



# TOOLS OF THE MIND

METROPOLITAN STATE  
COLLEGE of DENVER

Pre-K  
Preschool



## What makes Tools unique?

→ Focus on self-regulation

Current research shows that self-regulation (both cognitive and social-emotional) has a stronger association with school readiness than IQ or entry-level reading or math skills. Good self-regulation includes the ability to stay on task, ignore distractions, and hold two strategies in mind at the same time, as well as the development of self-discipline and the motivation to succeed. Aspects of self-regulation such as the ability to pay attention, remember on purpose, plan one's actions, reflect on one's thinking, and cooperate and act empathetically toward peers, heavily influence a child's future success in school. Inadequate self-regulation is associated with discipline problems and poor social adjustment.

Helping young children improve their self-regulation is critical to closing the achievement gap for many at-risk children, as well as helping all children reach their highest potential.

“A growing body of research indicates that a lack of self-regulation may be the root cause of many children's lack of school readiness.”

The central focus of Tools of the Mind (Tools) is the development of both cognitive and social-emotional self-regulation at the

same time that academic skills are taught. In a Tools preschool:

- Practice in self-regulated learning is embedded into all activities.
- Teachers use strategies to help children improve the quality of their dramatic make-believe play so it fosters self-regulation development.
- ▲ Research-based literacy and math activities are modified to include self-regulatory components.
- Specific instructional activities are designed to teach self-regulation and reflective thinking.
- Classroom management techniques maximize time-productive interactions and task involvement.

“Play creates the zone of proximal development of the child. In play, the child is always behaving beyond his age, above his usual every day behavior; in play, he is, as it were, a head above himself. Play contains in a concentrated form, as in the focus of a magnifying glass, all developmental tendencies; it is as if the child tries to jump above his usual level.” ~Lev Vygotsky



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## Examples of Tools Pre-K Activities

### Graphics Practice

In Graphics Practice, children develop the fine motor and self-regulation skills needed for writing. They draw on white boards with markers, stopping and starting in response to musical cues. Children use private speech to help them remember how and what to write, learning to inhibit while also remembering the shape they're representing in writing.

### Buddy Reading

In Buddy Reading, pairs of children "read" books to each other, using external mediator cards to remind them of their roles as they take turns reading and listening. Buddy Reading is one of Tools of the Mind's cooperative partner activities. These activities are designed to foster self-regulation development and positive child-child interaction while also fostering the development of emergent literacy or numeracy skills.

### Venger Drawing

In small groups, teachers help children plan and discuss various ways to incorporate a geometric shape into a drawing. Children use geometric terms and positional vocabulary, brainstorming possibilities from multiple perspectives. Children each verbalize a plan for their drawing and create a unique representation incorporating the geometric shape.

### Play Planning

Children describe what they are going to do when they play and then represent their plan on paper in drawing and writing. Children work at their own level, adding detail to their drawn plans, using lines to represent words in their written message, and using the Tools of the Mind Sound Map to write letters representing the sounds in their words.

### Making Collections

In Making Collections, children work in a cooperative partnered mathematics activity taking turns counting and 'checking' using one-to-one correspondence. Children use Vygotskian tactics such as private speech, external mediators and other-regulation.

## What is it like to be a Tools preschool teacher?

Tools of the Mind is based upon a specific set of beliefs about how children develop and learn. The core structure of Tools involves translating Vygotskian principles into practice with the goal of amplifying development in young children. Tools instructional interactions are planned to scaffold each child and to help teachers be more effective in identifying specific teachable moments. Tools teachers build a repertoire of strategies to support children's development of cognitive and social-emotional self-regulation.

Activities are multi-level, capable of meeting the needs of children from 2 ½ to 5. Each child is challenged and supported at his or her own level. Teachers learn how to scaffold children with diverse needs within the same activity.

Using these strategies, Tools teachers focus on helping children become intentional and reflective learners, creating a classroom in which instruction in literacy, mathematics and science reflects children's learning capacity, rather than age-level expectations.

## Why is play central in a Tools preschool classroom?

Mature intentional make-believe play is the foundation of self-regulation development. It creates conditions in which young children are able to act in a more mature way and use more mature mental functions. Children remember more, attend better and have better self-regulation. This kind of play is the only classroom experience that naturally provides the three types of interactions which lead to self-regulation: regulation by others, regulation of others and self-regulation. Without deliberate scaffolding by teachers providing on going opportunities to engage in mature play, many young children will not develop it on their own.

In Tools of the Mind, there is explicit design of literacy, mathematics and science activities so that they further promote the self-regulation developed in play. This means that children act in a regulated way in a variety of instructional contexts in school, and have increased ability to be regulated in other settings as well.



### Mature intentional play has the following characteristics:

- Supports expressing and representing intention through play planning
- Has explicit roles and implicit rules
- Uses symbolic props
- Has an extended time frame
- Includes extensive use of language
- Involves an imaginary pretend scenario.



## Characteristics of Tools of the Mind

- Tools is a comprehensive curriculum, including content that meets all state and national standards. Content is presented in an integrated, developmental way so that instruction forms a coherent whole.
- Instructional strategies used in Tools are a combination of child-initiated activities, teacher scaffolding and explicit instruction, individualization through multiple levels of scaffolding and on-going use of assessment data to tailor interactions to meet individual needs. Progress is monitored daily, weekly and monthly.
- ▲ The instructional formats and activities in Tools are research based.



## How Tools is implemented

- Tools is designed as a core curriculum that works for all children including those with identified special needs and those who will be identified through RtI, Response to Intervention (IDEA reauthorization legislation).
- Tools activities are multi-level so instruction is individualized within the design of each activity. Ability grouping is not used to individualize instruction.
- ▲ Specific scaffolds for children with special needs as well as those who are non-English speakers (ELL) are written into each activity.
- Specialized training is given to ensure that classroom teachers and special needs staff can work together in a coordinated manner.
- Materials include both Tools-designed materials and materials already present in most preschool classrooms. Tools staff help district personnel inventory their existing materials and then suggest modifications, adaptations and additions.
- ▲ Tools is designed to be implemented in both full- and half-day preschool programs with a teacher and one part-time or full-time paraprofessional, depending on class size.
- Pacing guides are developed that ensure that instruction matches end-of-the-year district benchmarks and standards.

## Evidence of Effectiveness

Children in Tools were found to have higher rates of self-regulation in a National Institute for Early Education Research (NIEER) double-randomized study. This study compared children in Pre-K Tools classrooms with a control group using a high-quality ECE program with no emphasis on self-regulation. In addition to student gains, teachers trained in Tools scored higher in classroom management measures, used classroom time more productively and had a higher rate of appropriate and cognitively challenging interactions, as measured by the Early Childhood Environmental Rating Scale and the CLASS.

A follow-up quasi-experimental study using classrooms from the NIEER study compared the self-regulation/executive function levels of children in Tools Pre-K classrooms with a group of matched controls who did not attend Tools. The study found higher levels of executive function/self-regulation as measured on neurocognitive tests (University of British Columbia Medical School). Student levels of self-regulation were correlated with achievement levels on standardized tests (Woodcock Johnson, Peabody Picture Vocabulary test).

Early childhood programs that have implemented Tools of the Mind report higher literacy and math scores and fewer incident reports, discipline problems and special education referrals. Teachers report children are able to stay involved in activities, pay better attention and remember better. Teachers report fewer classroom management problems and improved ability to individualize for students.





## Professional Development

District capacity building is an important aspect of Tools training. Professional development is a two-year process. At the end of the two years, districts have a strong core of teachers who understand and can apply the theories that shape Tools of the Mind, with a new set of teaching skills and instructional strategies. The professional development process includes the training of district staff to provide on-going coaching support to teachers. This means districts are well equipped to continue successful implementation and navigate the challenges they face without losing ground and momentum. The Tools professional development process is designed to have flexibility and responsiveness built in. Tools staff collaborate with districts to design the details of each district's professional development plan.

### Year 1

In the first year, the curriculum is given in four phases, matching the developmental trajectory of child skills. The four-workshop training format is coordinated with four on-site visits by Tools trainers to help teachers and coaches implement newly learned approaches and activities.

Year 1 professional development workshops emphasize classroom management, self-regulation development, and literacy, math and science content areas. Also available is specialized training in the implementation of RtI for special education staff.

### Year 2

In Year 2, teachers participate in a process involving written reflection and videotaping teaching-learning interactions to become endorsed Tools of the Mind teachers. This supports teacher development, helping to ensure future fidelity and building program capacity.

Year 2 professional development workshops are designed to help teachers become more intentional in their decision-making in the classroom. They emphasize individualization, assessment of child learning and fine-tuning accommodation for children with special needs.

“ The strength of the Tools approach to professional development is the consistent focus on improving teacher performance through embedded technical assistance visits. The visits are more than one-stop meetings. Rather, they are day-long visitations where consultants are available and willing to answer all questions from any member of the staff. ”

### Coaches Training

Coaches receive direct training from Tools staff through workshops, joint visits to classrooms, a coaching manual, coaching forms to guide classroom visits, and support from online videos of activities and individualized feedback from training staff. An administrator's handbook and fidelity checklist are also available.

The cost for professional development is calculated on a per-classroom basis and includes the training of teachers, paraprofessionals and district coaches. The 2009 cost for Year 1 Tools implementation is \$2,000-\$3,000 per classroom, depending on the size of the district. Training for special education staff is contracted separately on a per-person basis. The cost for the second year of professional development is negotiated with the district and is usually half the cost of the first year.

### For more information

**Dr. Deborah J. Leong**  
 Professor Emeritus  
 Center for Improving Early Learning  
 Metropolitan State College at Denver  
 E-mail: [leongd@mscd.edu](mailto:leongd@mscd.edu)  
 Web: [www.toolsofthemind.org](http://www.toolsofthemind.org)



## National and International Recognition

### U N E S C O

In 2001, the International Bureau of Education, an arm of the United Nations Educational, Scientific and Cultural organization (UNESCO), named Tools an exemplary innovative educational program.

### O t h e r s

Footage showing Tools classroom activities can be seen in the "Heads-up Reading" television series and the "Growing and Learning in Preschool" video produced by the National Institute for Early Education Research (NIEER). Scaffolding Writing, a technique invented by Tools to teach writing, has been named as a model literacy technique by the International Reading Association.

## Further Reading

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