

Tools of the Mind Developing Self-Regulation by Developing Intentional Make Believe Play

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Recent research on preschool literacy and math interventions show that while they seem to affect short term skill gains; the effects wear off by kindergarten and first grade. Interventions have had little effect on later reading levels



- The number of children having difficulty in school hasn't changed



**There are growing suspicions
...perhaps knowing letters and
numbers is not enough...**



What is school readiness?

Doing well in school may be the result of a set of underlying **cognitive skills** that enable children to learn—anything, including the knowledge and skills used to define reading readiness and math readiness.





What is school readiness?

Doing well in school is the result of a set of underlying **social-emotional skills** that enable children to be resilient learners who can handle frustration, work in cooperative groups, form positive friendships, and get along with other children.





By First Grade, successful students

- Are able to learn on-demand
- Are self-motivated
- Have internalized classroom standards
- Have established positive patterns of interaction with teachers and other adults



Doing well in first grade will depend on these skills, not just content knowledge.

This is what psychologists call Self-regulation or Executive Function

Self-regulation predicts academic performance in first grade, over and above cognitive skills and family backgrounds

(e.g., Raver & Knitzer, 2002
Blair, 2002)






| | Executive Function | |
|--------------|--|--|
| | Working Memory | Inhibitory Control |
| Preschool | | |
| Literacy | Blair & Raza, 2007 McClelland, et al. 2007 | Blair & Raza 2007 Epsy et. al. 2007 |
| Math | Blair & Raza, 2007 Epsy et. al. 2007 | Epsy et. al. 2007 Passolunghi, et. al., 2007 |
| Later Grades | | |
| Literacy | De Beni, et. al. 1998 Gathercole, et. al., 1995. 2004 Savage et. al., 2006 | De Beni, et. al. 1998 Gathercole, et. al, 2004 Reibacch, et. al, 2007 |
| Math | Gathercole, et. al, 2004 Barrouillet, et. al., 2006 Bull & Scerif, 2001 Swanson & Kim, 2007 | Bull & Scerif, 2001 Marzocchi, et. al, 2001 Passolunghi, et. al., 2001 |

If self-regulation does not develop early, it seems to be less amenable to later intervention resulting in


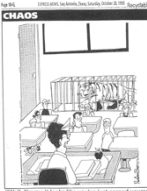

- academic problems
- anti-social behavior
- eventual school drop out

(Snyder, 2001, Tremblay, Mass,
Pagani, & Vitaro 1996)

Self-Regulation is a Problem in Today's Classrooms

- Growing levels of aggression and oppositional behavior have been found in day care and Head Start (up to 1/3 of the class).
- Preschool teachers report that behavioral problems are their greatest challenge in the classroom.
- Kindergarten teachers report less than 50% of their children start school with self-regulation

Self-Regulation /EF

- Inhibitory, effortful or self-control
- Working memory
- Cognitive Flexibility



Inhibitory, Effortful, or Self-Control

- Controlling anxiety when you make mistakes
- Controlling your temper when you don't get your way or what you want
- Being able to stop and think before you act.
- Acting appropriately when tempted to do otherwise.
- Paying attention despite distractions
- Staying on task even when bored or delaying gratification
- Stopping yourself from using the first strategy that comes to mind in favor of a second



Dog



Dog

Bialystok & Martin, 2002



Working Memory

- Holding information in mind and being able to work with it
- Being able to reflect on one's thinking
- Weighing two different strategies for the same situation so you can weigh and consider them
- Taking more than one perspective at a time



Consider reading the following two sentences:

I love to read books.

I read two books before I came to class.



Cognitive Flexibility

- Flexibly adjusting thinking, actions, and mental effort to changing demands of the situation
- Intentionally investing more mental effort in tasks that are difficult
- Necessary when you are multi-tasking (given two or three assignments for homework)





Self-Regulation and Today's the Early Childhood Classroom




Popular myths about self-regulation



Young children lack self-regulation because

- They are simply immature and will grow out of it on their own.
- They have a medical condition, such as ADHD
- They have an aggressive personality,
- They come from families that have raised them that way.

Myths translate into action:



- Do nothing, just wait until children become more mature.
- Identify, diagnose, and medicate.
- Institute "three strikes and you are out" rule in ECE classrooms.
- Attempt to change the early parenting practices, and if all else fails, blame the parents.

There is growing evidence that self-regulation/executive function is learned

- It does not develop naturally.
- It is not a personality characteristic that cannot be changed
- Convergence of evidence pointing to the fact that early childhood is the period when practicing self-regulated behavior has the most profound impact on the developing brain

(Blair, 2001)





EDUCATIONFORUM

Preschool Program Improves Cognitive Control

By Diamond et al.,

found that children in Tools of the Mind, an intervention targeting self-regulation did have significantly higher levels of EF/Self-regulation on a neuroscience test of Executive Function




THE EARLY YEARS
Preschool Program Improves Cognitive Control
Researchers from the University of Minnesota found that children in the Tools of the Mind preschool program showed significantly higher levels of executive function (EF) skills than children in a control group. The study, published in the journal *Developmental Psychology*, found that children in the Tools of the Mind program showed higher levels of EF skills, including working memory, inhibition, and cognitive flexibility, compared to children in the control group. The researchers also found that children in the Tools of the Mind program showed higher levels of self-regulation skills, including the ability to regulate their emotions and behavior. The study was conducted with 100 children aged 3 to 5 years old. The children in the Tools of the Mind program were exposed to a curriculum that emphasized self-regulation and executive function skills. The children in the control group were exposed to a traditional preschool curriculum. The researchers used a neuroscience test of executive function to measure the children's EF skills. The test involved a game where children had to remember a sequence of colors and then reproduce the sequence. Children in the Tools of the Mind program performed significantly better on this test than children in the control group. The researchers also used a self-regulation test to measure the children's self-regulation skills. The test involved a game where children had to regulate their emotions and behavior. Children in the Tools of the Mind program performed significantly better on this test than children in the control group. The researchers concluded that the Tools of the Mind preschool program is an effective intervention for improving children's EF and self-regulation skills. The program should be implemented in all preschools to ensure that all children have access to these skills. The researchers also noted that the program is easy to implement and does not require special resources. The program can be implemented in any preschool setting. The researchers also noted that the program is culturally sensitive and can be adapted to different cultures. The program should be implemented in all preschools to ensure that all children have access to these skills. The researchers also noted that the program is easy to implement and does not require special resources. The program can be implemented in any preschool setting. The researchers also noted that the program is culturally sensitive and can be adapted to different cultures. The program should be implemented in all preschools to ensure that all children have access to these skills.

Early Childhood Research Quarterly

Educational effects of the Tools of the Mind curriculum: A randomized trial

By Barnett et al.,

in a RCT study found Tools children had higher levels of Literacy, Oral Language (including vocabulary) Problem Solving Skills, and Math Concepts



ARTICLE INFO
ABSTRACT
 The effectiveness of the Tools of the Mind curriculum in improving the educational outcomes of low-income and at-risk children has been well-documented. The current study, based on the work of Barnett et al., examined the educational effects of the Tools of the Mind curriculum on children's literacy, oral language, problem-solving skills, and math concepts. The study was a randomized controlled trial involving 100 children aged 3 to 5 years old. The children in the Tools of the Mind program were exposed to a curriculum that emphasized literacy, oral language, problem-solving skills, and math concepts. The children in the control group were exposed to a traditional preschool curriculum. The researchers used standardized tests to measure the children's literacy, oral language, problem-solving skills, and math concepts. The children in the Tools of the Mind program performed significantly better on these tests than children in the control group. The researchers concluded that the Tools of the Mind curriculum is an effective intervention for improving children's literacy, oral language, problem-solving skills, and math concepts. The curriculum should be implemented in all preschools to ensure that all children have access to these skills. The researchers also noted that the curriculum is easy to implement and does not require special resources. The curriculum can be implemented in any preschool setting. The researchers also noted that the curriculum is culturally sensitive and can be adapted to different cultures. The curriculum should be implemented in all preschools to ensure that all children have access to these skills.

Also, higher levels of self-regulation as measured by teacher questionnaires

How can we help children develop self-regulation?

The Vygotskian Perspective

Vygotsky's Theory

Self-regulation is a critical development signaling emergence of uniquely human set of competencies "higher mental functions."

Vygotsky's Theory

Self-regulation is not something that emerges spontaneously as the child matures but is instead taught formally or informally within the social context.

Vygotsky's Theory

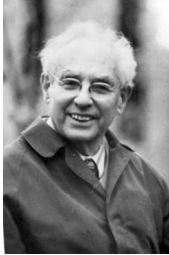
By mastering specific cultural tools—including language and other symbolic systems—children gain control over their physical, emotional, and cognitive functioning.

Vygotsky's Theory

Children change from "Being slaves to the environment" to "Being masters of their own behavior"



Vygotsky, 1968

Vygotsky's Theory





Learning to self-regulate not only changes the behavior it actually changes the brain

Alexander Luria





Three types of experience lead to the development of self-regulation

- Being regulated by another person
- Regulating other people
- Self-regulating





Being regulated by another person

- Children learn regulation by following and internalizing the rules for their behavior.
- “Teacher-regulation” is important but is not the same as self-regulation.





Regulating other people

- Before applying the rules to themselves, children practice by apply the rules to the behavior of other people
- “Other-regulation” is an important step on the way to self-regulation.





Self-Regulation

- Not only applying the rules to your own behavior but doing so voluntarily (with no one watching your).
 - Stopping yourself from doing something against the rules
 - Initiating actions that follow the rules


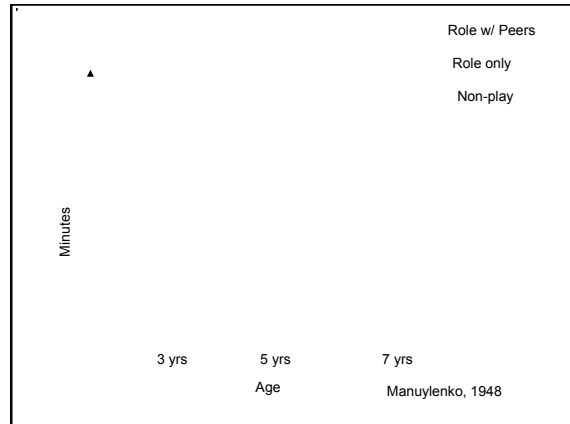


The unique context that combines all 3 kinds of experience is Mature Make Believe Play





In Mature Make Believe Play

- Children are regulated by others: They play a scenario that is agreed upon by all players (not necessarily their own idea).
- Children regulate other children: They tell other children what to do.
- Children regulate themselves: They stay in the role and inhibit impulsive behaviors to stay in the play.






Study was replicated in 2000


Found the parallelogram has shifted. 5 year olds are more like 3 year olds, 7 year olds like 5 year olds, etc. .

Play does not start as mature play, but develops into mature play with guidance and support from the teacher





Vygotsky's definition of play:




Children:

- Create an imaginary situation,
- Take on and act out roles, and
- Follow a set of rules determined by specific roles.





Pre-play (toddlers)

- Play emerges in the context of adult-mediated actions with objects
- Children
 - use pretend actions with real objects
 - begin to use pretend objects





Level 1

- Children use realistic props only
- Play actions imitate isolated everyday actions (e.g., feed the doll)
- No attempts to use imagination





Level 1

- Pretend actions are repetitive and stereotypical
- The order of pretend actions does not matter (a child can get the “baby” dressed and then give her a bath)





Level 1

- Roles are determined by the choice of props
- Children do not label the roles they take on
- No rules
- No role speech





What is “role speech?”

- The child takes on not only what a person in that role would say, but the way they say it complete with mannerisms and vocabulary.





Level 1

- Children play in a solitary or a parallel manner
- Play episodes are short





Level 2

- Play actions are combined in simple scripts (e.g., taking care of the baby, making the dinner)
- Play scripts reflect familiar events and are often repeated





Level 2

- Children label the roles they take on (I am the mommy, you are the driver) but do not use role speech
- No rules





Level 2

- Play interactions emerge between children
 - about sharing props
 - about play actions
- Play interactions are brief
- Play interactions involve few (2-3) children





Level 3

- Play actions are determined by the roles children take on
- Play actions emerge that represent the relationships between people





Level 3

- Play scripts become longer and more varied
- The sequence of play actions in a script reflects the sequence in real life





Level 3

- Children describe the role they will play before the play starts
- When playing, children use both role speech and non-role speech (e.g., when coordinating pretend actions of the players)





Level 3

- Play rules emerge that start to guide children's play actions
- Children begin to inhibit their immediate impulses to conform to the play rule
- Children begin to monitor their partners' following the rule





Level 3

- Children choose props before the play starts to fit the roles they will be playing
- The number of play interactions increases
- The duration of play episodes increases





Level 4

- The main focus on play is on the relationships between people





Level 4

- All roles are well-defined and sustained throughout the play
- Play actions of all children are coordinated according to the roles they play
- Role speech is used consistently





Level 4

- Play actions are varied and accurately reflect real life
- Children use imagination in combining and modifying play scripts





Level 4

- Children conform to the play rules throughout the play
- Play episodes are extended
- The number of children involved in play increases (up to 5-6 players)



Level 4


- Actual play is often preceded by a preparatory stage during which children
 - Discuss and distribute roles
 - Discuss the play scenario
 - Choose props
 - Make their own props




Scaffolding Play



Help children develop play scripts



- When children do not have a script, you model the script by making suggestions for actions and having the children act it out.



Help children develop play scripts



If children don't have language,

- use pictures to prompt a script
- arrange them in a sequence that follows the sequence of play actions similar to a "social story"



Use props as mediators for their roles



- Move children from playing with "things" to using the "things" to support their role.
 - I'm the vet preparing medicine for a sick dog





Use props as mediators for their roles



- Introducing a new prop may help children try out new roles that they never played before



Props can help sustain the role



Model role speech

- On field trips, have the people the children see demonstrate what they do and what they say, using their “grown up” speech.



Model the social relationships between roles

- Introduce one character at a time and show the child how to interact with that new person.

Child Bus Driver

Mechanic
Passenger
Policeman
Another Bus Driver



Help children plan their play



Help children plan their play



For Information :

www.toolsofthemind.org

