

Greenspan Social-Emotional School Readiness
Introduction

The Process of Learning: Mechanisms Children Use to Learn How to Think.

Excerpts of articles By Dr. Stanley Greenspan

There is a common link that unites the different ways of teaching children to think. The link is that it involves emotional interactions between the child and his educators and caregivers. These emotional interactions, we have found, are not simply responsible for social skills or high levels of empathy. We have found that they are also at the foundation of our intelligence and many of our basic academic skills. In recent years, many have focused on multiple aspects of intelligence, including emotional intelligence. Our observations and research suggest, however, that there is an identifiable series of emotional interactions that underlie intelligence in a more generic sense and, in this context, underlie many of the different types of intelligence that have been described {Greenspan 1997 105 /id}.

Piaget, the pioneering Swiss cognitive theorist, thought children learned to become intelligent and to think by acting on their physical world and learned from doing (Piaget, 1962). For example, an eight-month-old pulled a string and if it rang a bell, he learned causality. The pull could cause an interesting sound. But we have observed in our clinical work and research with infants that months earlier (3-6 months), infants learn to use a smile to get a smile or vocalization back. They pull on mother's "heart string" and get a rich emotional response. It is through this type of emotional interaction that they learn their first lessons in causality. At each stage of thinking, the emotional interactions lead the way and then get applied to other domains. Piaget was, therefore, partially correct in his emphasis on learning through acting on the world. But he was not aware of the fact that emotions serve as the first probe to the outer world and continue to serve as our most differentiated probe to the interpersonal and physical world. In a sense, every early experience is double-coded— one according to the physical sensations encountered through our actions and the other through the emotional interactions encountered. The almost infinite degrees of subtlety that characterize our emotional probes create the opportunity to construct, at each level of development, a high degree of intelligence {Greenspan 1997 105 /id}.

Greenspan Social-Emotional School Readiness Introduction

We can observe how emotional interactions serve to help the child learn to think by looking at some of the most common capacities a young child masters. Consider, for example, how a young child first learns how to say "Hi!" as she greets other people. A toddler does not memorize lists of appropriate people to say hello to. She merely connects the greeting with a warm friendly feeling inside her body that leads her to reach out to other people with a friendly greeting. If she experiences a different feeling, say one of anxiety, she is more likely to turn her head or hide behind her caregiver's legs, as she might with a harsh relative. It is these feelings that determine the manner in which a child greets others.

It has also been well established that altruism and empathy, "prosocial" attitudes, grow out of early emotional interactions, as does the capacity to engage in warm, nurturing relationships with others. The ability to understand another person's feelings and to care about how he or she feels can only arise out of a series of nurturing interactions. A child can only feel empathy and understand another person if someone has been empathetic and caring with her during the formative years of her emotional development. Similarly, intimacy can only be learned if the child experiences sustained intimacy. These capacities are necessary not only for one's emotional and social development, but for understanding relationships in literature and the reasons for historical or current events. To grow these emotional capacities requires constant and consistent engagement from one or a few stable caregivers. To be sure, children can learn certain socially appropriate behaviors — how to do the 'right thing'— by formal instruction; but the capacity to truly care for another human being only comes from experiencing that feeling of care and consideration oneself.

Even basic math concepts are learned through our emotions. Learning math might appear to be a strictly impersonal learning task, but how does a preschooler acquire a sense of quantity which underlies understanding what numbers mean? To a three-year-old, "a lot" is more than he needs and "a little" is less than he expects. Emotional interactions with cookies or other desired objects enable a child to master the concept of

Greenspan Social-Emotional School Readiness Introduction

quantity. Later on, he can systematize this understanding which will lead to the basic sense of quantity with numbers, and add and subtract.

Logical problem-solving also stems from emotional interaction. It begins with a toddler taking her mother's hand, walking to the refrigerator, and pointing to a favorite food. From these types of interactions, there emerges a repertoire of interactional techniques a child acquires in order to solve emotionally significant problems.

The child gradually develops increasingly sophisticated problem-solving techniques — including and especially marked by the use of words — so as to attain ever more complex goals: goals that themselves develop as a function of the child's expanding social environment and her own growing abilities and increasingly differentiated affects. In order to be able to take a parent by the hand and walk her to the toy area and point to the toy that she wants, the infant has to have both a constant inner signal of intent or affect and a motor plan that is connected to it. If either one of those are problematic, the infant may not be able to implement complex, problem-solving, social behaviors. As a child begins to imitate words ("Mommy," "Daddy," "go," "door"), those symbols or words have to be invested with affect to have meaning. The word "juice" only has meaning to the degree the child can invest the words with the many affective experiences that come to mean "juice," including the pleasure and image of drinking the juice.

The emergence of grammar also depends on affect and affective interactions becoming functional. Children with autistic spectrum disorders frequently display a significant grammar deficit, often verbalizing nouns in a repetitious way ("Door, door."). If an intervention can get them affectively interactive, however, they often learn to use proper grammar. For example, a child is opening and closing a door. We get stuck behind the door. If they push us away, they are becoming purposeful. Purposeful, affectively-mediated behavior creates a foundation for the purposeful and meaningful use of words. Soon the same child is saying "go" while pushing us away. We may then say, "Where go? Where go?" We might further say, "Should we go away or stay? Away or stay?" The child may say, "Go away, go away." Now the child is starting to use grammar.

Greenspan Social-Emotional School Readiness Introduction

The emergence of grammar skills requires very specific types of affective experience. Affective reciprocity is needed to create purposeful action, and then related purposeful symbols or words. The affect, by providing intent, enables the components of language to align (e.g., "open door" versus "door, door, door."). Many investigators who have focused on the structural aspects of language acquisition may have overlooked the importance of affective reciprocity because it occurs so routinely with most infants and toddlers and their caregivers.

Affective reciprocity enables children to learn which behaviors are socially acceptable and which are inappropriate. As children's behavior becomes more complex, in the second year of life, they start to learn from parental approval or disapproval. Patterns are built up through the give-and-take between children and caregivers. Importantly, along with these behaviors that are being formed, more complex emotions and wishes, and self-image, are also coming into being. The emotional tone and subtle interactions inherent to relationships are vital to what the child learns about other people, and to who she herself becomes.

Over time, the child goes from desiring and grabbing her caregiver to saying 'Mommy' or 'Daddy' and looking at them lovingly. She goes from 'acting out' her desires or wishes to thinking about and using words to express what she wants or feels. Through emotional interactions with caregivers involving shared pretending, the ability to use meaningful symbols (e.g., words) emerges.

The child also begins to engage in pretend or imaginative play across a range of themes involving different emotional human dramas (e.g., dolls hugging or fighting). Such play helps the child to understand and anticipate the effects of her behavior on others. She starts to envision more complex emotional scenarios, and to develop her capacity for self-observation. The child's capacity for self-observation is an essential element for future learning and coping skills; it enhances the child's ability to express rather than act out her feelings, and it helps her to empathize with others and to meet their expectations. It also helps her observe her own academic work and feel satisfied or seek help. Most

Greenspan Social-Emotional School Readiness Introduction

importantly, self-observation helps the child discuss and explore what she sees, reads, and thinks. It's the critical step in learning to be reflective and analytical.

Affect also strengthens processing capacities, such as motor planning and visual spatial processing; it gives meaning and functional range to these capacities.

Individuals can use different processing capacities in a variety of ways---not just to solve an equation, but also for social, personal problem-solving (e.g., figuring out how to work the crowd politically). It may not appear obvious how to interact affectively through the visual-spatial system; but playing chase games, hide-and-go-seek games, and treasure hunts, are good vehicles for bringing visual-spatial capacities into an affective context. This is exactly what we do with some children who need more work "affecting" their visual-spatial and motor planning systems. The stage for these types of games are often set earlier in the third and early fourth stages, with peek-a-boo and other types of play that combine pleasurable affect, affective expectation, and visual-spatial processing.

Therefore, most of a child's intellectual and conceptual abilities, including her creativity and abstract thinking skills, rest on the emotional development that the child undergoes in warm, nurturing relationships with her primary caregivers. This conclusion was especially well illustrated in observations of different types of school-aged children (Greenspan, 1997b). When eight-year-olds were asked abstract questions, such as what they thought about justice or fairness, their responses could be divided into two broad categories. Some of the children responded with a rote list of people who behaved 'fairly', such as a particular parent or teacher or television character. Others gave far more reflective answers in which they presented examples of what they regarded as instances of justice or fairness. Closer examination of these two groups revealed that those who responded with a rote list tended to be the ones who were experiencing more problems in their peer relationships and their schoolwork, whereas the children who responded more reflectively tended to be the ones who were doing better in these social and intellectual areas (Greenspan, 1997a).

A closer examination of the more reflective responses revealed that they always consisted of two components, regardless of whether the test question focused on

Greenspan Social-Emotional School Readiness Introduction

fairness or any other abstract quality, such as honesty, friendship, or freedom. The first component was that the children's responses always started off with a personal anecdote: an account of lived emotional experience. The second component was that the children put these experiences into some sort of analytic framework and context. When adolescents were asked the same sorts of question exactly the same pattern emerged: some of the adolescents could only respond with lists of people who fit a certain category. Once again, these were the ones who were displaying problems in school or in their social relationships. But the adolescents who were capable of more reflective answers consistently responded with some personal anecdote and were able to supply a more worldly-wise analytical framework.

In every instance and at every age, these two components are evident in the more reflective replies to these sorts of abstract questions: lived emotional experiences, and a framework or context for these experiences. Children who have not undergone an enriched emotional development — either because of biological challenges that interfered with their early interactions with their primary caregivers, or because of poor nurturing — tend to be the ones who respond with concrete lists rather than personal accounts. Even children with severe developmental problems, including autistic patterns, can become much more socially and affectively responsive and some even more creative and abstract in their thinking, if they are exposed to more one-on-one interactions with caregivers that stress sustained emotionally-meaningful, interactive communicational activities as opposed to strings of brief communicational exchanges or memory-based learning. In our work with children with autistic patterns and other special needs conditions, we have seen that a subgroup can develop beyond scripted and rote language and memorized learning into types of thinking that they have traditionally not been thought capable of achieving. This high-level thinking includes creating new ideas, making inferences, having true empathy, and solving high levels of theory of mind tasks. The road to these advanced abilities, however, is through a series of emotionally interactive learning experiences. We have been able to systematize these experiences and characterize this subgroup of children. With these types of experiences, we've also seen that children

Greenspan Social-Emotional School Readiness Introduction

with more severe impairments, while not capable of the highest levels of thinking, can become more related and logical than they were previously {Greenspan & Wieder 1997 106 /id} {Greenspan & Wieder 1999 299 /id} {Greenspan & Wieder 1998 25 /id}.

Educators have been interested in fostering abstract and reflective thinking for some time. In the 1950s, Benjamin Bloom created his well-known taxonomy for categorizing children's thinking in educational settings. His various levels included basic knowledge and information, comprehension, application, analysis, synthesis, and evaluation. Interestingly, his higher levels of application, analysis, synthesis, and evaluation can be carried out at varying degrees of abstraction or reflection. The truly creative and reflective thinker in each of these categories will require the skills we describe for our children reflecting on justice and fairness. For example, in order to apply information, methods, concepts, and theories have to be used in new situations. This level of inference requires that emotional insight. Similarly, analysis requires the recognition of hidden meaning, also a sign of emotional insight. Synthesis involves using old ideas to create new ones and generalizing beyond the facts at hand. Evaluation requires a judgment based on personal experience about the theories, arguments, or points of view, again requiring judgment based on emotional experience. Even the first two categories in Bloom's taxonomy—factual knowledge and comprehension—involve some degree of use of emotions. Comprehension, for example, involves grasping the meaning of words and concepts. Meaning is acquired through multiple emotionally meaningful experiences where that concept or word is used. Consider, for example, our early discussion about the word "fairness" or "justice," it acquires more meaning as one builds more emotional experience with it. Even a word like "apple" acquires more meaning as a child gets beyond the fact that it's red and round and finds joy in giving it to a teacher, satisfaction in throwing it at a rival, and disgust at biting into it and seeing half a worm. Basic factual knowledge, while more memory-based in one sense, is also better remembered and used when it's organized in conceptually meaningful categories by emotional experiences.

Greenspan Social-Emotional School Readiness Introduction

The missing piece in the puzzle of supporting higher levels of thinking among our students has been knowledge of the pathways towards reflective and abstract thinking. As indicated, our latest observations and research suggest that in addition to learning to decode and process information and to acquire lots of factual information, children require interactive learning experiences that build a foundation of emotional experiences within important subject areas. These begin with basic interpersonal experiences that create the ability to perceive, interact, problem-solve, create ideas, and think logically. They evolve to higher levels of abstract and reflective thinking as they become applied to more complex interpersonal experiences and the range of subject matter encountered during their education.

Part 2: The Steps of Learning

What are the steps that lead to high levels of reasoning and thinking, the type of reasoning and thinking that fuels inquiry and enables children to not only retain facts, but seek them out?

We've identified a number of fundamental steps that lead to high levels of thinking and reasoning {Greenspan 1997 105 /id}. The mastery of each of these steps creates conceptual structures that enables a child to learn. We need to be certain that every child masters these fundamental steps in order for that child to be school-ready and then to progress and have a chance at attaining higher and higher levels of education. In other words, school readiness and educational success are dependent on children mastering the fundamentals of thinking, as well as the factual knowledge of the world that is supported by their thinking skills.

The fundamental levels of Social Emotional School Readiness first involve the child's ability (which begins in infancy) to process information through what he or she sees, hears, and touches in a calm and regulated manner. This is the beginning of the child's paying attention to the world around them, whether it's the teacher, a parent, peers, or the numbers or letters in the book. **The second step involves the capacity for engaging with other human beings.** In its most fundamental sense,

Greenspan Social-Emotional School Readiness Introduction

learning occurs through human interaction. For example, we've recently discovered that the earliest sense of causality (cause-and-effect interactions) occurs through human emotional signaling (looking and looking; frowns leading to frowns), rather than motor explorations of the world. Children who do not become involved or engaged in relationships become hopelessly locked into their own inner worlds and often withdraw from reality or become chaotic and impulsive.

The third level in thinking involves the most fundamental levels of causal interactions, where a child operates in a purposeful and deliberate manner. This could involve smiling to get a smile back or reading a word to find out what is being said or behaving well in order to receive a nod of approval. It also could involve the basic notion that one plus one equals two or two plus one equals three. In other words, thinking that depends on cause and effect (or "A" leading to "B") is grounded in the child's earliest interactions with his environment, where his gesture or behavior leads to a consequence from outside himself.

The next level involves the child's ability for problem-solving with another person. For example, a toddler's taking father by the hand and walking to the toy area and pointing to the toy on the shelf and gesturing to be picked up and smiling with a nod of satisfaction and thanks at dad for picking him up is all part of a complex pattern of reciprocal, co-regulated (i.e., contributed to by both the child and the caregiver) problem-solving. This ability for co-regulated, interactive problem-solving leads a child to be able to see the world in terms of patterns, rather than simply in terms of isolated phenomena. In other words, the child who is taking Dad by the hand to search for the toy is coming to understand a number of patterns. These include the action patterns involving getting the toy, the visual-spatial patterns involving going from ground level to upper-shelf level where the toy resides, the vocal pattern in getting the toy (vocalizing to get his father's attention, vocalizing frustration at not having what he wants, and then vocalizing tones consistent with satisfaction and eventually mastery), and the social patterns involved in working together with Dad towards a common goal.

Greenspan Social-Emotional School Readiness Introduction

Without co-regulated problem-solving in the second year of life (or thereafter), the ability for perceiving and comprehending patterns will be much more limited. One might, for example, perceive basic shapes, but not be able to problem-solve with the larger elements involved in visual-spatial patterns. Similarly, the child might be able to discriminate sounds, but not be able to see how sounds could be combined to convey attention and to negotiate and communicate. As we will see shortly, the ability for perceiving and comprehending patterns, which is based on these problem-solving interaction, is a critical component of reading skills, math skills, and written and oral communication.

At the next level, children are able to begin to label the patterns they've participated in with symbols. They can use words or pictures to convey giving mommy a big hug and experiencing love by saying, "Love you." Similarly, they can symbolize hitting and screaming by saying, "Me mad!" They can also use pretend play to symbolize real or imagined events, such as tea parties, monster attacks, and the like. Children can now use these shorthand symbols to manipulate ideas in their minds without having to actually carry out the actions. This allows them tremendous flexibility in their reasoning and thinking as they can now both create and problem-solve in their own minds.

The next level involves building bridges between symbols (and ideas). This enables the child to now begin using symbols in a cause-and-effect way. The child can now connect symbols in a variety of contexts, including understanding how one idea leads to another idea ("I got a toy and therefore I'm happy." or "The wind blew and knocked over my card house.") as well as how ideas operate across time ("If I'm good now, I'll get a reward later" or "He was mean to me yesterday, I bet he'll be mean again."), and how ideas operate across space ("Mom is not here, but she is close by."). Ideas can also be applied to the emotions ("I'm happy or angry because...") as well as knowledge of the world.

The ability to connect ideas and symbols together also creates a foundation for more advanced levels of thinking and reasoning. These advanced thinking levels include the next 3 levels. The next level is the capacity for multi-cause and triangular thinking. For example, a child can explore the various reasons for the Civil

Greenspan Social-Emotional School Readiness Introduction

War. He can also figure out that if Johnny won't play with him, it's not necessarily because Johnny hates him; it might be because he is playing with someone else.

Advanced thinking also involves affectively-differentiated, "gray area," reflective thinking. Now the child not only looks at multiple reasons for events but can weigh them as well. "I think slavery was more important than religion in causing the Civil War." This same ability enables him to see that he can like or be angry at other kids, and vice versa, to different degrees.

By puberty and early adolescence, advanced thinking builds to the ability to create an internal standard, (a sense of self that is more stable), upon which to judge experiences and make judgments and reflect on what one is learning. For example, "I can understand how the South felt in the Civil War, but they weren't looking at the long term." Or "Even though my friends are experimenting with drugs, I don't think it's a good idea." Over time, the ability to reflect with an internal standard grows and expands to include the new physical, social, and cognitive changes of adolescence and adulthood. These include interests in sexuality, the community, work, advanced education, separation from parents, intimate relationships, parenthood, as well as hormonal and body changes, and the capacity to think probabilistically about the future.

The steps in learning to reason and think are obviously critical for education, since the foundation or the definition of being literate is the ability to reason and think. As we indicated earlier, each level of reasoning and thinking also creates motivation to learn about the world. The child who is connecting ideas together wants to know why the sky is blue, why the water comes up on the beach in the night time, and why it gets dark at night. There's a reason why children begin asking lots of "why" questions just at the time that they develop the capacity for building bridges between ideas. Most importantly, therefore, when we consider education, is that we help children master the age-expected fundamentals of reasoning and thinking as the foundation piece of education.