' speech.

At the end of this period, most babies play naming and pointing games. They utter their first real words, and, simultaneously, start to "read" their first pictures books! Children will turn the pages of a book, lift the flaps in

a picture with a precise pincer grasp, and point to correct images, as Mom mentions the “ducky”, or the “doggy” in the story. She recognizes objects in pictures or photos as related to objects in the environment (bed, for example, in the picture and correlates this with the bed in the house).

SUPPORT:
What can caregivers do to support this natural development?

In recent years, psychologists have discovered that the first steps in learning to read actually begin around 9 months of age, when infants start to understand spoken language and point to things they wish other people to pay attention to. So, as soon as your baby shows interest, read simple picture books with your baby. And play while you read.

Try this: Hold your baby comfortably in your lap and turn the pages of a sturdy book (or board book) that has large, simple pictures. Point to different objects in a picture and name them for the child: “Here’s a doll. It’s just like your doll.” As soon as he is ready, your baby will LOVE to point at the picture of the cat you are talking about. However, it is best not to turn this little game into a baby ‘quiz’: “Where’s the dog? Point to the dog… Good! Now, where’s the chicken?” This can put your child off and it takes away from the enjoyment of genuinely sharing a story. Children enjoy naming things, to be sure, but they don’t necessarily like to be quizzed about it.

Obviously, children also like to play these kinds of “pointing” and “naming” games with objects other than pictures in a book.. Yet as long as the book remains the culturally dominant vehicle for literacy, it is a good idea to use picture books as play props for such games.

The Whole Child Development Guide is grounded in research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.
Author: Prof. Edith Ackermann, with contributions from Dr. Dorothy Singer.

9 – 12 Months

Me – Being Me

Me - Using My Body

The Walkers. At 9 months, babies are fast and efficiently crawlers. Yet, their drive to get up on their feet is relentless. Any vertical support will do to pull them up on their feet. At first, babies learn to stand up, clinging on their support. Then, they venture their first steps, always along a support (this is known as "cruising"). Once babies are expert cruisers, it will still take a while before they start walking on their own, be it only for a few steps. As in the case of crawling, the onset of cruising and walking may appear at different ages in different children. Most babies take their first steps at about one year of age. Yet, "bottom shufflers", for example, can be notoriously late walkers, sometimes as late as 30 months.

Competencies:
What does the 9-12-month-old baby naturally strive to learn?

The baby learns to pull herself up by holding onto something. The baby learns to cruise, or take a few tentative steps while still holding onto something for support, at first with both hands, and then with one hand. Eventually, the baby learns to let go of the support and walk on her own, becoming a self-propelled biped.

Manifestation:
What actions will the baby do to attain these competencies ?

Exercise, exercise, exercise: up, down, climb, fall. At first, babies have a hard time un-clutching themselves from a wall. They climb up and they are stuck. Eventually, they learn to walk sidewise along a wall or a sofa, only to get stuck when it ends.

Finally, they learn to cruise along a support sidewise, holding it with just one hand.

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

Spread a large, soft carpet or mat on the floor to cushion the baby's fall. Remove or apply padding to table edges or other hard objects that may cause injury. Let the baby fall and get up and try again, but let him fall safely.

Fence off stairways, ledges, radiators and other potential hazards, or at the very least watch your baby carefully around such places.

Me – Knowing Myself

The Withdrawal. Starting at 8 months, and lasting till 12 months, babies withdraw and express weariness with their mirror image. They may cry or turn away from their own reflection. This coincides, again, with the beginnings of object permanency and fear of strangers. The child is now working out the distinctions between self, familiar others, and unfamiliar others. Permanence of objects begins at about 8 months and evolves till 10 to 13 months, when the infant can search for a hidden object.

Competencies:

What does the 9-12-month-old naturally strive to learn?

Recognition of facial features is well established. The baby experiences an increased desire for social interaction (which the mirror image does not really provide).

Manifestation:

What actions will the child do to attain these competencies?

Peek-a-boo and other alternance games strengthens the desire for social interaction beyond mirror play. The crawling/cruising infant expresses an increased interest in playing with objects: pots, pans, shoes, etc. that he comes across in his newfound mobility. The appearance of object permanency aids in navigation, yet also makes the infant fearful of loss of care-givers and clings to Mom or Dad when strangers appear.

Support:

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

Respond to the increased desire for interaction: PLAY with your baby. Read simple stories with pictures (board books, etc.).

Us – Growing Together

Us - Relating to Others

Building Trust. Once "securely attached," babies are now ready to open up again, and to explore some of the trade-offs of being with Mom versus being with others-than-Mom. They venture into "seducing" selected strangers, but always with Mom hovering in the background. At the same time, they also become increasingly better communicators: They refine their babbles, and they can now use their gaze to direct another person's attention. More important, they can follow other people's gazes. This opens up a whole new set of possibilities in relating to and interacting with others.

Competencies:

What does the 9–12-month-old naturally strive to learn?

Learning to use and interpret eye gaze is a major breakthrough in a child's communicative / relational skills. It marks the beginnings of shared focus of attention, and shared pointing, so important in a child's social and linguistic development. They can now look at where a finger points, and not just at the finger itself. By the end of their first year, most babies use pointing to draw the attention of others to something—"Look at that!"—and not just instrumentally, as earlier pointing principally meant "Give me that!"

Manifestation:

What actions will the baby do to attain these competencies?

The child, at this age, loves to engage others when securely held in the security of her mom's arms. However, when left alone, she is still rather insecure.

The child stares and points at things she wants and, more impressive, she also stares and points at things she wants other people to see. She points for the mere pleasure of sharing what she sees and likes.

Concurrently, babies nonsense chatter becomes more nuanced and more understandable. Their babbles now consist of sounds that exist in the language they hear. Babies also modulate the intonation of their baby-talk when they ask a question or when they expect a response.

Support:

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

Continue peek-a-boo variants, involving the appearance and disappearance of objects of joint focus. Dad can hide objects behind a cloth and have them reappear. He can vary the time of disappearance and punctuate each appearance / disappearance with words. Such games also provide an opportunity for distributing attention over an ordered sequence of events.

Us - Understanding Others

See Us – Understanding Others (0-12 Months) in the previous Babies age period 0-3 months.

World – Making Sense of it All

World – Exploring and Investigating

Making Things Exist Beyond the Here-and-Now. From nine to twelve months, intentional behaviour evolves even further, and the child, now a crawler, engages in many detours to reach a goal, while keeping the goal in mind, provided, again, the time lapse is not too long! The baby also succeeds in executing a whole sequence of actions to achieve a task, sometimes referred to as "means-ends coordination."

Engaging in detours, removing an obstacle, or putting on your socks before your shoes when getting dressed seem like obvious things to do. Not so for young babies. All require a grasp of intricate spatial, temporal, and causal properties of objects, and relationships among these properties. Just think of what it takes to remove an obstacle: You've got to realize that the object sits in front of the goal (spatially), that it is blocking the passage or obstructing some motion, and it must be removed before the goal can be attained.

In sum, babies, at this stage, consolidate their grasp of object permanence, again, the notion that things continue to exist even when out of sight, and they combine it with a growing sense of spatial constancy, the notion that things remain the same even if seen as different from different angles, and with a growing sense of time, the notion of orderly increments, as they unfold, through motion.

Competencies:
What does the 9–12-month-old naturally strive to learn?

Beyond understanding that things continue to exist when out of sight, the novelty, at this stage, is the realization that an object's shape itself can

remain unchanged, or invariant, even if it appears different from different viewpoints, angles, or perspectives.

Babies now systematically explore objects with both hands: they bring them close, bang them against each other, and they turn them around. These two-handed manipulations are a key to the previously mentioned discovery that many objects, at least solids, remain the same even if they look different from different angles.

As the babies start moving about, they themselves can get closer or move away from objects, and traverse around them, thus discovering that, again, the object remains the same even though many visual changes have taken place. In moving around objects and turning objects around in their hands, babies learn what comes before what.

MANIFESTATION:
What actions will the baby do to attain these competencies?

Starting at 9 months, children can remove a cushion to uncover a hidden object. In an observation of his son Laurent, 9 months, Piaget notes that when an object is entirely hidden, Laurent pulls the obstacle, hesitantly, but as soon as one end of the object appears he lifts the cushion with one hand and extricates the object with the other.

Around the same age, infants start to foresee the outcomes of other people's actions, and invent clever means to avoid unpleasant consequences. So Laurent, 9 months, when fed out of a bowl, the contents of which he usually doesn't like (e.g. soup), grimaces and closes his mouth. When fed out of a glass, the content of which he usually likes (e.g. juice), he opens his mouth, squeaks, and reaches.

Babies at this age start to reach for an object they desire and crawl places to actually get them!

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

The baby's increased mobility allows them to explore more objects, to reach more things, and grasp them. Let the baby explore things, but remove ahead of times object that may be fragile, that may topple over, or that could cause injury. In other words, don't thwart the baby's explorations, which are

necessary if he is to develop the concepts outlined above, but make those exploration as safe as possible.

Object-mediated peek-a-boo games are still a delight, as is trying to chase and catch the pull-toy on a string.

World - Seeking Logic

Order, Class, and Reversibility. From nine to twelve months, babies consolidate their grasp of object permanence, the logic of which, as mentioned before, resides in the fact that the child imposes a principle of "continued existence," beyond what is actually perceptible.

Babies also engage in detours when solving a problem, and they can overcome obstacles—all of which require a sense of order, of classes, and of "reversibility"—a practical understanding that some things can be undone, and achieved in any old order, while others can't!

Around the first year, babies 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 non-sense words.

Competences:
What does the 9–12-month-old naturally strive to learn?

Perhaps the most remarkable breakthrough at this stage is that, babies, around 9–10 months, not only develop a rudimentary sense of quantities, but they can express it.

Manifestation:
What actions will the baby do to attain these competencies?

In an observation of his son Laurent, then about 10 months, Piaget notes: "I say papa to him, he replies pa pa or ba ba. When I say papa papa, he replies apapa or bababa. When I say papapapapapap he replies papapapapapap. There exists a global sense of number of syllables: the quantity corresponding to 2 is in any case distinguished from 3,4,5."

At nine months, babies combine objects in an active way (bring 2 spoons together, bring 2 blocks together).

Support:
What can caregivers do to support this natural development?

Parents often count steps, or mark a rhythm as they walk down the staircase with their babies. They also count fingers, toes, and recite finger play sing-songs. Obviously at this stage, the baby will not understand what the counting sing-songs stand for, but she will enjoy their rhythm. Later, she will learn about matching order of recitation, order of events counted, and the action of passing through in a certain order.

Let the baby play with blocks or objects of different sizes, colours, forms, to exercise the baby's ability to sort and categorise objects.

Creations – Realising Visions

Creations – Imagining (9-12 Months)

No think Just act! One may argue that, at a practical level, babies can act out of the box or creatively as soon as they exhibit the abilities to invent new means to reach a goal and to generate variations on an action. Both abilities appear at around 9 months of age. Yet, to think out of the box or envision what could be requires, in addition, that a child forms internal representations of reality as well as possesses an ability to evoke absent and nonexistent situations. This capacity appears no earlier than 12 months, and becomes obvious, i.e. more easily observable, at around 18 months.

Competencies:
What does the 0–1-year-old naturally strive to learn?

In other areas of development, signs of the drive to learn are obvious in the baby's actual behaviour, for example, in learning to walk, talk, or use tools. But thinking goes on inside the head! So there's not much to see. Although current research seems to indicate that there is much more going on in a baby's head that developmental psychologists had previously assumed. We have still little access to it, and no ways to make it visible.

For Piaget, one of a baby's major intellectual accomplishments is the onset of goal-oriented behaviour. This occurs in the last quarter of the first year, when infants begin to keep in mind a goal while engaging in a detour, and when they "invent" new means to meet their ends (sensory-motor stage 4). While this is an important breakthrough, the first creative explorations

appear around 10 to 12 months, as babies start to play around with their own voices and motions. At this age, infants spend much time alone, modulating their vocalizations and pacing the movements of their arms and legs. They do so over and over, for the mere sake of modulating and pacing.

More impressive still, by the time they reach their first birthday, many babies start laughing warm-heartedly at odd behaviours of grownups, such as waddling like a penguin, crawling on the floor, or sucking the baby's bottle —as if the babies knew this is an unusual, incongruous thing for an adult to do! Again, if these same behaviours were exhibited by a stranger, or in an unsafe or non-relaxed context, babies would be quick to switch from laughter to a bitter cry.

Needless to say, all these very early inventions-in-action are precursors to a child's later ability to imagine, or think out of the box.

MANIFESTATION:
What actions will the child do to attain these competencies?

Between 9 to 12 months, babies invent many clever tricks to get a hold of a toy that is out of reach, including pulling its support, using a stick, and even pushing open Mom's hands to get her to grab the toy! Also, at this age, babies like to uncover hidden objects and to peek under curtains to see what's behind. They enjoy peek-a-boo, pleasant surprises, and wacky variations in turn-taking games. They also laugh, as we have seen, when Mom starts meowing, like a cat or waddling like a penguin.

Ten to twelve-month-olds start engaging in playful variations around their own voices that grow from hums, squeals, and bellows to repetitive, often melodic, strings of syllables: da.ti.di. da.da.da.di.do.da.di.do.da. And they often accompany the vocalizations with rhythmic movements. The fun consists of keeping a beat and changing the rhythm: a very early version of a child as a musician.

By one year, a child gives his first big laughs at a familiar person's odd behaviours. He "knows" the person is only kidding.

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

Creative exploration involves trying more than one thing, more than one way. At this age, babies appreciate, and learn a great deal from, their care-giver's offerings of variations around shared activities. Again, parents are usually very good at making their babies giggle by proposing all kinds of enjoyable surprises around simple give-and-take games. And lo and behold, the child will take initiative and produce her own variation.

Parents should also show their appreciation when the child, playing alone, invents some clever or novel way of doing things.

Creations – Enacting and Creating

Refer to the Babies age period 6-9 Months.

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.

PART 3.:

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, a15 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 displacements") 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 you 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-twos" 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-years-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 scene s. 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.

The Whole Child Development Guide is grounded in research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.
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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 childs' 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 andd 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).

Part 4.:

Early School Years
Ages 4 - 8 Years

PART 4.:

Overview of Early School Years

Ages 4-8 Years

Me – Being Me

Me - Using My Body

Whereas the child's physical-motor development during early childhood is marked by large growth spurts, during the early school years it is rather gradual and constant. This being said, between the ages of four and eight, a child's improvement in coordination and skill is still amazing. So is the child's perceptuo-motor integration, or ability to synchronize her body movements to the movements she sees, or hears, others performing, (so-called eye-hand coordination is a part of perceptuo-motor integration, and begins when children eyes can be guided to follow movements of their hands).

The period between ages 4 and 8 is a time of expanded vigour and energy. It is also a time when the child learns to master her otherwise wild exuberance, and put it at the service of things he likes to do.

As they enter their fifth's year, most children have enough mastery over their gross motor skills to be able to balance, hop, skip, run, and jump. And they have perfected the use of fine motor skills well enough to be able to reach, grasp, and manipulate objects. A four-year-old can eat and dress by herself. She combs her hair, washes her hands and brushes her teeth. She opens closets and drawers, and manipulates remote controls. She scribbles, cuts, and glues. In sum, four-year-olds have a fairly good dynamic balance when running and climbing, as well as a static balance, which allows them to stand on one foot. They have learned to project themselves accurately when jumping and hopping, or throwing and catching

During the early school years, between the ages of 4 and 8, the child perfects both his agility and dexterity to gain a solid grip and better control over his body movements in space and time, and above all, in relation to others. By the time they reach their eighth birthday, most children readily engage in activities such as sawing, sewing, painting, or knitting. Seven-year-olds can use adult tools, such as hammers, saws, rakes, and shovels. They now

manoeuvre a two-wheeled bike, and they are ready to skate, ski, or swim. They engage in many group activities, from soccer to gymnastics, from hockey to ballet, and they have become competent team players.

In the later section, we shall look at how children, between the ages of 4 and 8, progressively refine their physical-motor abilities, which, in turn, opens the way to many new activities, fosters a growing sense of freedom and control, and new forms of relating to the world, self, and others.

Acknowledgements

The main sources for Me in this Part are:
Anselmo, S, Franz, W. (1995). Early Childhood Development: Prenatal Through Age Eight. (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall [First edition was published in 1985. New York: Merill / Macmillan]. Sanford, A.R. and Zelman, J.G. (1981) Learning accomplishment profile. Winston Salem, NC: Kaplan.

Me – Knowing Myself

The roots of a child's a self-concept lies in infancy, and evolves through the many interactions the child has with her social environment. By their fourth birthday, most children have acquired a fairly good sense of themselves as distinct from others. They also have a budding sense of identity or self-invariance: the idea that some core aspects of self remain unchanged over time.

One of the big breakthroughs, as children enter their preschool years, is the passage from a merely physical- and action-centric self-concept to a more psychological one. In other words, children develop a sense of self-worth, or self-esteem: the emotional, affective, moral, and intellectual facets of a child's early self-concept. This, in turn, requires an understanding that the self is unique (distinct from other), stable (identity over time), and worth one's own, and other people's, consideration, and love. Self-esteem or self-worth emerges as the child learns to distinguish between an inner-me, or "agent," that drives her actions, and an outer-me: a person's physical attributes and /or actions.

By developing a positive and accurate body image/self-concept, children build a reliable frame of reference—themselves—to help them act and move in space, as well as among other people. Body image, like self-awareness, provides an internal compass to help children orient and situate themselves in relation to others.

Awareness of self-defining bodily functions includes sexual and gender awareness, as well as a sense of what's inside the body, and what it means to be sick or in good health, sad or happy. Awareness of self, as a worthwhile, competent, and good person, includes both moral judgements and meta-cognitive skills, i.e. an increasing ability to gauge one's own mental abilities, both cognitively and affectively.

In this Part, we shall look at how 4–8-year-old children's sexual and gender awareness, sense of self-worth, and views of their own competences, or meta-cognitive skills, evolve during early school years.

Again, each child grows at his own pace, so that development stages and ages are no more than indicative of general trends. What's more, self-development is not a neutral area! Children live with people who hold their own views on what a good person, or a true self, should be. This makes for great variability in ideals, which in turn informs how adults support and constrain their children.

Us – Growing Together

Us - Relating to Others

Early school years mark huge progress in a child's abilities to understand, communicate, and reflect upon matters that govern and motivate social relations. Children gain greater control over their emotions, an increased self-awareness, and they learn to put their feelings, intentions, desires, and beliefs at work to consolidate their social ties, while preserving their identity.

Between the ages of 4-8, a child's ways of relating expand and become more flexible. They change according to whom the child deals with, when the interaction takes place, and under which circumstances. So, for example, a 5-year-old may want to boss around a younger sibling, whine with Grandma, and argue with her teacher. Yet, as she becomes aware that moods can change over time, and that ambiences come with their particular sets of constraints and permissions, she may choose to give a hug to her little brother, cajole Grandma, and tease the teacher. By the end of this period, around age 8, most children have become competent and reliable partners, and collaborators. They have learned to master some of the trade-offs that growing in connection involve. More important, they have learned that even failed attempts at relating can be repaired, or compensated for: one could call this "conservation of relations."

A person's emotions play a key role in how he relates to others. Emotions are like internal signals that prepare a person to cope with situations that, to him, are associated with fear, joy, or sadness. The problem with emotions, however, is that they take over, at least initially, forcing us to act in certain ways. Progressively however, the child learns to recognize and describe his own (and other people's) emotions and starts to understand the behavioural consequences of certain emotional states. That's when his initial urge to act out whatever he feels turns into a more mediated and flexible palette of possible responses that the child then taps into as a means to relate better with others. In other words, as the child becomes aware of his feelings and intentions (and those of others), he increases his ability to negotiate and co-operate. He monitors and communicates what he feels, intends, desires, and believes, to regulate his exchanges and dealings with others.

According to Erikson, a first developmental breakthrough occurs during the "play age": from about 3 1/2 to age 5. During it, the growing child learns: (1) to imagine and to broaden her skills through active play of all sorts, including fantasy (2) to co-operate with others (3) to lead as well as to follow. That's when the child enters a new phase of psycho-social development called initiative. Initiative adds to autonomy a quality of following through on tasks for the sake of "getting to know more." While bringing about obvious benefits, initiative also comes with its share of new challenges. Following through on things can be risky and solitary. It is thus not by chance that initiative coincides with the emergence of the "play age." Pretend and role play, both of which peak at this stage, offer safe ground to explore some of the consequences that taking initiative entail. In other words, when the child is ready, developmentally speaking, to take the risks of initiative, she first wants to explore those risks through joint make-believe activities.

Later during the school years, 6- to 8-year-old children become ready to embark on yet another of Erikson's stages of psycho-social development: They become industrious, which has a decisive effect on school life and on the later entrance into the world of work. Without industry, according to Erikson, children may suffer from a sentiment of inferiority. Children at this age become excited by projects such as building forts, sewing, and cooking, and…the harder the better!

Let's now look at how children, between the ages of 3 1/2 and 5, deal with the trade-offs that building initiative entail e.g., how do they face the risks of taking initiative while maintaining the benefits of being connected through consensual agreement? And as they become more involved in various endeavours and interests, let's see how 6- to 8-year-olds become

industrious, how they keep their creative spark and playful spontaneity while following through on their self-set tasks in order to succeed.

The Feeling Peeling Game. To help children become aware of their feelings and, by the same token, understand how others feel, Smith's "feeling peeling" game (five years up) remain a good inspiration. Again, the game can be played in dyads, or in groups (Smith 1982). As in the previous stage, the idea is to ask questions that encourage children to think about the causes and consequences of various emotions. Emotions to be "peeled" at this age include: happy, angry, affection, afraid, and sad, and also embarrassed, ashamed, guilty. Questions that can be asked include:

- What would you do when you are X? [e.g. afraid].
- What would you like to do when you are X…..
- What would you like other people to do for you when you are X….
- What are some of the things that give you an afraid feeling?
- How do you feel when someone is afraid of you?
- What feeling is difficult to tell other people about?

Note. This list is only a beginning of a large series of questions that may encourage children to explore their emotions and understand those of others. Imagine role-play scenarios in which can enact and play out some of the questions, taking on different roles. Put the same child in the role of the agent and the recipient.

In role playing games, always respect a child's desire not to disclose how she or he feels, and make sure the children understand that there is nothing wrong with having "negative" feelings, or even wanting to act them out. Help them understand, beyond first impressions or reactions, some of the benefits of using one's mind and heart to control initial drives.

Us - Understanding Others

Early on, children tune into other people's intentions, attitudes, and emotions, and as they grow older, they become increasingly aware of how they and others feel, act and think. They learn to understand and empathise with others, and to look at the world, including themselves, through their eyes. They learn to express, and reflect on different people's inner feelings and mental states. In other words, children build their own theories of other people's, and creatures', minds: from what they feel and think to what they are capable of and driven by. (Astington, J., Harris, P., and Olson, D., 1988).

A child's journey toward getting to know others, to understand what they want, feel, believe, and intend, is a lengthy one, which involves a two-fold ability: 1. to "de-centre," or move away from oneself, and 2. to "re-centre," or take on another's view. The focus here is on how children, between the ages of 4 to 8, operate this shift away from themselves to build a sense of other (Schantz, 1975). It is worth noting that the apparently contradictory movements of getting to know oneself and moving away from self, toward other, are intricately related. Without self-control and self-awareness there can be no respect and understanding of others. Both competencies emerge and evolve together.

Early school years are marked by a growing ability to understand not just that other people may think and feel differently, but what it is they may feel and think! During these years, children become able to empathize and adopt different perspectives. They learn to negotiate, and make sense of, other people's expectations and intentions. The seventh year also marks the beginnings of Piaget's stage of concrete operations. The child is now able to think about events that were previously performed through physical actions, and mentally reverse the direction of action and thought. She also understands that thoughts are different from actions, and appearances different from reality. A child's ability to put herself in other people's shoes or to feel what they feel, has deep repercussions in how she relates to, and understands, others.

World – Making Sense of it All

World – Exploring and Investigating

Early school years are marked by a child's expanding curiosity and mindful investigation. During this period, the child's physical energy and intellectual vigour are at a peak and his natural exuberance is being channelled in the pursuit of many exciting, long lasting, and challenging projects. From a wonderer, one may say, the child becomes an explorer and experimenter. This, in turn, allows for many new wonders to pop-up, and be further explored. In this process, the child learns a great deal about himself and about the world in which she lives and grows.

Children between the ages of 4 and 8 face a multitude of new experiences outside the confines of their homes. Provided the passage happens felicitously, the child's curiosity and eagerness to learn develops even further. Not surprisingly, this is also a time when children like to take charge. They become true experts at figuring things for themselves, and they excel at learning-by-doing.

Needless to say, there are differences between the manners of inquiry and worldviews of a four and an eight-year-old. Typically, four-year-olds base their judgements on direct action and perception. They proceed by intelligent trial and error, often focusing on one variable at a time when trying to get a handle on a complex situation. A four-year-old's worldview remains essentially "egocentric," and their thinking is magical and animistic. Eight-year-olds, in contrast, engage in directed and systematic experimentation, and are able to compose with multiple variables when making decisions. Eight-year-olds' thinking is reversible (i.e., they can mentally reverse the direction of thought, and action), which, in turn, impacts the ways they conceive of such categories as time, space, and causation. Their take on things has become more "objective," less egocentric.

The seventh year marks the big breakthrough with the beginnings of Piaget's stage of concrete operations. The child now anticipates events that were previously acted out, and draws conclusions in her head. Besides reversibility, a benchmark of concrete operations is conservation: the understanding that objects or quantities remain the same—or invariant—despite a change in their physical appearance.

In the later section, we shall look at how children between the ages of 4 and 8 examine, understand, and reflect upon their actions, thus becoming increasingly good investigators and experimenters. Let us also look at how their worldviews evolve as they relentlessly try to figure out how things work through their hands-on exploration. More specifically, we shall look at children's notion of time, causation, and space, as well as their abilities to conserve substance and quantities.

World - Seeking Logic

At first, a child's logic is a logic-in-action, and the first categories that children establish are based on how objects, including people, resist or yield to their explorations. This section addresses how a child's logical thinking, or "logico-mathematical" capabilities, evolves during his early school years. In other words, how does a 4- to 8-year-old child use what he has learned "in action" to bring some order and coherence into a world too bewildering and complex to be grasped? What forms of reasoning does he privilege at different ages?

As in the previous section, there are striking differences between the forms of reasoning, or logic, of most four-year-olds and those of most eight-year-olds. Typically, a four-year-old's thinking is pre-operational (Piaget 1960a,

1960b, 1964), whereas eight-year-olds have acquired the ability to reason "logically." They have reached the stage of what Piaget refers to as concrete operations (Piaget 1960a, 1960b, 1964). One of the characteristics of concrete operations, most relevant in this section, is reversibility: the ability to mentally reverse the direction of thought and action. So, for example, a 6-year-old will find it obvious (a "logical necessity," in Piaget's words) that if a number can be added to another it can also be subtracted, or that if an object moves from point A to B to C, then it should be able to return from C to B to A.

As the child begins to reason in ways that are reversible a whole structure of interrelated logico-mathematical capabilities, or operations, appears: The child now understands such relations as transitivity, inclusion, and identity, and she uses her newly acquired logico-mathematical power to infer many otherwise invisible patterns and rules, and to make logical deductions.

The transition from pre-operational thinking to concrete operational thinking occurs between the ages of six and seven, and is usually completed by the time the child is eight years old.

In the later section, we shall look into the lengthy journey that brings a child from pre-logical to logical thinking. We shall focus on how 4–8-year-olds come to understand basic mathematical ideas, such as quantification, elementary number theory, and their handling of logical operations, such as classifications and seriatims.

To explain the development of logic in the early school years, we refer mainly to Piaget, whose ideas about children's thinking during early school years have revolutionized the field of psychology and education. To this day, Piaget's contribution to how children think is unique and unsurpassed (Piaget 1960a, 1960b, 1964, Piaget and Inhelder, 1969).

Creations – Realising Visions

Creations – Imagining

More than logic itself, imagination is one of the highest mental achievements of homo sapiens. It allows the emergence of new ideas and fosters innovation. To imagine something new requires that one grab a hold of what could be instead of merely representing what is. It requires that one picture what's not.

Not surprisingly, then, it takes the emergence of what psychologists call "the symbolic function," around the age of 2 for children to be able to imagine alternatives in their heads. Only then, coinciding with the emergence of speech and thinking, will children start to evoke and revisit past experiences or events and, more to the point, add a new twist or change the ending in some way. Imagination proper sets in when, beyond merely creating variations in the absence of a model, the child starts to produce fictional scenes and invents scenarios that don't exist.

Early manifestations of human imagination can be seen in a child's fantasy or pretend play, as well as in her willingness to invent and converse with imaginary companions. They appear in her budding sense of humour and abilities to tease and joke. Humour can be thought of as a subset of make-believe and play (McGhee, 1984): an intellectual play with ideas or words, based upon appreciation of logical displacements and incongruities. What characterizes all of the above activities is suspension of disbelief rather than a quest for truth

At the beginning of early school years (between the ages of 4 and 6), a child's imagination tends to run wild, while, at the same time, becoming ever more sophisticated as she perfects her abilities to incorporate other people in his pretend play, sharpens his sense of humour, and cultivates his ways of teasing. Towards the end of the period (between the ages of 6 and 8), the child's imagination adapts itself to fit the purpose of specific endeavours. Many factors contribute to this "domestication" of early childhood imagination, not the least of which is children's own desire, as they grow older, to put their wildest thoughts at the service of realisable undertakings. School too often contributes to the trimming of imagination if children's creative impulse is downplayed to the benefit of her rational mind.

As they reach their eighth birthday, most children now use fiction, pretence, and jokes to acquaint themselves with otherwise hidden thoughts, and to release emotional tensions without hurting the feelings of others. The child's imagination is now more directed and ruled: Her abilities to fantasize and pretend become more "civilized," her mental exuberance contained, and her abilities to play with words and incongruities less idiosyncratic. This being said, her capacity to imagine will prevail throughout adult life.

In the next section, we shall look into the development of a 4- to 8-year-old child's creative thinking through the lens of her pretend play as well as her ability to produce and appreciate jokes, word puns, and other poetic "incongruities."

Acknowledgements
The main sources for Creations in this Part are:
Anselmo, S, Franz, W. (1995). Early Childhood Development: Prenatal Through Age Eight. (2nd Ed.). Englewood Cliffs, NJ: Prentice-Hall [First edition was published in 1985. New York: Merill/Macmillan].
McGhee, P. (1979) Humor: its origin and development. San Francisco: Freeman & Company.

Creations – Enacting and Creating

Children not only make up things in their heads, or fantasize; they also make things, or give form, or expression, to their inner most feelings and ideas. In other words, children bring to life their fantasies to make their dreams come true! Children speak their minds in many ways, and they use a variety of media: children speak in gestures and in voice, in pictures and in words, picking whichever medium conveys their ideas the best. Children also combine several media within a single production.

Through their personal and collective creations, children, like artists, bring imagination into being…and they do so by design! Unlike scientists, a child's creative expression is less about building models and representations of existing realities, so-called objective truths, than it is about exploring possibilities, often possibilities within i.e., re-digesting or reverberating deeply felt human experience. While both the artist and the scientist seek to capture deep hidden truths, the first uses language to inspire and evoke, and the second to analyze and validate. In other words, creative expression is the visible face of imagination at work!

This section speaks to the importance of creative expression as a source of a child's personal and intellectual growth. Of particular interest here is the exciting and lengthy path that brings early school-age children to becoming literate in the sense of becoming acquainted with, and fluent in, the usage of available cultural tools as means of self-expression. We purposely define literacy in the broadest possible sense to mean the ability to make and derive meaning in any symbolic, expressive, or artistic medium.

Children are born into a world of signs, symbols and human-made artefacts. Before long they appropriate these tools and they 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. They do so across media and within the constraints proper to each medium. Most important, children

know how to use the progress they make in one language as a lever to enrich their expressiveness in other languages or media.

As they reach their fourth birthday, children usually speak, gesture, and they learn to draw and write. At this age, children also start to "read," i.e. make sense of other people's traces and scribbles. Again, as soon as they talk, they become interested in writing and reading. As they sing and listen to music, they like to record rhythms and sounds, and to "draw" the noises and rhythms they hear on a sheet of paper. Later in their lives, our creative youngsters will continue express themselves creatively through drama, poetry, painting, literature, design, and music, to name just a few possibilities.

Let us look at how early school-age children learn to express themselves creatively, using "a hundred languages" (Malaguzzi, 1987), and how they become literate in the broad sense defined above. The ages below are indicative of general developmental trends. Especially when it comes to literacy, the ages at which children are expected to master the conventions of written language vary a great deal, not only among individuals but among different countries or cultures as well.

The Whole Child Development Guide is grounded in research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.
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PART 4.:

Early School Years by Age Year

4-5 Years

Me – Being Me

Me - Using My Body

Kick the Ball & Keep the Beat! Four- to five-year-olds are vigorous and energetic: They love to play and, when given a chance, they become exuberant and "go wild." At the same time, children of this age also spend hours channelling their energy—i.e., perfecting their physical-motoric abilities—by getting a better handle on all kinds of objects, such as balls, bikes, swings, or seesaws. Like their younger counterparts, 4–5-year-olds still spend hours on the playground, using swings, slides, and climbing-structures. Yet, unlike younger children, they have become amazingly skilled and autonomous users.

Four- to five-year-olds like to keep in the flow (and in the beat) of things, through dance and rhythm, and they learn to synchronize their body movements and positions with that of others, using visual clues. They march at a drumbeat, and play musical chairs, or "statues" (a person takes a position, and other imitate). When playing ball, they work hard at refining their kicking and catching techniques, and they become truly expert tricycle riders.

As mentioned before, activities like kicking a ball or riding a bike are not just a matter of gross-motor skills. They also involve a great deal of dexterity, a strong, secure grip, a focused attention, and body awareness, as well as a good sense of rhythm and balance.

Competencies:
What does the 4-5 year-old naturally strive to learn?

The main areas of change, between the ages of 4 and 5 are an improved sense of balance (both static and dynamic), as well as an increased perceptual-motor integration i.e. being able to produce or imitate a gesture one sees someone else doing (sometimes referred to as eye-hand coordination), a greater body awareness (i.e. body concept, laterality or right-left discrimination, and

directionality), and temporal-perceptual awareness, or sense of time and rhythm.

All these areas come into play as the child exercises, and refine his skills. All contribute to optimize the performances. As an example, when playing ball, 4-5 years become quite adept at throwing and catching, and when throwing, they turn the non-dominant shoulder toward the target and steps with opposition as they throw. They catch the ball away from the body, in the hands with palms facing each other (Anselmo and Franz, 1995. p. 384). And when playing inside the house, 4–5-year-olds like to scribble, draw, cut, and glue. They still use broad movements with their fingers, arms, and hands. Yet, they produce recognizable shapes in their drawings, which they love to present as gifts to family members.

MANIFESTATION:
What actions will the child do to attain the competencies?

Four- to five-year-olds can walk heel-to-toe for four or more steps along a line and stand on one foot for five seconds. On the playground, they can get themselves started on swings, walk on a beam, climb ladders and slide down slides, without assistance. And since moms and dads are less needed on the playground, they spend more time playing with other children.

At this age, children also become eager and skilled tricycle riders. Their hopping, jumping, and kicking skills improve. Walking downstairs is now mastered, without the help of an adult. Four- to five-year-olds eat much more neatly than 3-year-olds. They start using a fork, spoon, and, if allowed, a knife. They can carry a cup filled with water from the kitchen sink to the table, without spilling. As they approach their 5th birthday, most children are able to dress themselves. They put on their socks, and open and close buttons and zippers.

In kindergarten, 4–5-year-olds like to engage in all kinds of arts-and-crafts activities: They cut and fold paper; glue pieces together, hammer pegs into holes, draw and scribble, and assemble puzzles. They also like to bake, to make clay figures, and to build sand castles. All these activities greatly facilitate a child's eye-hand coordination.

Four year-old children learn about the left and right sides of their bodies (laterality), and about the body's position and heading (directionality and orientation). Yet, many children of this age still have difficulties with tasks that require left-right discriminations.

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

Let your kid play, and play with her. Play ball: You can now use smaller light soccer-sized balls. Draw and paint: Finger paints are great at this age. Dance with her. She loves to march in a parade. Play music, she enjoy beats and rhythms. Go for walks, to the pool, to the playground. Indoors, let your child play with age-appropriate puzzles, and offer her a big box of blocks with which to build models and castles.

If you are an educator, don't drill! Movement, balance, and rhythm can be explored through play. Invite children to discover for themselves the ways they want to move and stretch, and how far they want to "push" themselves. Remember: "our bodies move in space, in time, with force, and with flow (…) There is never a wrong move, but certain moves feel better" (Gilliom, 1970. p. 6).

Educators may imagine activities to broaden the palette of movements made available to the children (Gilliom, 1970. p. 6). Gilliom proposes four dimensions to be considered by parents and educators.

1. Where to move (space), which involves an understanding of self-space.
2. What to move (body awareness), which requires awareness of body parts and relations between body / objects to be manoeuvred / space.
3. How to move? (force, balance). Involves creating / absorbing force (gravity), transferring force (rocking, rolling, sliding) and transferring weight (step on beams).
4. How to move in a smoother way (time, flow). Involves changing rhythm, speed, pulse, and beat, and feel what it does.

For each dimension, many fun activities can be imagined (for inspiration, see movement chart in Gilliom, 1970. p.8., and Anselmo and Franz, 1995. p. 388). In all these activities, care-givers assume a role as play partners. 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

Introspective Fours: Building an Inner Sense of Self. The fifth year marks a new phase in a child's growing sense of self. Three main areas of progress include: a budding sense of self-esteem, or self-worth; an early form of meta-cognitive awareness, or self-knowledge; and the ability to distinguish between mind and body, when speaking about self and others.

Four year-olds develop an early sense of self beyond mere physical attributes, observable acts, and concrete events. In other words, they overcome earlier forms of "trivial behaviourism" by disentangling some of the intricacies between what a person does, shows, or says in terms of her behaviour or appearance, and what she thinks, feels, or intends. This, not surprisingly, leads to new forms self-evaluation and self-knowledge, as well as new forms of moral "judgements". While paying closer attention to the "hidden" aspects of self, 4-5 years old children still have problems with egocentrism, and they do not always recognize that a person's inner states, thoughts, intentions or feelings, can or should be different from their outer expression (Selman, 1980).

Four- to five-year-old children's body awareness and self-concept are partly expressed in, and informed by, their understanding of sexuality, gender, as well as by their views of what's inside their body, and what makes a person ill or well, sad or happy, and bad or good.

As they reach their 5th birthday, most children have developed a fairly accurate sense of who they are and what they think they are able (or unable) to do. This type of self-knowledge includes what are commonly called meta-cognitive skills — an important component of more advanced reflection, learning, and introspection.

Competencies:
What does the 4-5-year-old naturally strive to learn?

Like the "curious threes", 4-5-year-old children still wonder: 'Who am I? Where do I come from? Where do I go?' They also still puzzle over how babies are made, what's in their bodies, why people die, and what will become of them after death. Yet, as they try to make sense of these questions, 4-5-year-olds develop their own views and attitudes about their origins, well-being or health, and their strengths and weaknesses as persons, and as learners.

Most significant at this age, a person's self begins to be seen as a mix of action and intents, involving both body and mind. So, for example, 4-5-year-old children not only understand themselves as being a boy or a girl, tall or short, or blond or brown, but they begin to develop a sense who they are, as persons, beyond being gendered, sized, or coloured.

A 4-5-year-old's grasp of what happens inside her body and what it means to be healthy or sick are still rather mechanical and animistic. So for example, children can tell you where their brain, heart or stomach are located, yet

each organ still has a single function, and the inter-relations between them remain unclear. A nice example by Selman shows that, at this age, children "often report that their mouths tell their hand what to do or that their ideas come from their tongues" (Selman, 1980. p.176).

When sick, 4–5-year-olds tend to blame either outside events (external causes), or themselves, i.e. their bad behaviour (immanent justice). Their views of how they came to be remain animistic or mechanical: either babies are made, like dolls on an assembly line, or, if told that babies grow in mom's belly, 4-5-year-olds will assign human-like qualities to the sperm/or egg (Bernstein and Cowan, 1981). They will imagine all those tiny little people inside mom's belly, helping to make the baby and bring it out.

MANIFESTATION:
What actions will the child do to attain these competencies?

Four- to five-year old children's awareness of self transcends physical appearances (pretty, small, girl, boy) to include "mindsets" (witty, nice, girly, boyish), and the child starts to distinguish between feelings and actions. He understands that while certain emotional reactions may be unwanted and hard to control, our actions in reaction to inner emotions can, and maybe should, be controlled. He doesn't always understand why controlling impulses may be a good thing beyond "Mom won't like it" or "it could make things worse". But, that's a start!

Four-year-olds' conceptions of sickness, contagion, and causes of death are still "magico- phenomenist", to use Piaget's term. While many four-year-olds understand that sickness occurs through contagion, and contagion through proximity, proximity itself remains this magical thing…some mystical, bad influence.

Four- to five-year-olds begin to develop a sense of fair play and are aware of rules, although at this age, they may change them. They like board games where there are rules. They like to be challenged, but at this age, they do not always handle competition well.

SUPPORT:
What can caregivers do to support this natural development?

Help your child distinguish between feelings and actions, as well as between actions and consequences. If your child is angry, or wants to hit her little

brother, encourage her to tell what's wrong. Help her work out unspeakable feelings through play. Soon enough, she will understand that getting upset and acting impulsively can be separated and that sometimes it is worth doing so.

Help your child accept his physical characteristics as well as his similarities to, and differences from, others. In this regard, games like "me and my shadow" and "body drawings" are still relevant at this age (projection of kids' shadows against a wall, and asking kids to draw contours of their bodies on big sheets of paper). Yet, at this age, expand the game by telling stories about different people's ways of being, or better, have the children tell their stories, as a way to focus on psychological diversity, and moral issues.

While acknowledging diversity in ways of being, and of relating, avoid gender or racial stereotyping. Help your child understand that people come in many shades and shapes, that diversity is rich, and that good and bad are colour blind.

A four-year-old's sex education comes in response to questions about how babies are born, and where she was before she was born. While straightforward answers are welcome, there is no need to go into any more anatomical details than the child asks for.

Us – Growing Together

Us - Relating to others

Play and Initiative - Learning to do… and let do! According to Erikson, as soon as basic trust is established, a child becomes ready and eager to discover the thrills and threats of autonomy. And as autonomy sets in, most 3–4-year-olds become very energetic, curious, and eager to participate in virtually any activity. This is when pre-schoolers start to ask a hundred questions. This is also when they embark on Erikson's next socio-psychological stage, which he referred to as building initiative.

Erikson's theory of psycho-social development states that, starting at age 3 1/2 and up to age 5, children are faced with a new challenge. In his words, they learn to take initiative, or they will suffer the effects of guilt! As mentioned before, initiative adds to autonomy a quality of taking on tasks for the mere pleasure of "following through on things" and "seeing where it takes us" that, in Erikson's 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, and encourage, the child to pursue their frequent questions, and try things out for themselves. If initiative is not encouraged, children may ultimately lose their willingness and ability to do what it takes to realise their own dreams. They shy off from the healthy quest for achievement, or realisation, in future endeavours.

COMPETENCIES:
What does the 4-year-old naturally strive to learn?

Four-year-olds are vigorous, imaginative, and playful. They are eager to learn, play, and work with others. They listen to their teachers, and they participate in conversations. They are curious and easily engaged in the excitements of new undertakings. Their initiative extends to include social relations with adults outside the family and with other children.

Four-year-olds have become pretty good at controlling their emotions, and are increasingly aware of basic human feelings, such as sadness and anger. They can recognize and describe feelings associated with liking, surprise, disgust, boredom, loneliness, and curiosity. Children, at this age, also start to understand the connections between emotions and social behaviour, and inner thoughts, feelings or intents, their expression, and consequences on others.

Four-year-olds like to engage in pretend play with peers. They participate in group play, and they form privileged relations with individual friends. They become better at sharing, at losing in competitive situations, and at negotiating interactions with others. They show less frustration around play equipment and toys, and they are more patient when they have to wait their turn. This being said, the lengthy path that leads a child to gracefully manage her emotions and feelings in social transactions is only starts at this age.

MANIFESTATION:
What actions will the child do to attain these competencies?

Four-year-olds are usually very sociable, both in play situations and in everyday activities: They like to please and are friendly to adults and peers. They begin to show empathy, and talk about their feelings. Four-year-olds participate in conversations and care to be listened to. They like to be taken seriously. They become better at negotiating peer-conflicts and can follow simple rules.

Four-year-olds have a wide range of "ways of being" at their disposal, which they use according to circumstances: They cajole and cuddle, but they also tease and persuade. In their play, they negotiate ever more complicated plots, and they cooperate and help each other. This being said, they may still boss around younger siblings, or try to get their way through whining and screaming.

Many children of this age begin to enjoy "follow the leader" games. They play catch with each other, and some start collecting items and sharing those items, or swapping them. They begin to play board games, in which they learn to take turns and cooperate.

SUPPORT:
What can caregivers do to support this natural development?

Four-year-olds are full of life. Yet, unbridled energy and exuberance can sometime result in negative feelings, destructive acts, and manipulation. That's when adults can come in handy to help them channel their surplus of energy in positive ways. And the best ways to help is to do so non-intrusively. So if your 4-year-old withdraws, fears something that can't possibly harm him, or goes overboard and starts harming others, make sure you guide him in ways that do not squash his initiative but rather channel it in more positive ways. Don't just say "No." Say, "If you wish to do that, here is a way you can do it safely or non-destructively."

For example, if your child climbs on the dinner table, which genuinely annoys you, don't hesitate to tell her, "This place is for eating, not for climbing." Offer her alternatives: "You can either sit here and draw or have a snack, or you go climb outside in the yard." You can also give your child time for a graceful closure: "You may climb down from the table yourself. Take your time. But no climbing up again, after that!"

Four-year-olds like to be taken seriously. Create scenarios around cooking, or fixing things, 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.

Object-mediated turn-taking games, such as playing ball, as well as symbolic (or fantasy) turn taking, such as role-play, "follow the leader" games (in which the roles get switched) are much appreciated at this age. Through

playing ball, children learn the benefits of sharing, and taking turns. Through role and pretend play, children explore how it feels to be another character, and learn how to negotiate rules to play "fair" in many intriguing social scenarios.

Us - Understanding Others

Putting on Different Hats. In their fifth year, children begin to understand that other people may feel and think differently than they do, and they become able, at least in concrete situations, such as joint pretend and role play, to shift position, in their mind, between their own and other people's views, or perspectives. "The ability to imagine being another person with intentions and feelings that are different from one's own is surely important evidence for children's growing understanding of others—evidence that parallels the signs of children's abilities to deceive" (Dunn, 1991, p. 105).

At this age, children "do not (just) understand an emotional state, such as sadness or shame, simply by focussing on the way that the emotion is expressed, nor by noting the diverse situations that provoke an emotions. Rather, they identify the mental perspective that someone adopts with respect to those various situations (Harris, 1989. p 81). The child interprets another person's ways of being as a coherent set of feelings, intentions, desires, beliefs, and thoughts that transcend specific contexts.

Competencies:

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

As they reach their fourth birthday, most children pretty much know what other people expect from them, and they can communicate what they want. Starting in the middle of the fourth year, however, a whole new range of abilities emerges. Children learn to influence others using persuasion, deception, or humour. They can take on multiple roles or voices, at least in their play, and they learn that a person's interests, beliefs, and intentions can change over time and according to circumstances, while, at the same time, maintaining a consistency or integrity over time.

"From three years onwards, the child can attribute to others thoughts and feelings that are different to her own. This is an important intellectual and conceptual leap." (Karmiloff-Smith 1994, p. 224). And starting at age 4, there is yet another leap, which Astington qualifies as a true watershed leading to a whole new range of abilities (Astington, 1991, p. 159). So, for example, when speaking of themselves, and others, 4-5 year-old spontaneously refer

to a whole array of inner feelings, such as sadness, happiness, pride, guilt and shame, and they evoke mental states and capabilities, such as believing, knowing, remembering, and forgetting.

In Astington's view, there are many experimental tasks that 3-year-olds cannot do and that 4 and 5-year-olds can do (Astington, 1991, p. 159). The tasks Astington refers to involve the understanding of another person's false beliefs, and the ability to distinguish between appearance and reality.

While many researchers in the theories of mind tradition claim a major breakthrough takes place at the age of 4, many 4-year-olds still have difficulties in attributing false beliefs to others, and/or to distinguish between appearance and reality. In the light of this, the so-called "false belief" experiments are discussed in the next section (5-6 years).

MANIFESTATION:
What actions will the child do to attain the competencies?

In their pretend play, 4-year-olds engage in elaborate talk about who's being/doing what, and how each player should act, and what they should say and do, in order to respect the personal traits of the character, or part. Children also invent many complex scenarios. Multiple characters are used. More feelings are expressed in their play.

Four-year-olds begin to recognize the nuances of complex social emotions, like sadness, joy, loneliness, embarrassment, shame, or guilt. So, for example, a 4-year-old may describe sadness as "there are tears in your heart". In their narratives, children begin to address the social or personal causes and behavioural consequences of a person's inner feelings (Dunn, Brown, Beardsall, 1990). More impressive, as they reach their fifth birthday, many children begin to grasp that people may have mixed feeling about things (Harris, 1989). They now show genuine remorse when they hurt or offend others, entailing again that they can feel what others are feeling.

In general, at this age, children become better at sharing, cooperating, and helping each other. They play follow-the-leader types of games. They begin to play board games where they need to take turns and cooperate. All this requires an accurate understanding of other people's mindsets.

SUPPORT:
What can caregivers do to support this natural development?

Show empathy for your child, and he will learn to empathise with you and others. You may encourage a 4-year-old to help care for pets, or even take care of a younger sibling, with supervision, of course. Four-year-olds love being trusted to care for others after they have shown they know how to be gentle.

Let your child to play with other children. And, every now and then, be a part in your child's pretend and role-playing activity (if invited to do so!). This will help her feel how different people, of different ages and walks of life, negotiate play. Help her express her feelings through play, and imagine scenarios in which the child is encouraged to take on multiple roles and voices, i.e. switch role, say from mama to baby, from big bad bully to poor little puppy. This is important to help a child "feel for" what others may feel. Pretend play offers a safe terrain for such explorations.

Four-year-olds love to listen to stories and they start to pretend-read and write. Show them, tell them and let them show-and-tell. Play verbal variants of peek-a-boo, 'Ride-a-Cock-Horse', 'This-is-the-Way-the-Ladies-Ride'. If your child shows interest, try board games, where he learns to take turns and cooperate. Help him be a good loser and respect players who may do better than him. In short, encourage any activities that help your child de-centre (i.e. see his partner's point of view) while not giving up his stance. Both are needed to understand other.

World – Making Sense of it All

World – Exploring and Investigating

From Wonders to Inquiries. Four-year-olds are curious about how things work and about how people act and behave. They wonder about the passage of time and about how things change over time. They puzzle about how the trajectories of moving objects are coordinated in time and space. Four year-olds hold their own views of how things come about and impact one another, and of why things look/act the way they do. They develop their own intuitions about how people differ from things, and how people and things originate, grow, age or erode, and dissipate.

Children at this age like to discover things for themselves and to figure things out through hands-on experimentation. Some children will spend hours taking objects apart and putting them back together. Others may hesitate to break things apart but will vary their ways of interacting with things as a

way to discover how they react. Others like to re-configure a same object, or collection of objects, so that it serves many purposes. In all cases, initial forms of trial and error (messing about) lead the way to more directed forms of exploration (finding out).

In this process, the child learns a great deal about the world. Four-year-olds have their own views of what causes things to happen, in which order, and why. They develop their own intuitions about how things, or people, evolve over time (also called "diachronic thinking") and how they move about in and configure space (referred to in the literature as topological and geometric relations). These views, we shall see, remain essentially "egocentric."

COMPETENCIES:
What does a 4-year-old naturally strive to learn?

Four-year-olds like to take on tough tasks, and they now pursue their interests, even when interrupted, over fairly long periods of time. They like to be taken seriously in their attempts. This striving for initiative is synonymous with going at things hands on and heads in, which serves them well in many respects. Four-year-olds excel in the art of intelligent "messing about," which is none other than their own privileged means to figuring out how things work.

A child's understanding of causality increases a great deal during this period, as she now predicts outcomes of actions before they occur. At the same time, her conceptions of how things come about and impact one another are still animistic. The child endows many things, especially things that move funnily, with people-like qualities, and her outlook is more "magical" than "logical." So, for example, four-year-olds may explain the origin of lakes as being caused by a giant who made big holes with his footsteps, which were then filled by the rain.

MANIFESTATION:
What actions will the child do to attain these competencies?

Four-year-old children are curious and eager to learn: They ask a hundred questions that leave many adults perplexed: "Where does the sun go at night? Where does the moon go during the day? What makes the rain? How do airplanes fly?" More than 3-year-olds, children of this age like to find their own answers to why things work the way they do. Their favoured technique to achieve this is directed exploration.

Four-year-olds are pretty aware of the present time and they can tell you about the past. The future is still hard to comprehend. Most 4-year-olds have trouble gauging how long an incident lasts. They tend either to over- or underestimate time.

While most 4-year-olds have a fairly good sense of size relationships, many still think that the tallest person in a group ought to be the oldest or, more impressive, the taller the older.

Probably because they still 'animate" things in their minds, many 4-year-olds still have "irrational" fears, such as fear of the dark, of monsters, and of masks, even if they know the monsters don't exist and the masks hide mom's face. Such fears lessen as children enter the elementary school years (Bauer, 1976).

SUPPORT:
What can caregivers do to support this natural development?

It is important, at this age, to take your child's hundred questions seriously, no matter how difficult the answers! Even more important is to encourage his initiative. Enjoy your child's eagerness to experiment and try out things, and appreciate his ability to come up with many clever explanations to the most obscure philosophical queries.

Three rules of thumb at this age are: 1) Respond to your child's questions, yet don't impose your adult take on things, 2) Don't get caught up in drilling your child to become ready for school. At this age, the best way to prepare a child for school, and life, is to support her initiative. 3) 'Teach her that it's worth taking the time, and making the detours, needed to pursue her interests. So, for example, if the child gets discouraged or repeatedly avoids obstacles, renew her interest by suggesting an exciting next step, or surprise her by taking an unusual stance on things that intrigue her.

WORLD - SEEKING LOGIC

"One, Two, Three … A Lot". Four-year-olds draw many lessons from their experience. Some are about the world, others are about the "logic" that drives the world, and still others about people's actions on the world. Children detect regularities and they make inferences. They generalize and they schematize. They infer laws and they establish rules. While acting in the world, in other words, children soon transcend both action and object

to focus on their underlying relations. What matters are the "invisible" relations, patterns and gestalts, and the forms, both static and dynamic, that keep singular elements in a certain relation.

Four-year-old children build their own mental model, or knowledge structure that brings order and coherence to their understanding of things. This being said, the pre-operational categories that 4-year-old children establish are still empirical rather than logical, i.e. based on how objects, including people, resist or yield to their solicitations.

COMPETENCIES:
What does the 4-5 year-old naturally strive to learn?

Four-year-olds are curious and explorative. Most children take on a very "hands-on" approach, yet, they also gauge the consequences of their actions in the light of what they expected, or hoped for. In other words, they put their "heads in" as they mess about with their hands.

While they think things through, in action, children also learn to think logically— even if, at this age, the child is still in the re-operational stage. So, for example, a 4-year-old may group and nest things according to similarities and differences ("These two belong together; this one is a part/member of that"), or they may order things ("I'll put them from small to big"]. The child also infers many unseen relationships, she predicts outcomes, and she generalizes from single cases. Logic proper (or logical necessity) sets in as soon as the child can say: " It has to be that way." In general, the idea that things ought to occur in a certain way by necessity is at the heart of a person's logical thinking—even if that person's "logic" is still pre-logical!

MANIFESTATION:
What actions will the child do to attain the competencies?

Four-year-olds understand relative amounts such as "more, less, bigger, smaller, shorter, taller, fatter, thinner, older, younger." They also use adjectives such as big/little, few/many. They start to count, and they classify and order objects accordingly. Consistent with these descriptions, a 4-year-old will cluster small elements, middle ones, and big ones when asked to build a staircase out of sticks of different sizes (when the differences are not immediately perceptible and require measurement or one-to-one correspondence).

Children at this age may "count" from 1 to 10 in a rote fashion but do not yet understand what numbers stand for. They mostly use numerals to name things instead of counting proper.

Children at this age like games of order and disorder. They can find missing objects in a picture and they can categorize or group things by matching elements by size, shape, colour, or quantity. They tend to concentrate on details and miss the whole.

SUPPORT:
What can caregivers do to support this natural development?

Adults often mistake their young children's "counting' ["1,2,3,4,…10"] for knowledge about numbers when in reality the children recite a number sequence in much the same way as they sing a little song. Conversely, adults may think that their 4-year-olds are just playing when they persist in building-and-undoing towers, in placing elements in and out of containers, or in putting together things that, in the child's view, "belong together."

One important rule of thumb, in trying to introduce young children to math, or logic, is this: Allow for playful explorations of "math beyond counting" and of "logic beyond formulas." One way of doing this is to let children play with materials that embody deep mathematical or logical ideas. For example, in their play with construction materials, such as LEGO bricks, children perform many informal investigations involving mathematical ideas. They stack unit bricks to a particular height, extend them for a certain length, and determine just the right size brick to use in a particular place. They learn that some bricks are half the size of others, and more.

Creations – Realising Visions

CREATIONS – IMAGINING

Serious Play. Make-believe activities and humour are two privileged windows into a child's creative mind. This and the next year mark the high seasons of pretend and fantasy play, as well as of Stage 3 humour, as defined by McGhee.

In their pretend play, children of this age incorporate many situations and relationships that they have observed, changing habitual outcomes, and playing out "ideal variations," often to their benefit. To do so, 4-year-olds

stage and enact elaborate plots, change voices according to character, and assume different roles. This being said, a 4-year-old's pretend scenarios are often pretty close to everyday activities: 4-year-olds love to play grocery store, or restaurant, or pretend they are going to the doctor or dentist.
Four-year-olds' sense of humour becomes more verbal, though physical and visual humour are still funny. While Stage 3 humour sets in, 4-year-olds still enjoy earlier forms of humour. According to McGhee, four-year-old children begin to appreciate what he calls "conceptual incongruities," a form of humour where language is used to alter the defining features of a concept (McGhee, 1984). The use of incorrect words, like calling a mouth an eye or a car an airplane, or inverting sex roles, (e.g. boys dress as girls), remains funny even to a 4-year-old. Understandably, a four-year-old has only recently sorted out gender identity, and thus this sort of play may be a way to play with this new understanding, to turn it over and fool around with it.

COMPETENCIES:
What does the 4-year-old naturally strive to learn?

Children of this age generally engage in make-believe as a means to become acquainted with, and take possession of, everyday situations, which may or may not be scary or threatening, or just confusing. Their play reveals how closely they have been observing adult behaviour and they may add a new twist as well!

Beyond using pretence to explore and work out many puzzling aspects of everyday life, some children, at this age, also start inventing fantasy worlds and creatures, and playing monsters and princesses in wonderland , although this trend will more fully evolve in the sixth year.

According to McGhee, a four-year-old cannot understand most puns or the double meanings in riddles (due to their linguistic complexity), but they can appreciate the humorous resolutions in simple cartoons. Incongruous drawings or pictures (an elephant in a tree, a bicycle with square wheels) are also considered humorous at this stage (McGhee 1979, pp. 74–75).

MANIFESTATION:
What actions will the child do to attain the competencies?

Because of their flourishing fantasy life, children of this age make up all kinds of marvels in their head. Yet, they are often prone to nightmares. Likewise, children may play monsters and know that monsters don't "really" exist, but

they may still be afraid if a friend wears a scary mask. These fears tend to diminish as the child reaches his sixth birthday.

In children's pretend play, dolls and stuffed animals now engage in lengthy dialogues, and the children themselves use language, in addition to gestures, as a central component of their play. This not only advances and extends their language skills but also allows them to play with language itself through the use of rhyme and/or nonsense words.

Children at this age find it hilarious when people change roles, and especially when they take on roles that don't "fit" them. They giggle as the "actor" plays out her awkward personae. In addition to silly acts, they also love silly drawings, and silly word games.

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

Don't underestimate the importance of make-believe activities in young children's learning. They are a child's way of handling puzzling situations, both affective and cognitive. Thinking creatively, or "out of the box," helps transcend habitual ways of doing things.

A word of precaution: while some form of displacement is always present in pretence, teasing, and joking, incongruity alone won't suffice to create enjoyment. Incongruity may just as well generate interest, fear, amusement or confusion, depending upon context. This is why a safe and relaxed atmosphere, as well as clear "play signals," is essential to communicate to a child: 'It's OK, we are in play mode'. Only in a safe atmosphere will a child be happy to explore, play out, and work through risky or puzzling situations through pretend play.

A rule of thumb: let the children play, and play with them if invited. Play genuinely, and not didactically. Use words and gestures to negotiate who is who in the pretend world, to which children will happily respond, if ready or willing. Provide engaging "starters", like "Let's pretend I'm the baby and you are the mama. And now…let's pretend "I am a baby cat…meow, meow… and you a big lion… and now the lion gets really hungry…."

CREATIONS – ENACTING AND CREATING

From Scribbles to Meaning: What did I write? Five-year-olds speak their mind in a hundred languages. They do so in words, gestures, and through

enactments: They perform, sing, and dance. They dress up and act out. They pretend and role-play. At the same time, as their verbal and acting skills improve, five-year-olds also like to capture, or freeze, otherwise fleeting events, such as music, movement or rhythm, through drawing and early forms of writing (often pretend writing) and they become obsessed with making sense of the signs and scribbles produced by others. In sum, children start to read before they know how to decipher, and they scribble before they write and draw. The same goes for music and musical notation.

As mentioned before, children are born into a world of signs, symbols and human-made artefacts. Before they reach their 5th birthday, most early school-age children have become eager and ready, developmentally speaking, to appropriate these tools and start making their own original contributions.

COMPETENCIES:
What does the 4-year-old naturally strive to learn?

Four-year-old children are decent narrators and eager notators - both of these competencies evolve side by side. Besides playing (pretend-play is still thriving at this age), five-year-olds like to engage in conversations, and they spend much more time drawing, reading, and writing. Moreover, they are deeply interested in what their drawings mean!

In their written productions, four-year-olds enter a new stage, called "the naming of scribbling stage" (Brittain, 1979), during which the child may not initiate a drawing (or scribbling) with a particular intent in mind, yet his work takes on meaning as he moves along.

As the child gets closer to her fifth birthday, she progresses toward what's referred to as the "early representational stage" of drawing (Brittain, 1979). "Objects and people appear in her drawings in what seem to be shorthand representations, that is as symbols rather than as portrayals of the way she actually sees them" (Anselmo and Franz, 1995. p. 391).

The writings of a five-year-old mostly consist of curly, curvy lines that mock writing. A "simulacrum" of adult writing, these early forms of pretend writings are no more than loosely connected strings of scribbles. However, studies by Ferreiro and Teberosky show that these "writings before the letter" are, in fact, rather principled, at least to the experts who know how to interpret them, integrating many features that, in the child's view, characterise the

world of letters, words, sentences, and paragraphs (Ferreiro and Teberosky, 1982).

MANIFESTATION:
What actions will the child do to attain the competencies?
Children at this age like to play-act and to dress up in costumes. They enjoy singing and dancing as a way of expressing their feelings, and their play-acts become more choreographed as time goes on. The children talk both within and about their play, and their plots get more sophisticated.

Besides play-acting, or performing, the 4-year-old also indulges in drawing, playful scribbles, and pretend-writing. Four-year-olds love to write shopping lists or send letters to friends. Noting that a child's "writing," at this age, becomes clearly differentiated from drawing and other forms of notations (e.g. writing numbers, or musical notations), or inscriptions (e.g. copying geometric forms or patterns). This does not mean, however, that the child won't combine all those forms on a same sheet of paper. Quite to the contrary: many children love to do exactly that!

As he paints, the child now holds his paintbrush with his thumb and fingers instead of his fist, and he holds the paper in place with the hand opposite from the one in which he is holding the paintbrush. He is able to copy a cross, a square, and a simple word such as 'cat' (Anselmo and Frantz, 1995. p. 391).

In sum, 4-year-olds express themselves through dancing, drawing, crafting, making puppet shows, singing songs, repeating nursery rhymes, and acting out stories. They also add to their repertoire; early forms of drawing and pretend writing.

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

Storytelling, using books as a support, constitutes a very precious moment to acquaint young children with literacy in playful ways. Young children love to listen to stories, and they love it even more when they know that their favourite stories are concealed in books they can ask to be read and re-read, often the exact same ways, again and again. Children at this age love to be guided into imaginary worlds through a combination of voice, strings of world on a page, and image which they can look at and fantasize about. Indeed, the lap of a parent or care-giver provides a comforting context in

which many 3- and 4-year-olds start to improvise, or "pretend-read" aloud as they follow with their finger the marks on the page or point to the pictures or illustrations

Obviously, there is more to becoming literate than listening to stories, pointing to images, and pretending to read. The growing child will eventually have to learn to crack the code, or decipher written signs and symbols. This being said, forcing a 4-year-old into deciphering and producing letters, outside of dialogic play contexts, can be counterproductive! As Stevenson so eloquently puts it: "to pass from hearing literature to reading it, is to take a great and dangerous step […] Those who once read aloud to us sang to their own tune the books of childhood. Whereas once we can read for ourselves, we have to approach the silent inexpressive type alone" (Donaldson, 1984).

The best introduction to literacy, at this age, simply consists of supporting a child's natural interest in what her drawings mean. Let her draw. Ask her what she drew. Write down on her drawing (or, better yet, on removable sticky notes) what she told you. Read it aloud to her the next day. Improvise other possibilities. Turn her commented drawings into little booklets. The idea here is to play with the notion that print, or handwriting, like drawing or storytellings, all convey meaning.

Digital tools may, in some case, be used to allow young children, age 4 up, to create and organize story elements playfully, by using tangible or physical building blocks, such as digital tiles, images, cards. Two examples of tangible Tale-Telling-Toys include, Tell-Tale (Annany, 2001), and PETS – Personal Electronic Teller of Stories (Druin and Hendler, 2000. p. 73-107). Of course, one should also be aware that there is much junk on the shelves, sold under the noble motto "educational toy that will make your child smarter (or more creative) earlier." Caveat emptor!

5 - 6 Years

Me – Being Me

Me - Using My Body

Swing With Others, Swing With Things. The main areas of a 5-year-old's physico-motor development remain, as was the case for 4-year-old: a growing sense of balance (static and dynamic), an increased perceptual-motor integration (i.e. being able to produce, or imitate, a gesture one sees someone else doing), greater body awareness (i.e., body concept, laterality or right-left discrimination, and directionality), and temporal-perceptual awareness, or sense of rhythm.

One noticeable change is that 5–6-year-olds now love to get in the flow of things, and in sync with people.

Like their younger counterparts, 5–6-year-old children use their bodies, and extensions like pens, forks and knifes, or hammers, to control other objects or actions: from surfaces, to food, to pegs and nails. However, more than younger children, 5–6-year-olds seem to relentlessly try to coordinate, say, their marches or dances, with music from a favourite record, or to synchronize their movements with that of other people, and things, using both visual and auditory clues. In other words, five-year-olds become obsessed with choreography! They show improved and more concerted, or planned, abilities at controlling their movements in time and space, and in relation with others. They use both the sound they hear and movements they see to help them monitor their own movements, and get in synchrony with others.

Competencies:
What does a 5–6-year-old naturally strive to learn?

Five- to six-year-olds' improved balance allows them to stand on tip-toe, or on one foot, for a few seconds, and to swing each leg separately for 5 swings. They can walk backwards heel-to-toe for four steps or more, and their jumping has progressed to two-foot takeoff and two-foot landing, with a preliminary crouch and swing of the arm from back to front. In ball play, they can walk up and kick a stationary ball with a full swing of the leg and compensate use of the arms to aid in balance (Anselmo and Franz, 1995. p. 384).

Most 5–6-year-olds can now imitate positions of other people, in games like "statues," and they start to imitate another person's movements, provided they are simple enough. Imitating movements from left to right or right to left, and/or diagonals, is still difficult at this age.

MANIFESTATION:
What actions will the child do to attain the competencies?

By their sixth birthday, most children can dress and undress without assistance, and they now proudly tie knots that hold! Many have learned, and love, to tie their own shoelaces. They spread food with a table knife, use scissors to cut out squares and other simple shapes, and they bathe themselves, with great joy, only with supervision.

In kindergarten, 5–6-year-old children learn to copy triangles, rectangles with diagonals, to print the alphabet, and to write numbers. They draw recognizable pictures, often adding ground and sky and attending to size relations.

SUPPORT:
What can caregivers do to support this natural development?

Play with your child and make sure you propose activities that involve other children. Many activities can be imagined to help 5–6-year-olds become physically fit and increase their body awareness, sense of balance, and perceptuo-motor integration.

Many 5–6-year-olds like to play "statues', in which a person's position is imitated by children. As soon as your child masters static "statues" type-games, you can move to more dynamic "moving statues" type games. The child, at this age, learns to invent games with other children and to embark in choreographed "dance and movement."

Continue to use B.C. Gilliom's basic movement education for 5–6-year-olds children (as mentioned in the previous stage). Yet, make sure you alternate between imitation-games (mutual attuning) and improvisation (creating your own). Imitation is fun because it creates synchrony: This is what we like when we dance with others. Creating one's own is fun because it allows for improvisation and self-expression. This is what we like when we dance for ourselves.

To facilitate eye-hand coordination and fine motor skills, let your child build models, using smaller pieces. Let him draw, write, cut and glue. Give him

finger paints, and chalk. Even video or computer games can be beneficial for eye-hand coordination.

Me – Knowing Myself

Knowing Who I Am and Controlling My Act. The sixth year marks a significant breakthrough in a child's self-knowledge: the understanding that, indeed, a person's inner states can be different from her outer expression. And not surprisingly, that's also when children learn to control their own impulses, desires, and needs, and to explain why they do what they do! That's also when they learn that their inner feelings can be held to themselves; in other words, the child doesn't not to have to be transparent all the time. This can lead to increased sensitivity to the effects of their actions or utterances on others, but it can also lead to duplicity of sorts.

Children of this age begin to genuinely understand that there may be some advantages in refraining, say, from hitting or screaming. And their grasp of why brute force may not be a winning strategy goes beyond mere social acknowledgement or generally accepted practice. For example, a 5–6-year-old may feel hurt by what another child says or does and, at the same time, start to understand that this person may not have meant to harm, or was too little to understand.

Learning to control her impulses enables the child to act more responsibly in her interactions with others. More important, it allows her to learn to negotiate her needs and wants. While self-control is important, too much of it can be stifling. Ego resilience refers to a person's ability to modify the level of self-control to meet the demands of changing situations. In other words, that the person is adaptable and can exercise judgement over how much self-control is warranted in a given situation.

Competencies:

What does the 5–6-year-old naturally strive to learn?

A 5–6-years-old's view of how he, and other babies, come to be is still very concrete. If told that "Daddy plants a seed in Mommy's belly" children of this age may naturally think of gardening, and develop the wildest ideas about what's going on in Mom's belly. "Such simple statements by adults may be the cause of colourful ideas we attribute to preschool children (e.g. finding babies in cabbage patch). The idea that 'Daddy plants a seed in the mother' may give raise to unusual ideas about plants growing" (Anselmo & Franz, 1995. p.412).

At this age, sickness is still mostly explained by external causes, such as contagion. Yet, the concept of contagion itself is less "magical" at this age. It is more like a causal mechanical kind of influence. This being said, many children, at this age still use immanent justice—that is a tendency to blame themselves i.e. their own behaviour, for their own illness and pain. In this realm, age differences tend to blur.

MANIFESTATION:
What actions will the child do to attain the competencies?

A 5–6-year-old's ways of categorizing people and/or creatures (emotionally or cognitively), including themselves, goes beyond physical clues to include character traits or mindsets (see section on Us in Part 2 on children's evolving theories of mind).

Five- to six-year-olds start to be attracted by, and identify with, other people outside the family like teachers, or the cool kids on the block or in the classroom. In their pretend play, they become princesses, heroes, or wild dragons, all with their special powers. Heroes in books and TV become important to help them shape their identities. So are best friends, although at this age, they may change often.

A five- to six-year-old's views on how they came to be, and what makes for a healthy, happy person, or a sick, sad one, are still rather animistic/mechanical, although, as they get closer to their sixth birthday, many children enter into the stage of concrete operations, and as this happens, they develop more "objective" views of themselves, including their origins and inner workings.

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

Help your child keep a balance between two extremes: being an under-controller or being an over-controller. Easier said than done! Under-controllers are often described as expressive, extroverted, spontaneous, distractible, unable to delay gratification, and having many but short lived enthusiasms and interests. Over-controllers are often described as constrained, inhibited, introverted, showing minimal expression of emotions, non-distractible, organized, sticking to their interests.

One way of helping children find a balance between over- and under-controlling is through role-play. Especially at this age, role-play is an

excellent way of getting youngsters to "put themselves in other people's shoes" and "feel what they feel" if acted upon in certain ways. Imagine scenarios where kids are encouraged to switch roles, say between hitters and receivers, haves and have-nots, wolves and princesses. Act out the scenes, discuss how a story could be told or felt, from different viewpoints. Draw some ethical conclusions when relevant, or better yet, let the child draw them.

Us – Growing Together

Us - Relating to Others

Serious Play — Becoming Industrious. Provided their relations with primary care-givers are stable and trusting, and basic autonomy is established, preschoolers have entered the phase of their psycho-social development called initiative. Now, as initiative itself becomes established, yet another Eriksonian stage sets in: Five-year-olds learn to become industrious. What industry adds to initiative is the satisfaction of doing "the right thing", or doing what it takes to "get things done" and "done well."

According to Erikson, between the ages of five and eight, children become industrious, i.e. they become increasingly eager to direct their energies into producing things. They start following through on projects such as building forts, or cooking a meal. Elkind (1970) has called this the "Robinson Crusoe age" because "the enthusiasm and detail with which Crusoe described his activities also characterizes children's own unfolding sense of industry" (Anselmo and Franz, 1995. p. 428-429).

Children's sense of industry is enhanced when their efforts are encouraged and their completed projects are noticed and rewarded. In many countries, children who enter Erikson's stage of industry also start schooling and receive some systematic instruction. This is why it is sometimes hard to tell whether children become industrious because they face the expectations of school, or whether school provides a new context to shape, for good or bad, their inherent unfolding sense of industry. Whatever the case may be, there seems to be a developmental fit between a child's growing sense of industry, as defined by Erikson, and her socialization beyond family life.

Competencies:
What does a 5-year-old naturally strive to learn?

The industrious child likes to follow through on a task he sets himself and to complete things he began. He also learns to carry out his part in a co-operative effort. When a child's efforts are not properly recognized, or the fruit of their work is seen as inadequate, children may, according to Erikson, feel unable to live up to external and internal expectations of social interactions, physical feats, or mental discipline.

Obviously, 5-year-olds are only starting to become industrious. Their willingness and abilities to undertake and pursue tasks is still tentative and brittle. Their following up on things, caring for outcomes, and negotiating parts in cooperative undertakings will become more obvious as the child reaches her 6th or 7th birthday and peaks around the age of 8 (see years 6–8).

Pretend and role-play are at their height at this age, allowing the child to re-enact many puzzling social relations, control their aggression, and practice empathy. Many feelings and emotions are expressed and negotiated through play. While play provides a privileged test-bed to check out some of the risks that taking initiative and becoming industrious involve, the child, at this age, also likes to transcend play itself, and engage in what Papert has termed "hard fun" (Papert 1993) In other words, play is OK but it has to be serious, challenging, and "hard."

MANIFESTATION:
What actions will the child do to attain these competencies?

While still dependent upon their parents, children at this age become increasingly attracted by other children and by adults outside the family. They start to make friends at school or at the playground, and their friendships are more stable. This is also an age at which children start going to group activities, like sports or scouts, and take music, gymnastics, or dance classes.

Five-year-olds can contribute to a conversation among adults by bringing something relevant to the topic being discussed, and they are better able to gauge when it is appropriate, or not, to say certain things. In other words, they can monitor the complexity, tone, and style of speech, depending on whom they talk to and based on their assumptions of how other people feel and think. Beyond content, they understand context.

This and the previous year mark the highpoint of pretend and role play. Children continue to enjoy follow-the-leader games. As they reach their

6th birthday, children increasingly enjoy board games, and Pokemon-type of item collecting and swapping games, where they learn to take turns and cooperate. Children of this age are not especially good at losing in competitive games, nor do they like to be criticized or stick out of a group as being different.

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

To develop a sense of industry, children need sensitive parents, teachers, and recreation leaders, who can individualize expectations, and help the child channel her exuberance into a long-term project she enjoys. It can be important for children at this age, to engage in at least one field of endeavour that they like—be it academic, athletic, or musical.

A first rule, when it comes to foster initiative and industry, is to let the child play with other children. Peer relations are a key to practicing social skills. Especially at this age, a child's first real lasting friendships help her immensely in learning to bond with others while preserving his right to take initiative.

Invite other children to your home. Children at this age love to play games in groups. Help your child to lose gracefully in a competitive game, and besides competition, engage them in open-ended, cooperative and turn-taking games. Also important at this age: Encourage your child to share what she does at school, discuss with her what she sees on TV or reads in a book. If she asks for it, give her ideas on how she may bring some of what she likes a step further…

Educators have invented many games through which children learn to shape and sharpen their relations to others (see next section on 6-7 years). Most important, however, when it comes to teaching social skills, is to be a good role model. At school, this may imply a caring ambience, in which each child is appreciated for what she can offer, and where the group builds on individual contributions to move ahead, as a group (Reggio-Emiglia Schools, 1998).

US - UNDERSTANDING OTHERS

Awareness of Others' Beliefs. In the sixth year, children become better at customizing their ways of relating based on their assumptions of how others feel, act, or think at a given moment, and under given circumstances. In other words, they clearly recognize that moods, intents, and behaviours can change over time, and across context.

Beyond understanding that other people think differently, 5-year-olds begin to grasp which feelings or beliefs a person may hold. A good example of such understanding is provided by "theory of mind" research on false beliefs and the appearance/reality distinction.

Research on false beliefs (Perner and Wimmer, 1985) indicates that, by the time they reach their fifth birthday, most children start to understand that a person may believe something (that the child knows to be) false. They can identify and describe another person's (false) belief, and anticipate that the (false) believer will act on the basis of her (false) belief. So, for example, if a child knows her friend was not in the kitchen while mom moved the cookies from the drawer to the top of the closet, she will correctly guess: Her friend, the non-knower, will look for the cookies in the wrong place, namely the drawer. At the same age, children also first understand the distinction between what something is (reality) and what someone might believe it is (appearance) (Flavell, Flavell, & Green, 1983).

This being said, many pre-school children still have difficulties in conceptualizing what exactly the inner, psychological states of other people may be. It is not until the concrete operational stage, around the age of six, that a full appreciation of inner psychological states becomes possible. This is true whether the child is judging the feelings, thinking, or understanding of other people.

COMPETENCIES:
What does the 5-year-old naturally strive to learn?

During the sixth year, a child's abilities to reflect upon and converse about inner states grows by leaps and bounds, and is readily used to monitor and optimize social relations. The child now shares her reflections about emotions, intentions, desires, and thoughts. He can do so even outside of playful contexts, such as formal interviews (Astington, 1991).

Based on his assumptions on how others feel and think, the child becomes better at adjusting his speech [both complexity and tone] to fit his interlocutor's engagement, age, and mood. So, for example, a 5-year-old starts to monitor, or check out regularly, if a younger child understands what he says ("You see what I mean?"). He will also naturally use shorter sentences and articulate his thoughts more simply than when He speaks to older kids or to adults.

MANIFESTATION:
What actions will the child do to attain the competencies?

Five to six years marks the highpoint for make-believe play. Children develop increasingly flexible and sophisticated plots, they change voices according to character, and they assume different roles. They also use language more extensively to communicate in their play, and much of what they say is meta-linguistic, or meta-cognitive, i.e. they talk about how to talk and act. Through their role-play, the children vicariously feel-and-live through different characters, and they take on and act out other people's wishes, beliefs, intentions.

At this age, children also want to be taken seriously as a partner, beyond play. They enjoy taking care of others, and they will ask their parents to give them pets to play with.

SUPPORT:
What can caregivers do to support this natural development ?

Help your child express and communicate her feelings. Create a safe context to discuss the consequences of certain emotional reactions to/from other people. Imagine scenarios that can be played out on safe ground. Focus on role-play. Put the child in the role of the giver and taker, of the aggressor and the aggressed, of the potent and the weak. Discuss the consequences of being "dissed" (disrespected) or accepted by others.

One of the best ways to prepare children to understand "reversibility" in social transactions is to present him with hypothetical scenarios in the fantasy realm. Again, do not pressure any child to disclose his feelings if he doesn't want to. Damon (1977, 1980) developed hypothetical stories and presented them to children from the ages 4 to 12 to study their social reasoning. Similar stories, involving moral paradoxes, can be imagined and used for educational purposes.

World – Making Sense of it All

WORLD – EXPLORING AND INVESTIGATING

From Inquiry to Experimentation. Five-year-old children are quite proficient in mentally working through solutions to problems, thus moving away from intelligent trial and error and "messing about" and engaging more readily in

directed inquiry. Like young private investigators, they love to make guesses before they try out something! They have become experimentalists.

In their explanations, children of this age still tend to ascribe people-like qualities to inanimate objects, especially objects that move strangely, as if self-propelled, and their thinking remains essentially magical. These forms of thinking remain prevalent among most pre-operational fives, although as they reach their 6th birthday, many children start to think more "logically." They are soon ready to enter the so-called concrete operational stage.

COMPETENCIES:
What does the 5-year-old naturally strive to learn?

Five-year-olds continue to produce a steady stream of questions, such as, "Does the moon follow us?" "Why is the grass green?" etc…yet, more than 4-year-olds, their questions are relentless and orchestrated. Indeed, many children, at this age, start to leverage their sense of initiative by becoming industrious. According to Erikson, they want to bring their projects to completion, succeed in school, and accomplish many long-term tasks—in and out of school. Their explanations, while sophisticated, remain essentially "egocentric": Animism and magical thinking lessen as the child reaches her sixth birthday.

MANIFESTATION:
What actions will the child do to attain the competencies?

Children of this age are generally fascinated with everyday physics. They love to explore such things as the way water flows, the impact of gravity, and other aspects of everyday physics. They do so at length, and very thoughtfully. This marks a transition: while the child still sees water, clouds, fire, or trees as human-like, he also explores more "objective" qualities through playful experimentation.

Five-year-olds can order photographs to tell a tale that has a beginning, middle, and an end (Montangero, 1996. p. 6).

In thinking about time, 5-year-old children start to isolate time from its spatial, narrative, and causal underpinnings, although they cannot yet conserve time as an invariant. Nor can they build an external clock, or metrics, to evaluate durations and make sense of changes over time.

As they approach their sixth birthday, some children start to conserve substance in certain contexts, such as pouring liquids in glasses of different sizes, or moulding play-dough into different shapes. In such situations, the children are no longer "fooled" by the appearances of things. They will understand that it's the same amount of play-dough if they roll it into a sausage or divide it into many smaller pieces, or they reason, "I won't have more milk just because I pour it in a glass than is high and thin". While obvious to most adults, these kinds of understandings are built by children over the first six years of their lives.

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

Researchers generally agree that children need occasions to ask many questions and to explore many answers for themselves, with the encouragement and support of adults and peers. Pierce, in particular, has shown that both the number and types of questions asked by a child are good predictors of how well students will understand subject matter later, when taught in school (Pierce, 1990).

The lessons to draw from this are pretty obvious: Instead of focussing on teaching or providing "right" answers, be an enabler or a facilitator! Let your child explore, tickle her curiosity, and support her initiative. There will be plenty of time, as she enters school, to be confronted with "unasked for" explanations to questions posed by others.

WORLD - SEEKING LOGIC

"Give Me a Ten". In the sixth year, many children learn to count-and-point, which represents great progress as compared with enumerating numerals like a string of words. Yet, 5-year-olds still do not yet have a concept of number to speak of, i.e. the logico-mathematical skills needed to grasp what numbers actually stand set for as the child reaches his sixth birthday.

Typically at this age, when asked to count how many objects there are in a basket, a child will say "one" and point to an object, then say "two" and to another object, etc… While this looks like "real" counting, the catch is: to the child herself counting sequences by touching objects does not mean that each more advanced number excludes the previous ones.

Many children also still confuse the ordinal and cardinal aspects of numbers. So, in a series of, say, 7 eggs, they will count-and-point some eggs more than

once and forget others altogether. There is no systematic "logical" strategy to achieve one-to-one correspondence. Many children also still hand you the block "called ten" when you ask them to give you "ten" blocks: the numeral '"ten" designates the tenth one to be pointed to/named i.e. the cardinal "ten" is indistinct from ordinal "tenth."

COMPETENCIES:
What does the 5-year-old naturally strive to learn?

Five-year-olds are intrigued by numerals as a system, and will ask many questions like: "What happens after you count to 999?" Or "What is the biggest number? …And if I add one to the biggest?" They want to know how many floors a building has, and they keep track of whose building has most.

This being said, when asked to count, most children, at this age, will count aloud correctly, placing a finger on a separate block as they say each number. Yet, two main difficulties remain: 1) they possess no one–to-one correspondence i.e. they point-and-count a same block more than once, and 2) they "give you a "ten" instead of ten….

MANIFESTATION:
What actions will the child do to attain the competencies?

Children of this age perform many informal investigations involving quantifications. These include both counting and measuring without numbers: stacking unit blocks to a particular height, extending them for a particular length, and determining just the right size block to use in a particular place.

Five-year-olds like to experiment with shapes and space. As they approach their sixth birthday, they may start to "measure things" using their footsteps, and "count" using their fingers.. They may enjoy playing with pattern blocks, Cuisenaire rods, Dienes blocks, and other manipulatives meant to embody aspects of the number series, like regular increment (i.e. plus one).

Five-year-olds do not yet understand the ordinal, cardinal, and inclusive aspects of numbers. Nor can they use a ruler or any other measuring units smaller than the total continuous quantities to be compared.

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

Say "math" and most people see pages of numerals to be matched to groups of hats, a number line, or addition problems. In fact, the real world of math is both broader and deeper and better tailored to children's own interests and curiosities than commonly thought.

Leave aside counting series and the calculations involved in adding, subtracting, multiplying, or dividing, introduce your 5-year-old to mathematical and logical thinking through activities such as :

- Classifying: Sorting or forming groups by similar attributes. Putting together things that belong together. Example: Sorting beads from blocks, or red beads from blue ones, sorting shapes.

- Comparing: Establishing a relation between objects. Looking at differences as well as similarities. Example: build a bigger or smaller tower. Playing "who gets more" in distribution games.

- Ordering: Arranging elements in a sequence. Example: Building a chain or a train of things. Ordering or seriating objects of incremental sizes (e.g. biggest to smallest).

- Patterning: Ordering with repetitions, or iteration, of elements to form more complex arrays. Patterns can be temporal (musical or rhythmic pattern) or spatial (Tiled floor, Persian carpets). We speak of patterns when the arrangements of elements exhibit some identifiable regularity, or structure. Example: tiling games, recognize that a stripe of a shirt is a part of a pattern. Many rich activities can be imagined involving:
  - identifying patterns (see where the regularity lies, where the unit repeats)
  - describing patterns (telling what the pattern looks like)
  - extending patterns (changing red green pattern to red blue pattern)
  - completing patterns (finish a pattern already started)
  - creating patterns (inventing new patterns)

Creations – Realising Visions

Creations – Imagining

Fantasy as a Gateway into Reality. The fifth year continues to be a high season for make-believe activities, and it marks a transition between Stage 3 and Stage 4 humour, as defined by McGhee. One significant breakthrough at this

age is the child's ability to move from realistic to more fictitious pretence. Many five-year-olds imagine and dwell in fantasy lands. Their approach is less about creating variations around, and spoofing, everyday situations than it is about producing fiction!

In their pretend play, five-year-olds imagine many elaborate plots, involving a multitude of actors who live in fantasy worlds. The children themselves inhabit and act out their personae, changing voices according to character, and assuming different roles. Also noticeable at this age, characters have to be believable and their actions relevant within a chosen world.

Many adults misinterpret the meaning of children's fantasy life at this stage of development, mistakenly thinking that children are trying to "escape from reality." Yet, a closer look at the actual scenarios that children create reveals that their fantasy play, though it may involve stuffed animals or other more fantastical creatures, is never very far removed from reality. As the author John Holt put it in his classic book, How Children Learn, "Children use fantasy not to get out of, but to get into, the real world" (Holt 1983, p. 238). It is their way of understanding it and coming to grips with their experience, turning it over and possessing it.

A 5-year-old's sense of humour still often relies on "pure incongruity." In other words, nonsensical incongruities are amusing enough, provided they occur in a fantasy world. "In a series of studies, McGhee (1984) found that incongruities need to occur in a fantasy context in order to produce humour. The same incongruities in a reality context interfere with humour. For example, if a clown had an exaggerated nose, children (of this age) would perhaps laugh. If however, a person on the street had a realistic ear in the usual position of her nose, humour would likely be replaced by discomfort" (Anselmo and Franz, 1995. p. 508).

COMPETENCIES:
What does the 5-year-old naturally strive to learn?

In their pretend play, and more generally in their play, children of this age make better use of "adapted speech" as they discuss possible scenarios, negotiate who is doing what, suggest ideas to each other, and question and seek answers from each other. Much of their play takes place at the "meta level," that is, talking about their play, organising it, etc.

Children talk within their pretend play constitutes a privileged context in which to crack jokes and to incorporate "silliness" into their plays. The type

of humour at this age is riddled with incongruities and "bathroom" humour. Another interesting feature, at this age, is that children often laugh at jokes that they don't understand. They recite riddles simply to make others laugh! In other words, to a 5- or 6-year-old, non-sensical incongruity can be funny enough, especially if it produces laughter in others!

Around 5-6 years of age, some children start to transition toward Stage 4 humour, finding amusement in multiple meanings, although this form humour will more fully develop as the children reach their sixth birthday (see next age year).

MANIFESTATION:
What actions will the child do to attain the competencies?

In their pretend play, 5-year-olds can deal with more abstract ideas about objects or characters that are not necessarily present. So, for example, a child may tell another: "I know a princess doesn't wear a hat, but her sister does ", or "I want that monster to be meaner, greener, and scarier, and not just dress like a kid". While pretending, children like to indulge in silly jokes together, and they often, though not always, love to have others (often adult spectators) witness their play.

In general, at this age, children make a greater use of language to communicate in their play. Most children now verbalize their thoughts, in addition to enacting their parts. We witness dramatic changes of voice, and longer and complex sentences. Children also express themselves through dancing, drawing, using puppets or change of voice, singing songs, repeating nursery rhythms, and acting out stories.

Children of this age find it funny to see a clown with a large fake nose and oversized shoes act clumsily at things that even children can do. They giggle at the idea of milking a dog, or having a dog moo. Distortion of familiar sights and sounds, including rhyming and nonsense words, is still a source of humour at this age.

When watching cartoons, most 5-year-olds won't find 'pure incongruity" funny. Instead, they appreciate cartoons in which some resolution of an incongruous situation is at play. An example of a funny resolution to an incongruous situation may be when 'Dumbo' the elephant finds himself up a tree (elephants don't climb trees) and resolves the situation by flying away (elephants don't fly!).

Some children start to engage in so-called "joke façade" which, according to Freud, serves to disguise aggressive and otherwise taboo ideas, or behaviours.

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

A child's imagination is often seen as a passing phase of childhood that has little to do with the real work of learning. Many parents and educators, fearing their children may lag behind in school for lack of seriousness; try to educate the imagination out of their children. This is not a good idea!

Imagination is a vital source of learning and understanding. Without the ability to imagine, even the most rational of minds will spin endlessly and become stuck in the muddy routines of the familiar. Fortunately, we don't need to do much to get children to use their imagination; they do it all the time. We just need to avoid doing things that stifle this impulse or make them self-conscious about it: "Act your age! Stop being so silly! Will you ever grow up?" It is perhaps wise to remember that our most creative scientists, artists, and inventors have not lost their childlike ability to imagine "silly" things.

Though children may be attracted to the pre-packaged fantasies delivered to them via television or cinema, it may be a good idea to limit their TV show time, especially at a young age. There will be plenty of time later on to become a consumer of other people's fantasies.

CREATIONS – ENACTING AND CREATING

I Show It, I Tell It, I Write It. In addition to speaking, play-acting, and dancing, five-year-olds become increasingly interested in capturing, recording, and editing fleeting events, such as music, human voice and movements, through any medium that permits them to do so. So, for example, as they sing and listen to music, they frequently enjoy recording the rhythms and melodies using a tape recorder, and some children even enjoy "drawing" the sounds and rhythms they hear on a sheet of paper. As they speak and listen to stories, they want to make sure their favourite stories are concealed in books to be retrieved, at any moment, for further usage: a good incentive for learning to read!

At this age, early forms of pretend play go underground or, better, they take on new forms, paving the way to the staging and play-acting of many elaborate shows, from puppet shows to dance and theatre! In kindergarten, children of this age engage in arts-and-craft activities, producing many

artefacts, such as drawings, sculpture or glazed pottery, and other forms of artwork—common gifts to parents!

In sum, beyond performance, five-year-old children greatly improve their drawing skills, and they start to write their first letters and numbers, which often appear as elements in their drawings. This is not to say that five-year-olds ignore the difference between, say an icon (as in a drawing), a letter or word (as in writing), and a numeral (as in counting). Instead, children enjoy moving seamlessly between languages, in this case written ones, bringing them all together on a sheet of paper.

COMPETENCIES:
What does the 5-year-old naturally strive to learn?

Five-year-olds are at the brink of becoming literate in the narrow sense of learning to read and write. This being said, the child of this age is not yet ready to let go of the immediacy and livelihood of live performance and playful scribbles to the benefit of deciphering those inert traces on a printed sheet of paper. Even producing letters, words, and numerals, out of context, can be a chore to a child of this age.

Most children of this age are still into "pretend" reading and writing. They like to recite (as if they could read) printed words or passages in a book that they can't yet decipher! They use images and words as cues and placeholders for the text. In their written messages, five-year-olds mix scribble-writing and linear mock writing, to which they start to add their own "signature": often a letter, or a series of letters, that stands for their name.

In her drawings "the child enters the 'pre-schematic' stage (Brittain, 1979). She now draws recognizable figures, often adding ground and sky and attending to size relations. Objects do not usually float around in space as before, and her people may have as many as six or seven body parts" (Anselmo and Franz, 1995. p. 391).

In kindergarten, the children will further refine their reading and writing skills, and they will learn to model, draw, notate rhythm and music, and copy geometric shapes and letters. Provided children are not forced into literacy too early, and too rigidly, all the above skills will evolve without "killing" their creative expression!

MANIFESTATION:
What actions will the child do to obtain these competences?

In their kindergarten year, most 5-year-olds can write their first name and copy shapes, such as triangles and rectangles with diagonals. When asked to "write down" a favourite song or rhythm, they produce a row of strokes of varying lengths to indicate fast and slow passages. The strokes are often produced at the pace of the music.

Children of this age learn to print the alphabet using both uppercase and lowercase letters. They write numerals from 1 to 9, and they create "pre-schematic" drawings or paintings at an easel (Brittain, 1979)

At this age, children still draw chimneys rising at a 90° angle from the roof, instead of vertically or perpendicular to the ground (Piaget & Inhelder, 1956; Werner 1957).

In their play-acts, five-year-olds express themselves verbally, and they do so very well; they talk in and about the play. We hear dramatic changes of voice, more correct grammar, and longer and more complex sentences.

More generally, 5-year-olds enjoy and acquire the ability to sequence story elements in a linear, coherent manner. This, in turn, calls for transitional spaces (playgrounds) in which children can mess around with story elements, combining and recombining them until they form meaningful configurations (or sequences). Children are good at creating such spaces in their free-form fantasy play.

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

The passage from speech to writing, while bringing about gains that most children appreciate, also entails losses, often ignored by educators, researchers, or parents (Ackermann, 1991). The written word separates author from audience, audience from the site of the plot, and word from voice. Speech, by contrast, is an integral part of human performance, and punctuates a narrator's action as it unfolds. Speech bridges what is said to who says it, and who says it to how it is voiced (Ong, 1982).

This is why forcing a 5-year-old into reading and writing, rigidly and divorced from any dialogic context, can be counterproductive. At this age, reading and writing should be combined with other forms of creative expressions familiar to the child, such as play-acts and dialogues. In this spirit, encourage your child to share what he does at school, sees on TV, or reads in a book.

Read books about what they see on TV. Act out what he reads. Play video games with them, and then play-act some of the scenes in another medium. In other words, let the children speak in their hundred languages. Bedtime storytelling rituals, using books as a medium, remain, even at this age, a favourite to introduce children to literacy in a pleasant, comforting way.

Digital technologies, in particular digital styluses (e.g., the Leapfrog stylus) can, in some cases, be useful to help a child "unlock" the meaning of words she herself points at with her digital stylus: In effect, as she strokes the top of a word or sentence with her "magical" stylus, the system reads the chosen passage aloud to her. Good enough but much less fun than hearing Dad or Mom do the same translation!

The Whole Child Development Guide is grounded in research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.
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6-7 Years

Me – Being Me

Me - Using My Body

Play for Good! In the seventh year, many children become eager, besides playing, to achieve things for real! More than before, they like to help with household routines: From mowing grass, to trimming trees, to working in the kitchen or in the workshop. And since they take it seriously, they like to be taken seriously in return. They feel good when they succeed and when their efforts and achievements are recognized. The enjoyment related to accomplishing challenging tasks is sometimes called "hard fun" by children this age.

Six- to seven-year-olds will spend much time trying to manoeuvre their two-wheel bikes (the real thing) and are thrilled when they can get rid of those baby training wheels. They will want to jump over yardsticks like "real athletes," and they like to run while being timed. In playing ball, they enjoy playing with others. Although it will take one more year, or so, before they become convinced and accomplished team players.

Obviously, 6–7-year-olds still love to fool around with peers, and be silly. And the joy of playing alone won't go away either! Six to seven year-olds may not go to the playground as much. Instead, they enjoy playing in the backyard with other children (if yard there is), to the ball field or the park.

Competencies:
What does a 6–7-year-old naturally strive to learn?

Six- to seven-year-old children are strong, mobile, and agile, and they like to share many activities with others. Their body-awareness and perceptuo-motor integration continue to increase, and so does their sense of balance, both static and dynamic

Six- to seven-year-olds readily engage with grown-ups in everyday activities, or sports, and they are eager to play "hard fun" and be taken seriously. At this age; the harder the better! A 6–7-year-old will want to carry heavy packs, help drag logs or push a heavy table into a corner for a party. She will also

want to help prepare food: measures things, peeling and chopping vegetables etc., in which case the harder don't require strength but dexterity.

When playing ball, 6–7-year-old children can throw a tennis ball with one hand, bounce it with one hand, and catch it with both hands. Activities that combine movements, such as catching while running are greatly appreciated, and open the way to many rhythmic dance/music games and specialized sport skills

MANIFESTATION:
What actions will the child do to attain the competencies?

Most 6-year-olds can ride two-wheel bikes, jump ropes three or more times in a row, chin themselves on the bar at school, and stand on each foot alternately, with eyes closed. They can carry a 5 kg sack of groceries the 20 feet from the car to the kitchen. They can also jump a metre or so from a standing position, over a stick held 20 cm from the floor.

At school, usually first-grade, children of this age can copy diamond shapes, print their name, and write numerals. They draw, paint, glue, and cut, and they do so better and better…

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

Cultivate your child's growing body awareness and perceptuo-motor skills by playing dynamic "imitation" games, such as "mirrors", and 'places". Devised by Sullivan (Sullivan, 1982a) both these games are popular among 6- to 8-year-olds.

In mirrors: A 'leader", usually an adult but not necessarily, is facing a group. The leader will perform a series of movements, and the group is asked to do the same. In places, usually more popular among older children, the children are invited to move around, spot places, and freeze, at the sound of a drumbeat. The specific directions are "pick out a place in the room with your eyes. Now walk to that place. Look around. Pick another place. Go there, and then revisit each place in reverse order.

Invent your own games. Again, alternate between imitation and improvisation games. Offer a wide repertoire of possible activities: from dance and music to specialized sports skills. Don't get caught up in only one mode.

Some children may like to start playing an instrument, or to paint. Besides all the other pleasure this can provide, the dexterity these skills demand can greatly increase a child's eye-hand coordination.

Me – Knowing Myself

What I Feel / Think is Not Always How I Act. The seventh year marks the beginning of concrete operations. The child is now able to reflect upon actions that were previously performed, and can draw conclusions – in his head. One of the primary characteristics of concrete operations is reversibility: the ability to mentally reverse the direction of thought. Another characteristic is the understanding that thoughts are different from actions, and appearances are different from reality.

The child is now able to put himself in place of other persons, which has direct repercussions in how they perceive themselves. This ability to take differing perspectives or points of view marks the onset of a new and more sophisticated maturity that has ramifications across all the developmental categories.

Competencies:

What does the 6-7 year-old naturally strive to learn?

At the age of 6, children become increasingly aware that there are two facets to a person's psychological self: the inner, subjective self (what they think and feel) and the outer, objective self (what they do). At this level, many children still think that these two parts of a person are (or ought to be) consistent. The young child does not know how to hold back. She frequently blurts out whatever she thinks or feels, regardless of the consequences. But a 6–7-year-old begins to be more discriminating and learns to hold back or conceal her true feelings to avoid being inappropriate or rude. Yet, according to Selman, it will take one more year before children "really" understand that it is possible to trick and fool other people, as well as oneself (Selman, 1981).

Starting at age 6, children's views of their bodies and its inner workings change. The child may still have a limited understanding of the processes governing conception or aging. For example, he may not yet see why the participation of both parents is necessary to create a baby (Bernstein and Cowan, 1981). However, in general, 6-year-olds develop a more "objective" sense of what's happening in their bodies, of what is likely to be "good for you", i.e. make you healthy, or sick, and of the functions of different organs,

For example, a 6–7-year-old knows that food goes into her stomach, that she breathes with her lungs, and that she can feel her heart beating after she runs around a lot. Likewise, when she gets sick, the 6–7-year-old has a fairly good idea as to which part of her body is affected.

MANIFESTATION:
What actions will the child do to attain the competencies?

Children, at this age, increasingly identify with others, outside the family. They are attracted to the cool kids in their class, form crushes on teachers, movie stars, and rock musicians. Heroes in books and TV remain important in their lives to help them form a sense of self.

Although 6–7-year-olds are increasingly aware of their own, and other people's, worth, they are still rather sensitive to criticism, and they don't like to stand out in the crowd as different and odd. Losing gracefully is also still a problem at this age.

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

Although children, at this age, are learning to control their emotions, and tell their needs and wants instead of using brute force, especially when they feel vulnerable, they may still have childish outbursts of temper.

Help your child be comfortable with who they are, and motivated to take the time and work it needs to excel in areas that they like.

Children of this age are aware of their newfound ability to "figure things out." They love "brain teasers" and puzzles of all sorts. They love to play "detective" and hunt for clues, or find hidden objects using a "treasure map."

Us – Growing Together

US - RELATING TO OTHERS

Onset of Concrete Operations. The seventh year marks the highpoint of Erikson's stage of industry and the beginnings of Piaget's concrete operations. This culmination paves the ways for a cascade of new developmental breakthroughs. Most significant, the industrious child is now able to think objectively, or logically,

about things that were previously performed through physical or concrete actions, and to draw conclusions in the head. The child can also mentally reverse the direction of an action, take on different perspectives, and distinguish appearance from reality. Needless to say, this newly acquired cognitive power greatly helps the industrious child to become ever more competent and successful in the pursuit of her personal and social undertakings.

COMPETENCIES:
What does a 6-year-old naturally strive to learn?

The child's ability to put himself in other people's shoes, take on different perspectives, and distinguish appearance from reality, has deep repercussions for how he relates to others. Six-year-old children have at their disposal an amazingly rich palette of ways of relating, plus a great many justifications, or arguments, for why they relate the ways they do.

A 6-year-old can empathise and cooperate and, conversely, she also competes and requests, criticizes and argues. She will tell you, beyond "because I say so," why she thinks what she thinks ("I won't play with you anymore because you cheat") or why she wants what she wants ("I need to drink juice because it's good for me"). In other words, she has ideas and opinions that can and will be exchanged, and she uses these ideas to monitor and optimize her bonds with others.

The child is learning how to argue, debate, and negotiate—all of which are part of what it takes to become a playmate, a work-partner, or a team-player. They develop a personal sense of what makes for appropriate social behaviour, and they try to "walk the talk."

More generally, at this age, a child's urge to become industrious truly sets in: once rules are set and agreed upon, the child becomes eager and able to follow them. Many 6-year-olds do so thoroughly, and appreciate it when they are taken seriously for their seriousness.

MANIFESTATION:
What actions will the child do to attain the competencies?

Six-year-olds can feel sad or happy when a friend is sad or happy. They can also distance themselves and hold onto their beliefs. So, for example, a child may choose to withdraw when bullied by another kid or drop an argument if someone just doesn't seem to get it.

A 6-year-old understands and will tell you that "when you get mad, it doesn't do any good to hit—they might hit you back," or "I was so embarrassed, I just wanted to disappear" (Smith, 1982).

Children, at this age, become better at negotiating their wants and needs when cooperating with others, and they try to abide by the rules. By the same token, many 6-year-olds also develop a sudden urge to compete: They desire to be the best.

As they reach their seventh birthday, most children begin to internalise a sense of justice through co-operation and mutual respect, as well as a sense of pride for their own personal strengths. It will take still more "developmental time" for the child to further balance his apparently contradictory needs to cooperate and compete, to take initiative and follow others, and to follow and break rules.

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

At this age, children exhibit fewer "incorrect" emotional responses. They become better at describing their own feelings and motives—and that of others—which, in turn, helps them manage their social bonds more efficiently. This process can be enhanced through adult intervention, provided the intervention remains non-intrusive.

The 'feeling peeling' game is also relevant here. (See overview of Us at the beginning of this Part.)

While a small dose of "fair" competition is a healthy counterpoint to cooperating among peers, at this age, 6-year-olds also need to learn to lose gracefully and, what is perhaps more important, to win gracefully! Help your child internalise the benefits of co-operation and mutual respect. At the same time, help her develop a critical mind. In other words, allow her to be constructive and critical, empathic and detached, caring for others yet proud of her unique ways and personal strengths. Again, easier said than done!

No child should ever have to hide, or stay alone, if he is insecure, or fear he is not good at something. Nor should a child be misguided into fearing criticism, avoiding comparisons with others, or refusing to do what it takes to get better at something he likes. Cheap appraisal can be worse than loving criticism. Most children will open up and accept to lose at

competition games, if the winners are willing to share, not gloat, and show respect. Adults are key in setting the stage for safe and kind cooperation/ competition.

Us - Understanding Others

Taking the Perspective of Others. The child is now ready to go at things, hands on and heads in, and to make her dreams come true. She is also able to think about events that were previously performed through physical actions, and to mentally reverse their direction in thought. She can take on different perspectives. Another characteristic is the understanding that thoughts are different from actions, and appearances are different from reality.

The child's ability to put himself in other people's shoes, and to take on different perspectives, has deep repercussions, not just in how he relates to others, but how he understands other people's minds, intentions, and actions.

Competencies:

What does the 6-year-old naturally strive to learn?

Between the ages of six and eight, children build an ever deeper understanding not just that other people may think differently, but that they often do so in very particular ways. They become able to identify these differences, to express them, and gauge them for what they are. What's more, children at this age become able to switch between different people's perspectives, or viewpoints, and identify in what ways these perspectives differ from each other.

Manifestation:

What actions will the child do to attain the competencies?

Children at this age understand and empathise with others: they can feel sad or happy when a friend is sad or happy. They can also stick to what they believe, even if others don't agree, and they may argue with others about mutual wants and needs. They start to negotiate wants and needs, and build an inner sense of balance, or justice, through mutual respect and co-operation

Support:

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

The 'feeling peeling' game is also relevant here. (See overview of Us at the beginning of this Part.)

In role playing games, always respect a child's desire not to disclose how she or he feels, and make sure the children understand that there is nothing wrong with having "negative" feelings, or even wanting to act them out. Help them understand, beyond first impressions or reactions, some of the benefits of using one's mind and heart to control initial drives.

World – Making Sense of it All

World – Exploring and Investigating

Developing Objectivity. As previously mentioned, the seventh year marks the beginnings of Piaget's stage of concrete operations. This is a big turning point. The child now reflects upon things that were previously acted out, and draws "logical" conclusions in the head. One manifestation of this newly acquired competence is that children of this age like to engage in guessing games, thus moving away from earlier forms of step-by-step explorations. They also like to trade, collect things, in addition to doing and undoing.

As the attribution of animistic qualities to inanimate objects decreases, and the thinking becomes less "egocentric" children develop a clearer understanding of cause and effects, and spatiotemporal events.

Most children, at this age, start to think "objectively" and come up a whole new set of answers to their habitual questions. Instead of the magical view of the world (e.g. "A giant made large holes with his footsteps, which were filled by rain and became lakes"), nature is understood through historical and logical causes (thawing after the Ice Age, movement and melting of glaciers, etc.).

Competencies:
What does the 6-year-old naturally strive to learn?

As they reach the stage of concrete operations, children make huge leaps in their understanding of what makes something else happen (cause and effect), what comes next in a series of events (temporal ordering), which things are spatially or topologically close (spatial configurations), and what changes or remains unchanged in a transformation (conservation of substance). All of a sudden, their understanding moves from magical to logical, from egocentric

to de-centred or "objective." The children now have a sense of necessity that things "ought" to happen in certain ways, and these ways resemble more how physicists or natural scientists see the world.

Two main characteristics of concrete operations, according to Piaget, are reversibility and conservation. The 6-year-old's conception of the world change drastically as these new forms of thinking set in. The child now understands that space is reversible (if you go from A to B, you should be able to come back), and begins to puzzle over why time is irreversible (you can't get younger; it's impossible).

MANIFESTATION:
What actions will the child do to attain the competencies?

Six-year-olds think logically (in Piaget's sense) as long as the problem tackled remains in the realm of their direct experience. They succeed in Piagetian tasks involving conservation of number and of substance. In Anselmo and Franz's words: "Conservation involves the understanding of the constancy of characteristics such as number, length, mass, or area, despite changes in appearance. […] all interviews about conservation use the same sequence: 1) establishing equivalent objects, 2) showing some change in appearance of one of the equivalent objects; 3) asking for another judgement of equivalence; and 4) asking why the child thinks that way. If a child does not establish initial equivalence, the interviewer does not proceed (Anselmo and Franz, 1995. p. 483).

The first characteristics to be understood by most children at around six years of age are number and substance. In everyday life, a child's ability to conserve quantities manifests itself in how she feels in tasks involving sharing, say, of cookies or juice: younger kids will scream if they get 3 cookies instead of 6 halves of cookies. Older kids won't fight for this because they know the amounts are the same, even though 6 halves "looks like more."

As they reach the age of 6, most children start to grapple with the irreversibility of time in their thinking about aging or death. They come to understand that, while people (including themselves) grow bigger and older, they rarely get younger, or shrink! This, again, may be obvious to adults, yet it is not automatically apparent to young children.

A child's navigation in space and spatial reasoning evolve a great deal. Most 6-year-olds have a good grasp of topological relations, such as inside/outside, below, on top, neighbouring, and they start to think of space as a container.

Six-year-olds like to play with pattern blocks and other construction materials that enable them to explore spatial relations.

SUPPORT:
What can care-givers do to support this natural development?
At this age, it is useful to imagine fun games in which children can actively explore aspects of cause-and effect, temporal order or orientation, and spatial configurations.

Shape and space: Explore topological and geometric relations such as boundaries, vicinities. Look at spatial arrangements and positions.

Imagine games that involve 1) placing objects or people in different positions (over, under, above, below, between); or distance (near, far); tell others to do so; 2) exploring topological space (inside/outside) and 3) playing with Euclidean shape (squares, triangles, and other rigid shapes,). Example: build /superpose / compare and play with pattern blocks.

Ordering:
Arranging elements in a sequence. Building a chain or train of elements…

Imagine games that involve the following activities: Playing with temporal or spatial order (before after, behind in-front). Example: Build necklaces with beads, trains and chains of elements, say from small to big, from light to dark, etc…

WORLD - SEEKING LOGIC

Part of a Larger Logic. The seventh year is a breakthrough in a child's logical thinking, which has deep consequences in how children think about numbers. This being said, the development of logic is not limited to numerical thinking. One of the characteristics of concrete operations is reversibility: the ability to mentally reverse the direction of thought and action. So, for example, the child learns that something that can be added can also be subtracted. Another characteristic is transitivity: the idea that if A is bigger than B, and B is bigger than C, then A must be bigger than C.

Six-year-olds develop the logical knowledge needed to solve number problems and to be able to measure continuous quantities, i.e. measure things, using a go-between. This go-between, what's more, can be a small unit to be re-positioned along a line and, at each step, keeping

track of where the previous end was located and starting anew from there.

COMPETENCIES:
What does the 6-year-old naturally strive to learn?

Concrete operational thinkers are able to reason logically as long as the problems tackled are within the realm of their direct experience. That is why this type of reasoning is called concrete.

Six-year-olds begin to understand what numbers stand for, and they use numbers as a means to compare amounts of discrete as well as continuous quantities. An example of a continuous quantity is the length of a table. An example of a discrete quantity is the amount of eggs in a basket. Evaluating continuous quantities requires measuring. Evaluating discrete quantities requires counting.

At this age, children begin to understand the ordinal and the cardinal aspects of number. In their measuring strategies, they can use units that are smaller than the total length to be measured (though this is still hard), provided that they have more than one unit at their disposal. The child will align units along the length to be measured, and then count the total.

MANIFESTATION:
What actions will the child do to attain the competencies?

Like 5-year-olds, 6-year-olds like to experiment with shapes and space. They enjoy "measuring things" by comparing them one-to-one or using their footsteps, and they start to count things using their fingers. Six year-olds like to play with pattern blocks, and they become intrigued by the "logic" inherent to Russian dolls, Cuisenaire rods, or Dienes blocks —all meant to embody aspects of the number series.

Again, math is more than counting, and logic is more than tables of truths, logical formulas, or propositions. To Papert, exploring mathematical ideas, at an early age, cannot be about applying a set of rules to a set of numbers to get a set of answers [Papert, 1993).

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

There are many ways in which children enjoy thinking logically. Continue to encourage activities "beyond counting" where children can playfully engage in comparing, classifying, ordering, and patterning things (see previous section). In addition, at this age, many children begin to enjoy activities that involve:

Measuring using footsteps, or width of extended palm and deciding how long or how much (length, weight, volume, or other continuous quantities). Measuring can be done through direct comparison or indirectly, using a third element as a measuring tool. The measuring unit can be bigger or smaller than the quantities to be compared. Example: Place objects side by side, use a stick or string to compare lengths. Use footsteps

Counting without numbers and playing with numbers to learn to count: Experience numbers as labels. Experience the cardinal property of number (how many). Experience the ordinal property of number (first, second, third). Counting as in reciting numerals in order. PLUS- Attaching a numeral name to a series of objects (Note: Numerals are symbols for numbers which should be introduced after / following an understanding of the cardinality of a set.).

In all cases, it is important to pay more attention to what children are thinking about, and not what is literally correct. The best way to allow children to think logically on their own, is not to ask them to mimic expert's logicians. Instead, teachers and parents can play an important role in cultivating children's own logical thinking by proposing many exciting activities that involve mathematically rich ideas (Kamii, 1982, Papert, 1980).

Creations – Realising Visions

Creations – Imagining

From Pretence to Intellectually Challenging Play. From pretend play to clever joking and teasing, from senseless incongruity to appreciating word puns, this is a year of big transition due to the child's entry in the "concrete operational stage," as defined by (Piaget, 1950) (see section on World). At this age, children begin to pay closer attention to "hidden" relations beyond appearances, and they understand that words can have double meanings. A child's ability to think more logically in turn helps her understand and appreciate the "logical displacements" that make both fantasy play and humour possible. Word games and riddles, in particular, thrive, at this age.

Competencies:
What does the 6-year-old naturally strive to learn?

To a six-year-old, symbolic play takes the form of acting in plays, casting puppet shows, reciting riddles, and learning to write poetry and prose. Unlike 5-year-olds, 6-year-olds begin to prefer games that involve mental exercise in the place of acting out stories through make-believe. This being said, a six-year-old's capacity for imagination and play continues, it is not abandoned. Video or computer games often become appealing at this age. And so are games with rules, such as board games or card games.

Six-year-olds' sense of humour changes as they realize that words can have ambiguous meanings—a necessary condition for understanding the jokes of older children and adults. It is during this age that many children transition between stage 3 and stage 4 humour, as defined by McGhee (McGhee, 1984). That's also when some children begin to enjoy simple riddles and knock-knock jokes, such as: "Knock knock / Who's there? / Lettuce / Lettuce who? / Lettuce in. It's cold out here!"

MANIFESTATION:
What actions will the child do to attain the competencies?

Pretend play as we know it goes somewhat underground at this age and play "with rules" takes centre stage. Children do not talk out or enact their make believe-games. Instead, they enjoy the challenge of games involving mental exercises, or discipline. "Hard fun" to use Seymour Papert's term once again (Papert 1993) is the name of the game at this age.

As they gravitate toward their seventh birthday, many children begin to enjoy video games, computer games, and electronic toys, though this passion will further increase in the eighth and ninth years. These games and toys become the digital playgrounds for children in these age groups. While some children begin to like to move through the complexities and different levels of a video or board games, 6-year-olds may still try to bend the rules.

From enjoying "pure incongruity", or nonsensical incongruity, six-year-olds move to appreciating "conceptual incongruities" for their consistent yet unexpected resolutions within an absurd context. This being said, when they make up their own riddles, the answer still often tends to be either realistic or nonsensical. Initially, that is, the child seems to view riddles as puzzling questions with arbitrary answers. The answers are not really arbitrary, of course, but seem to be to the child who cannot discriminate between the joking and the non-joking answer. For example,

to the question: "Why would you always wear a watch in the desert? The answer is: because it has springs in it" (McGhee, 1984.p. 132). The child interprets the absurdity of the answer to be the joke and does not understand that double meaning of the word "spring," which is the essence of the joke.

Wolfenstein noted that, at about 6 years of age, many children begin to feel the need for a joke façade (Freud's stage 3) to disguise aggressive, and otherwise taboo nature of their jokes. While four-year-olds take great delight in calling someone "pee pee" or "kaa kaa", a six-year old probably will not. The child has at his disposal more sophisticated tricks to be a good jester and his teasing goes beyond mere name calling.

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

At this age, adults usually find it easier to engage with the more "rationally playful" six-year-old. Play various board games or card games with your children. Share riddles, or get a book of riddles from the library (there are many) geared to this age level. The child will appreciate a good challenge, but she may be upset if she loses all the time. She may insist that all others abide by the rules, but may bend them a bit (or a lot) when it benefits her own standing in the game!

CREATIONS – ENACTING AND CREATING

Draw What You See. Write Down the Spoken Word! The seventh year marks a major breakthrough in a child's creative expression, due to his access to concrete operational forms of thinking, as defined by Piaget (Piaget, 1951). Seven-year-olds find greater pleasure in language games, such as tongue twisters, secret codes, riddles, and rhymes. In their play acts and written productions, they now seek precision and logical consistency, and pay closer attention to audiences, fictional or real, to whom they address their creations. Earlier forms of pretend- and role-play find new expression through music, poetry, and drama.

Starting at age 6, children's drawings become more detailed and representational. The child now likes to draw what she sees! In their writing, many children of this age move from writing single words, like their names, and copying letters and words, to jotting down what they hear in the form of "invented spelling."

While "invented spelling", an early form of speech written down, is often hard to decipher by an untrained adult, it constitutes a legitimate stage in

a child's learning to write. It is also a good-enough convention, as long as understood by peer readers. Only when a child becomes genuinely interested in addressing his messages to wider audiences will he genuinely be interested and eager to spell correctly i.e. understand the usefulness of conventions.

COMPETENCIES:
What does the 6-year-old naturally strive to learn?

Six-year-olds like to engage in conversations, and are willing and able to exchange ideas and opinions. Both in their play acts and in ordinary conversations, children of this age are increasingly aware of their audiences, and they change their tone and inflection when feeling angry, sad, disgusted, or happy or, when play-acting, as if they felt angry, sad, disgusted or happy. Children of this age also regulate the content and level of complexity of their speech when talking to younger children.

What is true of spoken language and performance is also true of a child's written productions. Six-year-olds like to improve their drawings to integrate "point of view". The child, in other words, likes to draw what she sees and not just what she knows or imagines. Often interpreted by adults as a lack of genuine creativity, this new obsession with point of view just marks a new phase in the child's growing creative expression

MANIFESTATION:
What actions will the child do to attain the competencies?

As they enter the first grade, most six-year-olds can print their first and last name, and they now copy a diamond shape, and write the numerals from 1 to 19. The child also uses his newly acquired literacy skills to record his ideas in stories and to do arithmetic computations. His drawings become more detailed and representational (Anselmo and Franz, 1995. p.393), and their writings start to mean something, as they attempt to capture what's being said.

Six-year-old children are fairly good at communicating their thoughts about a book they have read, or a TV show they have seen, especially if the book or show in question is familiar to all involved i.e. constitutes a common reference. Children of this age like to discuss character's traits, motives, and plots.

Silent reading begins to play a more important role as the child learns to master the phonetics and encoding features of words, and the child's written

messages move away from mock writing to the "real" writing down of spoken language, often resulting in invented spelling. Attempts at capturing point(s) of view and the third dimension of things in drawings leads to very interesting "errors", or intelligent creative compromises, not unlike the ones we admire in many paintings by Italian Masters, like Giotto, in the early Renaissance!

Children in this age group, needless to say, still like to play-act and to dress up in costumes. Yet, their plots and plays become more sophisticated, consistent, and social; more dialogue than monologue.

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

As the child approaches his seventh birthday, he may like to use a simple word processor in addition to handwriting. This tendency will likely grow during and after his seventh year. In effect, unlike the word cast on paper, a digital text is easily configurable, which has as a fortunate effect to break down the classical reader-writer distinction in dramatic ways. Readers/writers can add, delete, incorporate text and images as part of text, re-edit, and rearrange paragraphs. Digital texts, in a sense, are built like a patchwork or montage: You don't need to start from scratch but you can assemble existing pieces and bits. As Lanham put it: "the interactive reader of the electronic world incarnates the responsive reader of whom we make so much" (Lanham, 1993). This quality may be appreciated by youngsters who like to think of creative expression as "found art," or as the progressive adaptation or the "massaging" of other people's ideas until they become one's own!

Digital texts also allow for simultaneous processing of words and images, which can help children express themselves in their own hundred languages, thus allowing new genres of writing to emerge. Writing in the digital age becomes informal, multi-authored, multi-threaded.

By allowing the incorporation of multiple voices, cyber-writing can re-install the possibility for multi-logues. This being said, digital technology alone is no warranty for enhancing young children's creative/critical reading, writing, thinking. It can only provide new occasions for exploring the bumpy road leading from spoken and written language, and bridging the gap between text and context, author and audience, words, images and sounds, in new ways.

7-8 Years

Me – Being Me

Me - Using My Body

Skate and Swim, Swing and Ski. Most 7-8 year old children are increasingly skilled at manoeuvring bikes and at using adult tools, such as hammers, saws, rakes, and shovels. Their ability to control movements in time and space, and in sync with others, reaches a new peak, which in turn, opens the ways to new passions: the child is now ready, and eager, to learn to swim and to skate, and she loves to participate in all kinds of group activities, such as sports, gymnastics, or dance. She does so with competency, understanding, and delight.

Competencies:
What does a 7–8-year-old naturally strive to learn?

In the eighth year, a child's physical-motor skills reach new levels of refinement. So does his sense of balance, perceptuo-motors skills, eye-hand coordination, and body awareness. The child now more easily guides his body movements, using both perception (external visible or tangible clues) and proprio-ception (internal body image). Eye-hand coordination improves even further.

In sum, as they reach their eighth birthday, most children can master their body movements in time and space, and with others, including so called lateralization, or left-right coordination. To do so, they use visual, auditory, and tactile-kinaesthetic clues.

Manifestation:
What actions will the child do to attain the competencies?

The child's gross motor skills have improved constantly but significantly since her fourth birthday. Sport-specific skills are now a part of most of the games and activities in which she participates (Butterfield and Loovis, 1993). Children, at this age, like to meet friends for skating, roller-blading, swimming, dancing, and playing music. Some children begin to join organized leagues of team sports.

Simultaneously, the end of early school years also marks the consolidation and further rapid development of fine-motor skills. Sewing and knitting become possible. Arts and crafts are greatly enjoyed. Tying shoelaces is no longer a problem. At school, the child now begins to write in cursive script. His drawings become schematic, and attention to design, balance, and perspective increase.

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

Again, imitation games as well as improvisational games are most effective here.

One useful way to help children understand the difference between improvisation and accompaniment, or "going solo" and following, is to let them switch roles as they play in a band, sing, beat drums, or dance. Let your child be the director, or choreographer, then be the solo player or dancer, and then disappear in the background and join in the chorus, or orchestra, to keep the beat for others.

ME – KNOWING MYSELF

Forming a Personal Identity. Researchers generally agree that a major shift in self-concept occurs as children approach their eighth birthday. That's when their awareness of the psychological self becomes more fully developed. That's also when children begin to show an interest in comparing themselves with others. They often do so spontaneously, as in "I ride my bike better than my little brother. Yet, my dad is better than me, and that's OK". Related, children at this age are now less sensitive to criticism and they won't mind as much to stand out as different or odd. This state of grace usually lasts until the child reaches puberty, in the early teens.

Seven- to eight-year-olds' self-control has greatly improved, although there still can be isolated outbursts of anger or withdrawal when upset—such behaviour is not unique to childhood!

The seven-year-old is less selfish than she was formerly, but far more self-absorbed. Children of this age tend to withdraw into themselves. It is as though they are building up a sense of self that will burst out a year later at age eight. The seven-year-old may appear sullen or quiet compared to the past few boisterous years.

According to Ames and Haber, the child's experience of conflict undergoes a change at this age. "While conflict at six tends to be chiefly with Mother and over things he is supposed to do or not do, conflict now is more within himself, over accomplishments, ability, performance, living up to his own standards" (Ames and Haber, 1985).

COMPETENCIES:
What does the 7–8-year-old naturally strive to learn?

7-8 years olds start to develop sense of self, or personal identity, in the light of the areas that they dream of excelling in. So, for example, a child may see herself as an athlete, a bright student, an actor, a debater, or even a clown, and as she does so, she wants to be recognized and respected for this. Many children start to carve out a niche for themselves, in their idealized role, at school. Seven- to eight-year-olds can tell you more concretely what they are interested in, revealing a greater self-awareness of their likes, dislikes, and interests.

Like their younger counter-parts, 7-8 years olds still do not like to be too different from others in dress, hairstyle, or manner of talking. Yet, they are less sensitive, provided they "fit" into their own chosen category (say, as a cool or bright kid).

At this age, children also become increasingly able to evaluate their own performance in the light of what others think and do. They become better negotiators in cooperating with others, and better losers in competition. Fairness and cheating become important to 7-year-olds. They try to understand the rules and abide by them, and they become indignant when others do not.

At this age, the child's moral sense is governed less by what is forbidden by her parents and more by what he holds to be right or wrong. The 7–8-year old thus begins to develop a sense of conscience.

MANIFESTATION:
What actions will the child do to attain the competencies?

A 7–8-year-old may express a desire for greater privacy and may ask for her own room or space apart from other siblings. Yet at the same time, she wants to know where she stands in relation to others. She wants to know what she's good at, and what she's not so good at, though she tries hard to

improve her skills. Indeed, seven- to eight-year-olds often show remarkable perseverance when it comes to perfecting their skills. A child of this age will spend hours throwing a ball against a wall, trying to aim it at a certain spot. She will play hours of hopscotch, basketball, jump-rope, Frisbee, or other activities that test her skill and accuracy. Her emerging sense of self needs to see that such skills are improvable, if not perfectible.

Her ability to appreciate different perspectives will manifest itself as a willingness to listen to someone else's side of the story, for example, in a dispute. She can understand how someone else's feelings might differ from her own.

SUPPORT:
What can caregivers do to support this natural development?

Give the child the space and privacy he needs and demands at this age, yet maintain connection with him.

Don't let your child's comparisons with others become invidious or debilitating. Stress the improvability of skills and differences among people, and that difference doesn't imply inferiority.

Us – Growing Together

US - RELATING TO OTHERS

Balancing Me and Us. In the eighth year, children further develop and consolidate their co-operative skills while preserving their identity through a growing sense of "industry." Achieving a balance between such apparently conflicting urges as "do what's good for you" and "be good to others" remains a challenge, even at this age. So, for example, 7-year-olds still have to learn to "say what they think" or share their emotions to avoid the stress of "bottling up" in ways that do not jeopardize interpersonal relations.

Putting one's understanding of human emotions at the service of pro-social behaviour is no easy task, even for adults. Yet, doing so successfully enables the child to carve a comfortable niche among others: one based on negotiation, mutual respect, and individual thriving. Seven-year-olds still have to deal with the fact that doing "what feels best" sometimes limits or hurts others. As they reach their eighth birthday, they become increasingly good at finding ways out of this dilemma.

COMPETENCIES:
What does a 7-year-old naturally strive to learn?

At this age, children understand and empathise with others, and they also argue with others and criticize them for doing or thinking things they don't like. In other words, they bond and belong. Yet, they also stand behind their beliefs, at the cost of being "on their own." Many 7-year-olds start to master the art of creating win-win situations. In other words, they have become competent social partners, and they carve their own role when cooperating with others.

This being said, children of this age, can also still be cruel at times, and point out children who are different as their "enemies." Intuitively we know it: the smarter a person gets, of whatever age, the more sophisticatedly loving or cruel they can be. That's where a child's ability to build an inner sense of social justice, through cooperation and mutual respect, becomes key, and where the best thing adults can do is to serve as role models.

MANIFESTATION:
What actions will the child do to attain the competencies?

Seven-year-olds begin to have idols they identify with. They also find a best friend and they tend to stick with that friend for a longer period of time than they did in earlier age groups.

By the time they reach their eighth birthday, most children are eager, beyond negotiating mutual wants and needs, to sustain friendships over time and across context. They begin to enjoy talking over the phone with friends, and using cell-phones or computers to communicate (this tendency will increase at age 9). They also like to belong to a league or group like scouts. Many girls take pleasure in keeping a diary.

Some children still show occasional aggressive behaviours at this age, which is normal. However, if antisocial behavioural patterns persist, they should be taken seriously. The child may need help to outgrow them.

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

During school years, a child's relational / emotional maturity, pro-social behaviour, and inner sense of social justice can be enhanced by adult encouragement.

Help your child express and communicate her feelings, and create a safe context to discuss the consequences of certain emotional reactions to / from other people, and on self. Imagine scenarios, based on the work by Smith (see previous age year) that can be played out in the realm of make-believe. Again, do not pressure any child to disclose her feelings if she doesn't want to. In addition to Smith's "peeling feelings" types of games, Damon (1977, 1980) developed hypothetical stories and presented them to children from the ages 4 to 12 to study their social reasoning. Similar stories, involving moral paradoxes, can be imagined and used for educational purposes.

Most adults are concerned about the expression of aggression and other negative feelings in children. Yet, adults don't always do what's best to encourage youngsters' expression of positive or pro-social behaviours, including co-operation and altruism. A first rule, when it comes to teaching positive feelings and pro-social behaviours is, again, be a role model. Care, understanding and consistency, more than moralistic talk, will be more likely to have an impact. Children are very sensitive to hypocrisy and are experts at imitating adults in what they do, and not what they say. Research on children's altruism shows that the single most important factor in encouraging altruistic behaviour in children is the presence of a role model who is herself altruistic and who expresses genuine pleasure in doing so (Shaffer, 1988).

Us - Understanding Others

Coming to Understand the Psychology of Others. In the eighth year, the child's self-and-other knowledge includes an awareness of many psychological components, such as needs, beliefs, and values, as they change over time, across context while, at the same time, retaining some consistency within a person.

While this is huge progress, the child, at this age, still assumes that psychological and physical realities are, or should be, consistent. In other words, it is hard to understand, for a 7-year-old, that someone may not feel the same as they do, or not think what they say. Psychological "reality" is inferred from what's being expressed by a person (i.e. her behaviours) and not what's being intended, or thought, or repressed (i.e. his mental states).

As they reach their eighth birthday, children cease to be "naïve behaviourists" and come to appreciate the importance of inner states and subjective perceptions in defining external realities. In other words, we can only understand others, and the world, through the lens of our own understanding. Understanding this is no trivial pursuit!

COMPETENCIES:
What does the 7-year-old naturally strive to learn?

Most researchers agree that a big breakthrough in both self- and other-awareness occurs around the age of eight when a person's psychological self is seen as being distinct from its physical and behavioural manifestations. This, in turn, requires an understanding that, when it comes to understanding others, what you see is NOT what you get.

Most 7-year-olds still believe that "reality", psychological or otherwise, is an absolute thing associated with physical, concrete objects that can be known directly. Children think of their minds as a part of their physical body. They have little sense of the "reality" of human feelings, needs, personality i.e. no understanding that thoughts may be produced in a specific part of the brain, or body. They also have poor concept of what happens inside their or other people's bodies.

As they reach their eighth birthday, children begin to understand the importance of perception in providing information about "reality"—psychological or otherwise. They strongly believe that what you know is whatever you can see, hear, touch, etc. To them, all people have a brain, and thoughts and images come from the brain or mind.

MANIFESTATION:
What actions will the child do to attain the competencies?

Children of this age are well aware of other people's needs, and they will be able to apply their own awareness of such feelings to sympathise in the true sense of the term. For example: say a child knows her friend's strong desire for a toy and disappointment at losing it. If the child then takes the toy away from her friend, she is able to address her friends' feelings (i.e. she knows she has caused her friend's sadness) and, in the light of this, will most likely give it back to her…against her own desire to keep it. In other words, the child is able to project her understanding of her own emotional / psychological states onto others.

Seven-year-olds become able to compare themselves with others, and to acknowledge that others may be better, or different, and how. They also respond to questions about others in relative terms: he is better than me at running, and that annoys me.

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

Moral paradoxes, and puzzling scenarios for role playing games are very relevant at this age. The same goes for "feeling peeling" types of games (Smith), or anything that enables the child to understand others, and to take on their perspective and, beyond that, that helps the child to move in and out of a different perspective, and do so in varying contexts.

A more general rule of thumb, especially for families: 1. spend quality time together, 2. communicate your feelings, 3. show appreciation and support for each other 4. build a common sense of purpose and values, 5. show commitment, even at the worst of times (Stinnett, Sanders, and DeFrain, 1981). Obviously, there are as many different styles of parenting as there are parents. In all cases, the art of education consists of helping the child find a balance between self-assertiveness and conformity with group standards. To do so, parents should be neither too authoritative nor too permissive (Baumrind, 1977).

World – Making Sense of it All

WORLD – EXPLORING AND INVESTIGATING
Developing Flexibility & Perspective. Seven-year-old children mainly consolidate the large gains they have acquired in their previous year. Most 7-year-olds succeed in more complex classical Piagetian tasks, such as the classical "conservation" of areas and weight. The children's thinking at this age is, generally speaking, more objective, and animism as well as magical thinking, while still used a great deal in play, are no longer dominant as the child explains how the world works. In other words, the child does not lose his imaginative-poetic ways to scientific rationality. Instead, he becomes better at knowing in which circumstances what forms of thinking are most effective.

COMPETENCIES:
What does the 7-year-old naturally strive to learn?

Seven-year-olds' manners of inquiry, ways of thinking, and worldviews are increasingly flexible as they become better at taking on different perspectives. They are able to change variables in a situation with some rigour and logic, as they better understand the contexts in which certain solutions need to be found.

MANIFESTATION:
What actions will the child do to attain the competencies?

Experiments by Jacques Montangero and by Francisco Pons, indicate that children up to 8 years old tend to describe changes as a quantitative increase of one variable, whereas at age 11-12 they can handle the growth / co-evolution of different variables.

Conservation: Many seven year-olds begin to conserve lengths, weights, and areas. As mentioned in the previous section, all interviews about conservation use the same sequence. Their ease with understanding conservation manifests itself increasingly in everyday life: they are rarely "fooled" by false appearances of "more."

Children of this age like to play boards games, chess, video and computer games, and some children become great collectors: they like to trade cards.

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

Sigel and Cocking's "distancing" activities can be relevant at this age. The idea here is to help children observe things carefully and use language (and other means of description) to shape and sharpen their understanding of things (Sigel and Cocking, 1977). So, for example: a child may be encouraged to observe things carefully: ("watch what it's doing"), to describe and interpret things in her own words: ("what's this?" ; "how does it feel/work/appear"; what does it mean?). The child may also be encouraged to demonstrate what she means and explain what she thinks (show and tell).

At this age, children enjoy very much going to Children's and Science museums. They like to vary observations by looking at things through magnifying glasses, from microscopes to telescopes. They become interested in the otherwise "invisible" qualities of objects, and they love to change their stance, perspective, or lens to unveil different layers of "otherwise invisible things."

WORLD - SEEKING LOGIC

Consolidation of "Know-how" and "Know-when". In the eighth year, concrete-operational children are consolidating the potential acquired during the previous year, which involves both grounding and increased

flexibility. In effect, while 7-year-olds' thinking is generally more objective, logical, and abstract, it also becomes increasingly grounded, flexible, and more situated. Children, at this age, know when it is best to think logically, or poetically, or ethically when dealing with different situations. More to the point, they know under which circumstances a given logical reasoning applies or breaks down.

As an example, seven-year-olds generally understand the nature of transitive relations. (If A is smaller than B, and B is smaller than C, then A ought to be smaller than C.) They will tell you that "it has to be that way", that "they know even if they haven't seen A and C together." At the same time, 7-year-olds also know when transitivity should NOT be used: They will NOT infer, like younger children do, that "if Ari knows Bonnie, and Bonnie knows Mike; Ari ought to know Mike".

COMPETENCIES:
What does the 7-year-old naturally strive to learn?

Philosophical and ethical questions raised by children in the early school years have the potential of helping them think independently, logically, and critically. Philosophical thinking involves questioning fundamental assumptions. It helps children carry through an argument, or reasoning, and draw valid inferences. It also helps them build a rationale or reasons for their beliefs, and understand that not any rationale goes! Ethical questions raised by children help them understand under when logic alone won't do! The logic used to deceive or confound may be different from the logic used to convince or critique!

Children at this age can measure the length of objects using measuring units that are smaller than the units to be compared: the children align the units and they understand that the length that has more units is longer. Children also begin to understand particular cases like: twice as big (if one element needs 2 units and another one), or three times as big (one against 3). Quantities like two thirds are still a problem,

Children at this age can add and subtract. Many start to understand simple multiplications. Fractions are still problematic.

MANIFESTATION:
What actions will the child do to attain the competencies?

With only a little encouragement from adults, 7-year-olds engage in hand and finger play involving counting, adding, and subtracting. A child's two hands,

each with its five fingers, is a youngster's first mobile calculator. Children of this age also like to exchange and distribute tokens, M&Ms, or toys and, in doing so, they develop their own sense of when they, or their dolls, get their fair share.

Equally intriguing to children is the idea of measuring by arm's spread or footsteps. For example, children can be encouraged to use their own footsteps to mark out several equal areas for block building. Obviously, children do not measure precisely, they may take longer and shorter steps, but they will understand the concept of counting off distance using part of their body.

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

At this age, continue to imagine activities that involve both measuring and counting. In addition, always remember that thinking logically goes beyond numbers and sets. Use philosophical thinking and moral paradoxes as a way to ground logic in contexts. Help the child become an "epistemologist" beyond a logician or mathematician. An epistemologist is someone who knows what kinds of thinking, logic, knowledge, and techniques for validating knowledge are better suited to which kinds of endeavours or situations than others.

- Measuring: Beyond direct comparison, or body-centred "footsteps" encourage measuring using a measuring "unit". Measuring unit can be bigger or smaller than the quantities to be compared. Example: Place objects side by side, use a stick or string to compare lengths. Use footsteps.

- Counting: Beyond counting-and-pointing, allow children to explore the ordinal and cardinal properties of number. Note: Numerals are symbols for numbers which should be introduced after / following an understanding of the cardinality of a set.

Additionally, at this age, children may also enjoy activities that involve organizing, representing, and recording mathematical information.

- Building and controlling graphs.
- Drawing and building models.
- Creating one's own invented representations to quantify things.
- Giving instructions to other children on how to achieve some goal.
- Simple programming activities. Example: Papert's "Turtle geometry" is based on a body-centred notion of geometry that is conveyed to a robot or virtual "turtle" that draws on paper or on a computer screen. (Papert 1980, Abelson and di Sessa, 1984)

Last but not least, discussing philosophical issues helps children learn to distinguish between the factuality of a statement, and different subjective takes (Strichartz and Burton,1990; Lipman, 1984). Matthew Lipman's contribution to children's philosophical education during the early school years is significant. The Institute for the Advancement of Philosophy for Children (Montclair State College, Upper Montclair, NJ), under the direction of Matthew Lipman, has developed educational activities for developing philosophical thinking. Lipman's books include: Rio and Gus, 1982; Pixie, 1981; and Philosophy for Children, 1984.

Creations – Realising Visions

Creations – Imagining

Seven-year-olds spend much of their time refining and expanding what they have learned during the previous year. Here again, hard fun is the name of the game at this age, and word games and riddles continue to thrive.

Early forms of pretence, as played by younger children, now take on the forms of acting in plays, setting up puppet shows, writing poetry, prose, or playing video games and Pokemon with peers. Video or computer games become appealing to 7-year-olds who, more than their younger counterparts, are willing and able to move through the complexities and different levels, as a means of self-improvement. Seven-year-olds also become more interested in, and good at, commercial board games and checkers, and perhaps later, chess.

At this age, children's humour changes in the sense that the child is no longer satisfied with producing incongruity for the sake of incongruity. Instead, the resolution of incongruity, in a joke-like fashion, becomes a key element to foster amusement. This, in turn, contributes to a better understanding of riddles in which a puzzling question calls for an answer made arbitrary by the fact that a person was expecting to react to meaning A and was given meaning B, but made systematic by the fact that meaning A and B share another systematic relation (Sutton-Smith, 1975). Examples of riddles include: "Why did the cookie cry? Because its mother was a wafer so long."

Competencies:
What does the 7-year-old naturally strive to learn?

Symbolic Play: The most popular forms of play, at this age, require a great deal mental exercise, or discipline (they are challenging) while at the same

time, occurring in a fantasy context (they comprise a fictional element). To a 7-year-old, video games and digital toys often become a favourite playground for "hard fun' because they allow for self-improvement within a virtual context of escalating levels of complexity, challenge, and difficulty. Like earlier forms of pretend play, they enable the child to play out some of his feelings and ideas on a make-believe ground. Like theatre, they constitute a virtual world or make-believe stage in which risks can be taken without consequences.

Humour: When first and second graders make up their own riddles, the answer still often tends to be either realistic or nonsensical. Initially, that is, the child seems to view riddles as puzzling questions with arbitrary answers. The answers are not really arbitrary, of course, but seem to be to the child who cannot discriminate between the joking and the non-joking answer, which calls for a greater degree of linguistic sophistication than the child can muster at this point.

MANIFESTATION:
What actions will the child do to attain the competencies?

Children of this age become more willing and able to adhere to the rules of a game, whether the rules are self-established, as in open-ended games, or dictated by a game, as in video games or checkers. Provided the child likes the game she is playing, she won't bend rules anymore but she will stick to them faithfully. Again, hard fun is the name of the games, at this age!

This is the age par excellence of glory of word games and riddles. In McGhee's words: "By the age of seven or eight, most children have become aware of the fact that many words are ambiguous in meaning and that this ambiguity creates a whole new world of possibilities for humour. This sets the stage for the elementary-school child's favourite form of humour—the riddle […] One of the interesting features of the early enjoyment of riddles is that many children begin to memorize and recite them before they fully understand them" (McGhee, 1984, p.132.)

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

Help the child express his most daring thoughts "in a hundred languages" (see next section). And help him convey what he means, or wants to tell, in a language and form that is creative yet understandable and acceptable by others.

Children this age like to be challenged. They love to figure things out. Word-oriented games like 'Scrabble', 'Fictionary', and simple crossword puzzles allow a child to exercise her newly developed mental/linguistic reasoning abilities. Many of these games can be played successfully without being competitive (e.g. without keeping score). The focus can then be placed on the joy of creating clever solutions.

Creations – Enacting and Creating

Becoming a designer! Significant changes mark a child's creative expressions, both written and oral, during her early school years. A general trend, manifest in a 7-year-old's drawings, writings, and musical notations, is a move away from early forms of fanciful figurations toward more cultivated, logically consistent, and more conventional expressive forms. The child now takes the time to work on and refine her spontaneous expressions. She becomes a designer!

While less imaginative in appearance, these more realistic-looking productions should not be seen as a drop in a child's imagination! Instead, the child's focus is shifting. He now fine tunes his productions to satisfy multiple points of view, and he seeks to integrate new dimensions. The child also crafts his expressions to fit her audiences, as well as their own point of view. He addresses his artwork.

In sum, beyond speaking her mind spontaneously in a hundred languages, most seven-year-old children seek consistency, often within a medium, and external transparency as criteria for success in the realization of their fantasies. They want their artwork to be well crafted and understood by those she cares about. They want it to be neat!

Once this industrious / laborious phase has passed (Erikson, Piaget), the child will be ready again to unleash his creative mind. But, this time around, his creative leaps will be even more expressive and mature. It is through cycles of inspiration and "transpiration" (i.e. hard fun) that a child's imagination gives rise to creative artistic expression. Again, exact ages are not the point here.

Competencies:

What does the 7-year-old naturally strive to learn?

As they reach their eighth birthday, most young creators have learned to express themselves through enactments such as painting and drawing,

dance and music, to name just a few possibilities. They have become fairly good "designers" and crafts-persons, and their repertoires-of-realization for expressing and communicating thoughts and feelings, oral, written, and artistic, are richer, more elegant, and more social.

Seven-year-olds like to express and communicate their thoughts, be it about a book they have read or a TV show they have seen, and they spend much time discussing character traits, motives, and plots.

Seven-year-olds also like to draw, write, and perform: they do all of the above in very mindful and sophisticated ways:

Silent reading starts to play an important role as the child learns to master the phonetics and encoding features of words. The child's drawing and writings further improve, and so do her abilities to capture music and movement, using invented symbol systems to indicate the musical features of a song or rhythm, or to give other people directions on how to move about in space and reach destinations such as their house or the school.

When asked to write down a song they know "so that someone else can sing it," children of this age, even untrained in music, will invent amazingly rich and articulate representations of the songs they know, featuring rhythm and pitch, which they combine in a simple phrases using all kinds of signs and symbols. Their musical notations reveal deep understanding of music (Bamberger, 1992).

MANIFESTATION:
What actions will the child do to attain the competencies?

Musical pitch emerges as a primary component of children's musical development by the age of seven (Davidson and Scripp, 1988), and in their spontaneous musical notations, seven-year-olds represent both rhythmic groupings and the melodic contour of a song (using, say, strokes and dashes to indicate rhythmic groupings and writing the words of a song in a downward or upward slope (like a mountain) to mark the melodic contour.

Many children of this age begin to enjoy giving oral presentations, and demos, of topics at school, or in debates. They use language, and other media of expression, rather proficiently. Others, shyer of performing in front of many people, feel more comfortable performing their show- and-tell before family members, such as parents and siblings.

In their play, they love to play creatively with language using words games, riddles, and songs.

Other skills include the abilities to:

- Represent others and the world around them through words and through non-verbal forms of communication, such as dance, music, art, facial expressions.

- Use expressive language: ideas well presented, verbally and otherwise.

- Listen or use receptive language skills: understanding and following directions (from Dorothy Singer's relevance grid 6-14)

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

Play environments that allow for creative and critical literacy activities, in a broad sense, are important at this age. In addition to teaching children literacy in the narrow sense, take the time to cultivate their creative and critical mind through arts and through staging and/or discussing multi-media performances. Look at TV shows and theatrical performances with your children, and engage them in reading pieces to be discussed in groups. Play and discuss their favourite video games with them. Teach them to make things and speak out while, at the same time, cultivating their critical mind.

Challenge students to reason with images instead of words, to think sideways and upside-down. Visual-thinking instructor, David Haygood, from IDEO, developed principles of making the familiar strange. Used in many art schools, such techniques are useful, especially at this age, to help the child think "outside of the box" and think of well-crafted yet novel ways of expressing her imagination.

Digital technologies can be used help foster literacy beyond print or dialogic writing. Of particular relevance, at this age, are hybrids, such as text-based storytelling and role-playing environments, as well as environments that enable one translate text into speech (i.e. speech synthesizers) and to use text as commands. All provide new ways of integrating speech and writing and navigating between oral and textual literacy and their respective modes of thought (Ong, 1982). All do so by reconnecting authors to their audiences and interlocutors, and by bringing audiences back to the site of a plot.

E-mail and other on-line "messaging" services allow older children (7 and up) to join in virtual communities. Participants can send and receive messages using text editors, which allow them to compose/edit on the screen, move text around by cutting and pasting, reconfigure, and rearrange text. Kids can also send images, sounds, and build composites.

Networking is often used in schools as a way to help children who like to be "connected" to engage in writing. In social virtual environments, or MUDs, participants engage in anonymous role-play, enacting multiple characters, putting on different masks, exploring aspects of themselves otherwise concealed. MOOSE Crossing is a text-based MUD created by Amy Bruckman in which kids can converse, exchange gestures, and express emotions in real time. Kids describe places by using words. According to Bruckman, they use typographic conventions like "emoticons" to replace physical gestures and facial expression, and they use onomatopoeic expletives, and often ignore spelling errors. In MOOSE Crossing, words and programs are intimately connected. Words are used both to describe things and as commands to trigger interesting event. Words here are used as keys to trigger actions and events. Children's experiences on MOOSE Crossing take place in a web of social relations. Their writing is both multi-authored, ephemeral, and with a string of verbal commands to transform the world. All happens in situ. (Bruckman, 1999).

NOTE:
While most adults deplore youngsters' increasing indifference to spelling errors, children nowadays learn to spell in new ways. Like many of us, they set the spell checker of their word-processor on "signal" mode and fix underlined words as they write along. Sometimes they find the right spelling by themselves. Sometimes they look it up. More often than not, they learn quite a bit, and effortlessly, as a result of using a spell checker.

The Whole Child Development Guide is grounded in research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.
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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: Merill/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 becomining 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 litteracy (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 understadnind 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 relashionships. 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 constrining function of wrong beliefs in young children's understanding of deception". In Cognition. 13, 103-128.

The Whole Child Development Guide is grounded in research findings and has been developed by the LEGO Learning Institute in partnership with experts in the field.
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