Experimental Evaluation of the *Tools of the Mind* Pre-K Curriculum

9/13/2011

Trainer Report
Full Implementation Year, 2010-11

PEABODY research institute
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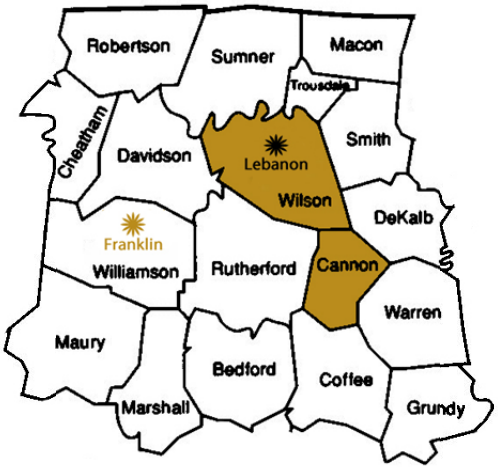
The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A090533 awarded to Drs. Dale C. Farran, Mark Lipsey, and Sandra Wilson at Vanderbilt University with sub awards to Dr. Deborah Leong at Metropolitan State University and Dr. Elena Bodrova at McRel Research Institute.

PARTICIPANTS

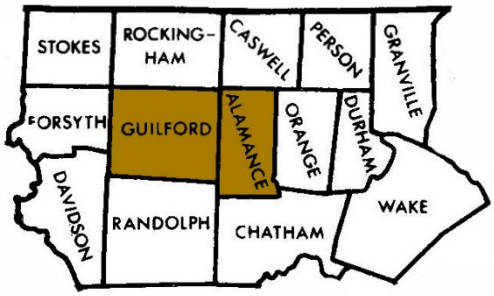
The *Experimental Evaluation of the Tools of the Mind Pre-K Curriculum* is fortunate to have participants from Franklin Special School District, Lebanon Special School District, Wilson County School District, and Canon County School District in Tennessee as well as Guilford County School District in North Carolina and (coming in a year later and not included in this report) Alamance Burlington School District in North Carolina.

- In all, 828 children (*Tools* = 477) were seen at the beginning of Pre-K and 821 children (*Tools* = 472) at the end of Pre-K.
- Children were from 60 classrooms (*Tools* = 32) in 45 schools (*Tools* = 25).

Tennessee

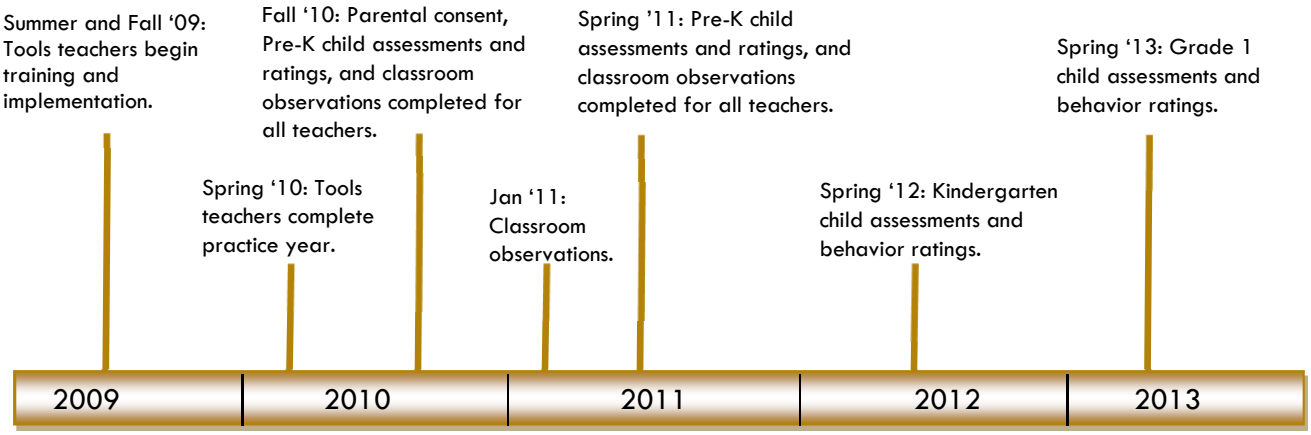


North Carolina



TIMELINE

Below is the timeline for the *Experimental Evaluation of the Tools of the Mind Pre-K Curriculum*. This timeline shows the assessments, behavioral ratings, and classroom observations in which students and teachers have already participated and which continue through Spring 2013 when the children are completing 1st Grade.



CHILD DESCRIPTIVES FULL SAMPLE BY CONDITION

Variable	Tools Condition	Comparison Condition	Overall
Total N	477	351	828
N with Complete Data	455	339	794
N Pretest Range	474 - 475	345 - 350	819 - 825
N Posttest Range	464 - 472	347 - 349	811 - 821
Mean Age (mos.)	54.18	54.69	54.4
Gender (% female)	47.6	43.3	45.8
Ethnicity			
Black (%)	29.8	21.7	26.3
Hispanic (%)	23.9	25.6	24.6
White (%)	37.3	41.6	39.1
Other (%)	9	11.1	9.9
IEP Status (%)	13.5	15.1	14.2
ELL Status (%)	27.5	30.5	28.7

Note: Randomization produced two groups whose children did not significantly differ between them.

CLASSROOM DESCRIPTIVES FULL SAMPLE BY CONDITION

Variable	Tools Condition	Comparison Condition	Overall
Fall Class Size	17.31	17.86	17.57
Spring Class Size	17.25	17.71	17.47
Fall ELL Status (% of class)	28.9	27.6%	28.29
Spring ELL Status (% of class)	29.5	29.68	29.58
Fall IEP Status (% of class)	10	12.1	10.98
Spring IEP Status (% of class)	11.28	13.38	12.26

NOTE: Randomization produced two groups of very similar classrooms.

TEACHER DESCRIPTIVES FULL SAMPLE BY CONDITION

Variable	Tools Condition (N=32)		Comparison Condition (N=28)		Overall (N=60)	
Full Sample	Mean/Freq	Range/%	Mean/Freq	Range/%	Mean/Freq	Range/%
Years of Experience						
Years Teaching	12	2-30	12.1	1-34	12	1-34
Years Teaching Pre-K	7.7	2-22	6.6	1-17	7.1	1-22
Education Level						
Bachelor's Degree	12	38%	17	61%	29	48%
Some Graduate Coursework	11	34%	5	18%	16	27%
Master's Degree	9	28%	6	21%	15	25%
Licensure Area						
Early Childhood (Birth-K)	19	60%	18	64%	37	62%
Pre-K- 3rd	2	6%	1	3%	3	5%
Elementary Ed (Pre-K- 3,4,8)	8	25%	8	29%	16	26%
Early Childhood and Spec Ed	3	9%	1	4%	4	7%

ASSISTANTS DESCRIPTIVES FULL SAMPLE BY CONDITION

Variable	Tools Condition (N=32)		Comparison Condition (N=28)		Overall (N=60)	
Full Sample	Mean/Freq	Range/%	Mean/Freq	Range/%	Mean/Freq	Range/%
Years of Experience						
Years Teaching Pre-K	4.5	.25-17	4.3	.25-12	4.4	.25-17
Years Working w/Teacher	3.4	.25-17	2.5	.25-8	3	.25-17
Education Level						
GED/High School Diploma	5	16%	7	25%	12	20%
CDA	8	25%	6	21%	14	23%
Montessori Training	-	-	1	4%	1	2%
Some College	2	6%	2	7%	4	7%
Associate's Degree	4	13%	4	14%	8	13%
Bachelor's Degree	11	34%	7	25%	18	30%
Master's Degree	2	6%	1	4%	3	5%

Notes: There were 7 classrooms in this study that had two educational assistants (NC-2, TN-5). Demographics listed in the table above include information only from the primary assistant. Three classrooms reported a staff change in the classroom assistant during the 2010-11 school year with one of these classrooms having multiple assistant changes throughout the school year. Overall the two groups of classrooms were similar in teacher and assistant characteristics.

DESCRIPTION OF MEASURES

The goal of the *Experimental Evaluation of the Tools of the Mind Curriculum* is to determine if the *Tools* curriculum is more effective in enhancing children's learning-related self-regulation and academic preparedness for kindergarten when compared to other "business as usual" preschool curricula.

Woodcock-Johnson III Tests of Achievement (WJ-III)

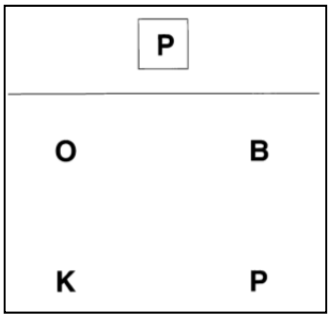
Children were individually assessed by certified individuals in fall and spring.

WJ-III standard scores are reported, which are normed to a representative sample of American youth. Standard scores have a mean of 100 and a standard deviation of 15. A score of 100 therefore is considered average. Higher scores on the measures reflect better academic performance. An increase in *standard scores* from fall to spring indicates learning at a faster rate than previously.

These same measures will be used in follow up assessments.

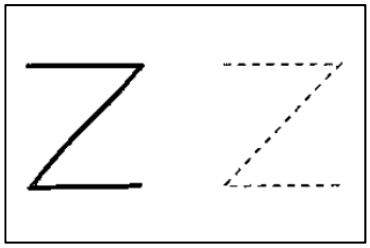
WJ-III Literacy Measures

Letter Word Identification



- Letter Word Identification assesses children's letter and word identification ability. Items include identifying and pronouncing presented letters and pronouncing presented words.
- Sample Script: *This is the letter "P." Find the "P" down here.*

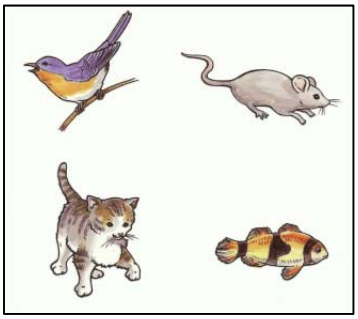
Spelling



- Spelling measures the ability to write orally presented letters and words correctly beginning with tracing simple shapes.
- Sample Script: Watch Me. [Trace "Z" on left. Hand pencil to child, point to "Z" on right] Now you make one just like I did. Stay on the line.

WJ-III Language Measures

Academic Knowledge



- Academic Knowledge is given in three subtests measuring factual knowledge of science, social studies, and humanities.
- Sample Script: *Look at the pictures, put your finger on the one that flies.*

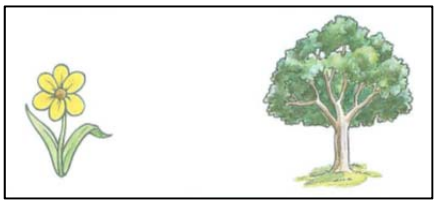
Language Measures (continued)

Oral Comprehension

- Oral Comprehension assesses children's ability to understand a short passage by providing a missing word based on the syntactic and semantic cues of the sentence.
- Sample Script: Water looks blue and grass looks _____. (pause expectantly).

Picture Vocabulary

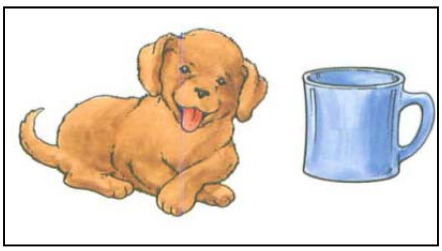
- Picture Vocabulary assesses children's receptive and expressive language and word knowledge at the single word level. After the initial items, children must say the name of the picture.
- Sample Script of initial item: *Put your finger on the flower.*



WJ-III Mathematics Measures

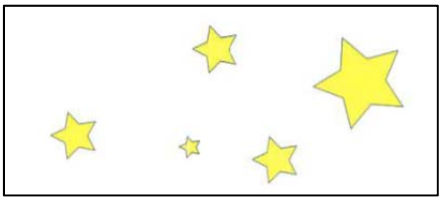
Applied Problems

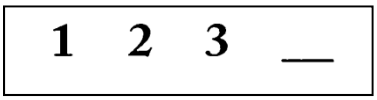
- Applied Problems assesses children's ability to solve mathematics problems. The items in the scale measure children's ability identify information necessary to solve problems and to determine an appropriate strategy to solve the problem.
- Sample Script: *How many dogs are there in this picture?*



Quantitative Concepts

- Quantitative Concepts is a measure given in two parts. The first part assesses children's knowledge of mathematical concepts, including vocabulary, numbers, shapes, and symbols. The second part measures sequencing of numbers with difficulty increasing with each problem.
- Sample Script A: *Point to the largest star. Now point to the smallest star.*
- Sample Script B: *Look at these numbers and tell me the number that belongs in the blank space.*





Learning-Related Cognitive Self-Regulation

Children were assessed individually in two sessions in the fall and spring of the 2010-2011 school year. The following assessments were used:

Peg Tapping

- Children are instructed to tap once with a wooden dowel when the examiner taps twice and to tap twice when the examiner taps once.
- The Peg Tapping Task is a measure of inhibitory control. A child must inhibit the most powerful immediate response of imitating the examiner.
- Each item is scored 0 if the child gives the incorrect number of taps and 1 if the child gives the correct number of taps. Scores on the items are summed and converted to a portion correct out of a possible score of 16. Larger scores on the task reflect greater inhibitory control.
- For more information see: Diamond, A., & Taylor, C. (1996). Development of an aspect of executive control: Development of the ability to remember what I said and to "do as I say, not as I do." *Developmental Psychobiology*, 29, 315-334.

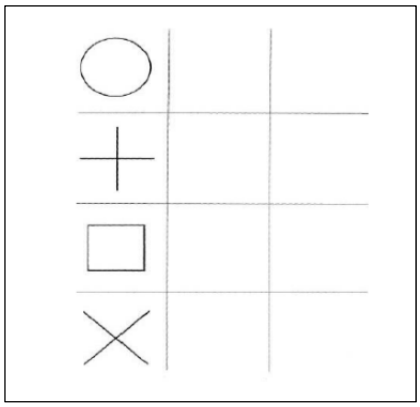
Head Toes Knees Shoulders (HTKS)

- Children are asked to play a game in which they must do the opposite of what the examiner says. The examiner instructs children to touch their head (or their toes), but instead of following the command, the children are supposed to do the opposite and touch their toes. If children pass the head/toes part of the task, they complete an advanced trial where the knees and shoulders commands are added.
- The HTKS task is a measure of inhibitory control; a child must inhibit the dominant response of imitating the examiner.
- Each response is scored with the following system: 0 = incorrect response, 1 = any motion to an incorrect response, but self-corrected to the correct response, and 2 = correct response. Scores on the first six practice items and the 20 test items are summed and converted to a proportion correct out of a possible score of 52. Larger scores on the task reflect greater inhibitory control.
- For more information see: Ponitz, C. C., McClelland, M. M., Matthews, J. S., & Morrison, F. J. (2009). A structured observation of behavioral regulation and its contributions to kindergarten outcomes. *Developmental Psychology*, 45, 605-619.

Dimensional Change Card Sort (DCCS)

- Children are required to sort picture cards first according to one dimension (e.g., color) and then according to another dimension (e.g., shape). If they can make this switch, children are then asked to complete an advanced version of the DCCS that adds a third sorting rule, sorting by the borders on the cards (e.g., the presence of a border means one rule, no border means another rule).
- The DCCS is a measure of attention shifting. To complete the task children must shift their attention to a different dimension of the card – from the color of the object to the shape of the object (e. g. focus on the shape on a card and not the color of the shape). To complete the advanced phase, children must children shift their focus from one dimension to another from card to card.
- The task is scored as follows, using a system developed by Zelazo. Scores were converted to a proportion correct out of 3. Larger scores on the task reflect greater ability to shift attention with task demands and less perseveration.
  - 0 = Sorted by color on fewer than 5/6 cards
  - 1 = Sorted by color on at least 5/6 cards, but sorted by shape on fewer than 5/6 cards
  - 2 = Sorted by color and shape on at least 5/6 cards; but sorted fewer than 9/12 cards correctly on advanced version
  - 3 = Sorted by color and shape on at least 5/6 card and sorted at least 9/12 cards correctly on advanced version.
- For more information see: Zelazo, P. D. (2006). The dimensional change card sort (DCCS): A method of assessing executive function in children. *Nature Protocols, 1*, 297-301.

Copy Design



- Children are asked to copy 8 simple geometric designs. Children are given two attempts to draw each of the 8 designs. The attempts are scored to indicate if the child was able to properly replicate the design.
- The Copy Design task is a measure of persistence and sustained attention during a difficult task.
- Each design is given a score of 1 if at least one attempt is correct, 2 points if both attempts are correct, and 0 if both attempts are incorrect or are not attempted. Scores on the items are summed and converted to a portion correct out of a possible score of 16. Larger scores on the task indicate greater attention and sustained focus.
- For more information see: Osborn, A. F., Butler, N. R., & Morris, A. C. (1984). *The social life of Britain's five-year-olds: A report of the child health and education study*. London: Routledge & Kegan Paul.

Corsi Blocks

- Children are asked to point to a series of blocks as indicated by the examiner. Children are first asked to repeat the pattern exactly as the examiner did (i.e., forwards) then they are asked to reverse the pattern given by the examiner (i.e., backwards). Task difficultly increases by asking children to repeat increasingly longer block patterns. The child gets two attempts at each pattern and continues until the recalled pattern is no longer correct.
- Corsi Blocks is a measure of working memory.
- The task is scored as the largest pattern span that the child is able to reproduce. The maximum forward span possible was 9 and 7 for backward span. Larger scores indicate a greater working memory.
- For more information see: Berch, D. B., Krikorian, R., & Huha, E. M. (1998). The corsi block-tapping task: Methodological and theoretical considerations. Brain and Cognition, 38, 317-338.

Self-Regulation Assessor Ratings (SAR)

- At the end of each assessment session, the assessor completed a rating of children's self-regulatory behavior during the testing. The 17 items provide a global picture of attention and impulsivity throughout the assessment interaction. Each child therefore was rated twice during pretesting and twice during post testing by independent raters.
- Sample item:

  A3. Sustains concentration; willing to try repetitive tasks

  3. Child able to concentrate and persist with task, even toward end of tasks and with distractions
  2. Child occasionally distracted but generally persistent, but does not require prompt from assessor
  1. Child frequently distracted, requires multiple prompts from assessor
  0. Child not able to concentrate or persist on much of the assessment

- For more information, see: Smith-Donald, R., Raver, C. C., Hayes, T., & Richardson, B. (2007). Preliminary construct and concurrent validity of the Preschool Self-regulation Assessment (PSRA) for field-based research. *Early Childhood Research Quarterly, 22*(2), 173-187. doi: DOI: 10.1016/j.ecresq.2007.01.002

Behavior Rating Scales (collected from teachers)

Teachers rated the children in their classes 6 weeks after school began and again at the end of the year.

Cooper-Farran Behavior Rating Scales

The Cooper-Farran Behavior Rating Scale is composed of 37 items in two subscales. The Interpersonal Skills subscale (IPS) includes 21 items and the Work-Related Skills (WRS) subscale includes 16 items. The IPS subscale measures how well children get along with peers and the teacher. The WRS subscale includes items about independent work, compliance with instructions, and memory for instructions. Items are rated on a 1-7 scale with descriptive phrases to "anchor" points 1, 3, 5, and 7.

- Example item for Interpersonal Skills (IPS):

  EFFECT ON OTHER CHILDREN

1	2	3	4	5	6	7
Does not purposefully annoy anyone		Teases others but stops short of actual annoyance		Occasionally tries to get attention by playful but annoying behavior		Repeatedly irritates others by hostile touching, poking, verbal insulting, etc.

- Example item for Work-Related Skills (WRS):

  RELEVANT PARTICIPATION IN GROUP DISCUSSIONS

1	2	3	4	5	6	7
Often contributes original ideas; relevant and responsive to others' comments and interests		Makes an occasional relevant comment; attentive		Inattentive to others; quiet but uninvolved		Makes irrelevant remarks; interrupts the flow

- For more information see: Cooper, D., & Farran, D. C. (1988). Behavioral risk in kindergarten. *Early Childhood Research Quarterly*, 3, 1-20.

Adaptive Language Inventory (ALI)

- The ALI focuses on children's comprehension and use of language in classroom settings in comparison to their peers and has been used both at the preschool and elementary levels. The measure consists of 18 items that focus on comprehension, production, rephrasing, spontaneity, listening, and fluency. Children are rated on 1-5 scale.

1	2	3	4	5
Well below average	Somewhat below average	Average for his/her age	Somewhat above average	Well above average

- Sample items: Responds to questions asked of him/her in a thoughtful logical way. Listens carefully when the teacher is giving instructions to the class.
- For more information see: Feagans, L., Fendt, K. & Farran, D.C. (1995). The effects of day care intervention on teachers' ratings of the elementary school discourse skills in disadvantaged children. *International Journal of Behavioral Development*, 243-261.

CHILD OUTCOMES

Extensive analyses found no differences in any of the child outcomes in favor either of *Tools of the Mind* or of the comparison classrooms. No differences were found for any achievement measures, direct assessments of self-regulation or teacher ratings. We have compared the results for those teachers who were strong implementers of the *Tools of the Mind* curriculum to those who were much weaker and found few differences in outcomes for the children in their classrooms. Consequently we have to conclude that *Tools of the Mind* is no more or less effective than the curricula in use in the school systems currently. For philosophical reasons, a school system may be more committed to the instructional approach advocated by *Tools*. The system can be assured that there will be no ill effects from adopting the curriculum.

Even though we found no differences in child outcomes by curriculum condition, we are presenting all the child outcome results comparing the results of classrooms in the two conditions. This section of your report provides the descriptive results for the entire samples' performance by condition on the Woodcock-Johnson III achievement subtests, the self-regulation direct assessment measures, and the behavior rating scales described previously.

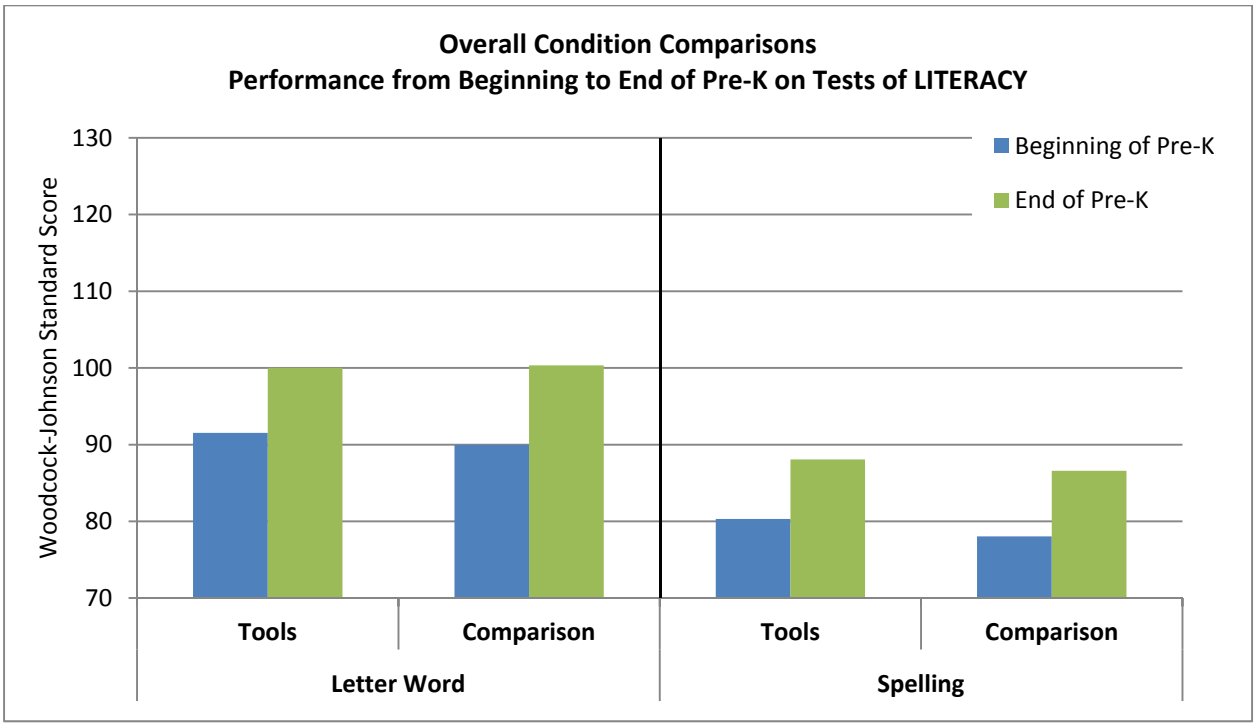
The achievement measures are presented in standard scores. The average score on these achievement tests is always 100, and 68% of children will score between 85 and 115 on the tests. These are age adjusted to account for gains children would have made simply by being a year older. Where the standard score on the posttest exceeds the pretest, children have made more gains on that measure than they were making prior to entering preschool. Thus you can look at these bar graphs to determine in which areas children gained and how much and also to see how close to the national average the children were at the end of the year.

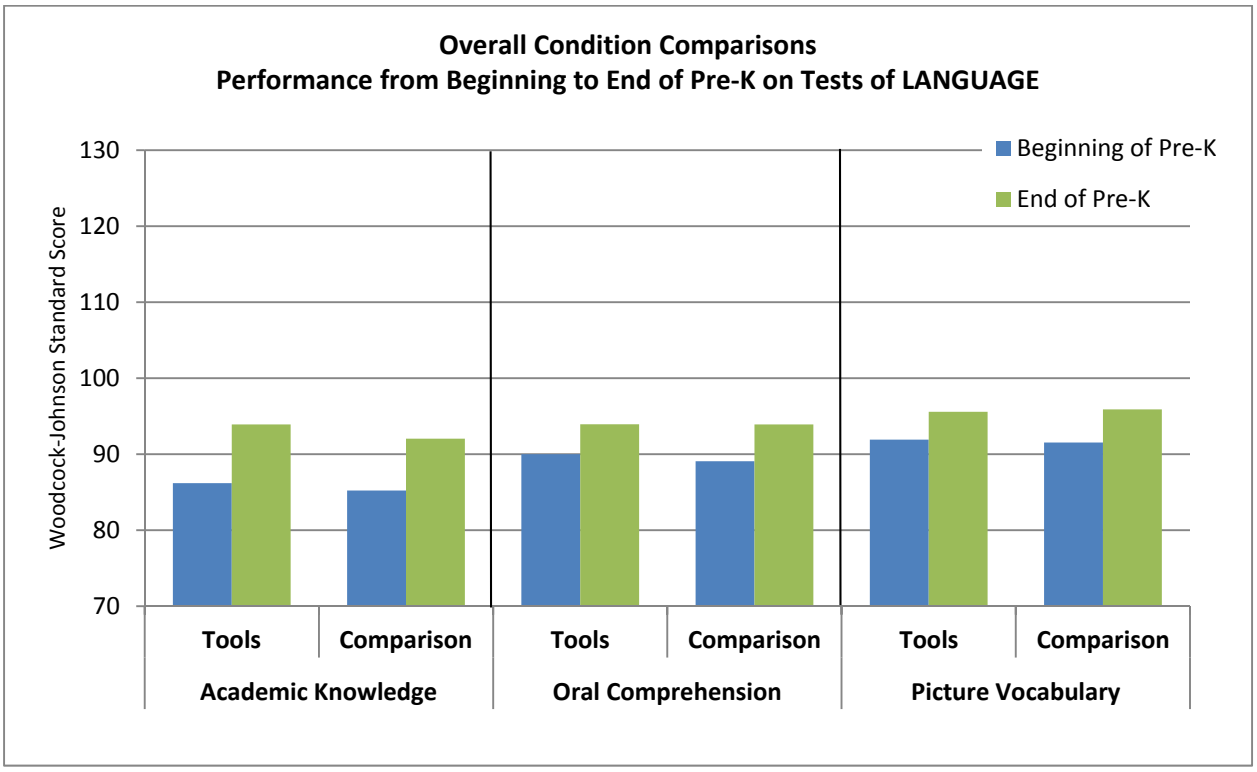
The self-regulation outcomes are presented primarily in percent correct.

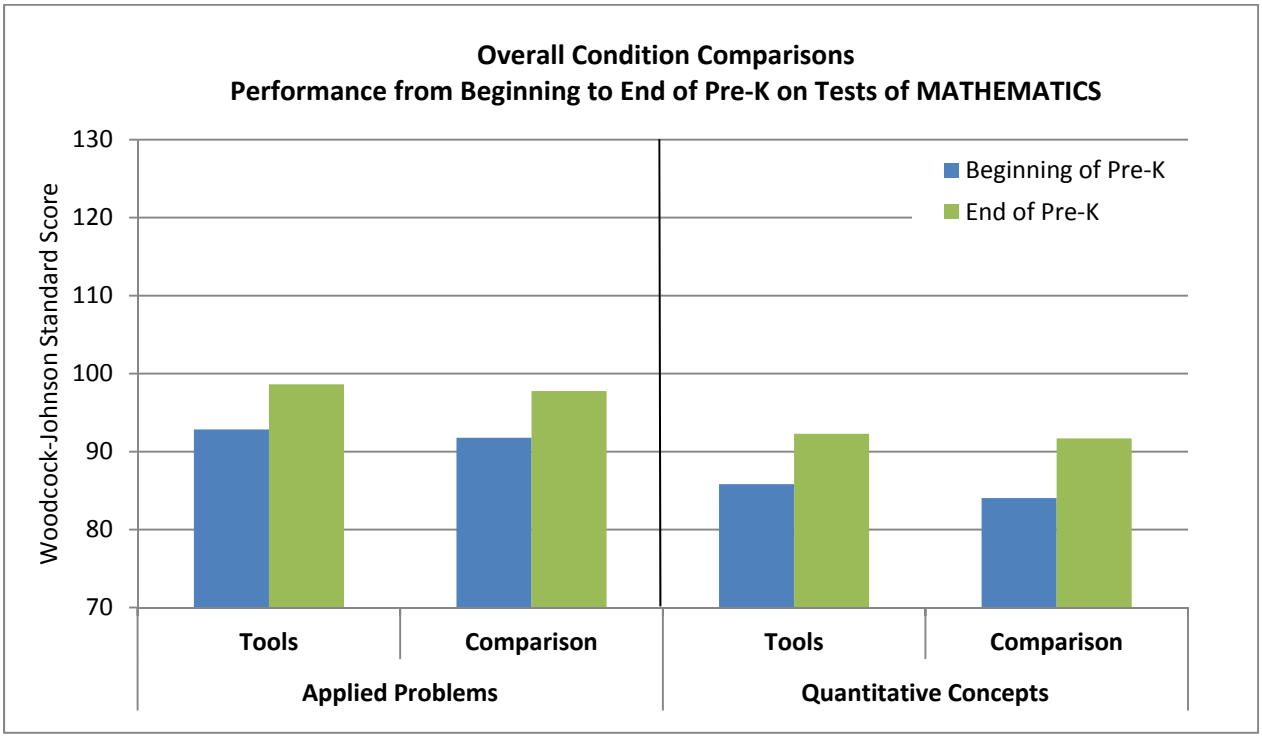
Take Away Thoughts for *Tools* Trainers

1. Oral language is asserted to be a strong goal for *Tools* classrooms (e.g., Diamond & Lee, 2011). None of the language measures showed positive effects for *Tools*; in fact, the one outcome that came closest to showing a significant effect in favor of the comparison classrooms was Oral Comprehension. What aspects of the curriculum should be linked to higher oral language comprehension and production? Are those aspects getting the attention from teachers that you intend?
2. Self-regulation, particularly as measured by Peg Tapping and HTKS, is assumed to be a key outcome for *Tools* children. Yet there are no differences between the *Tools* and comparison classroom on those two or any other measure of self-regulation, including assessor ratings. As you think about the classroom descriptive findings, it might be helpful to reflect on the classroom processes *Tools* believes would affect self-regulation and whether those are operating as they should.

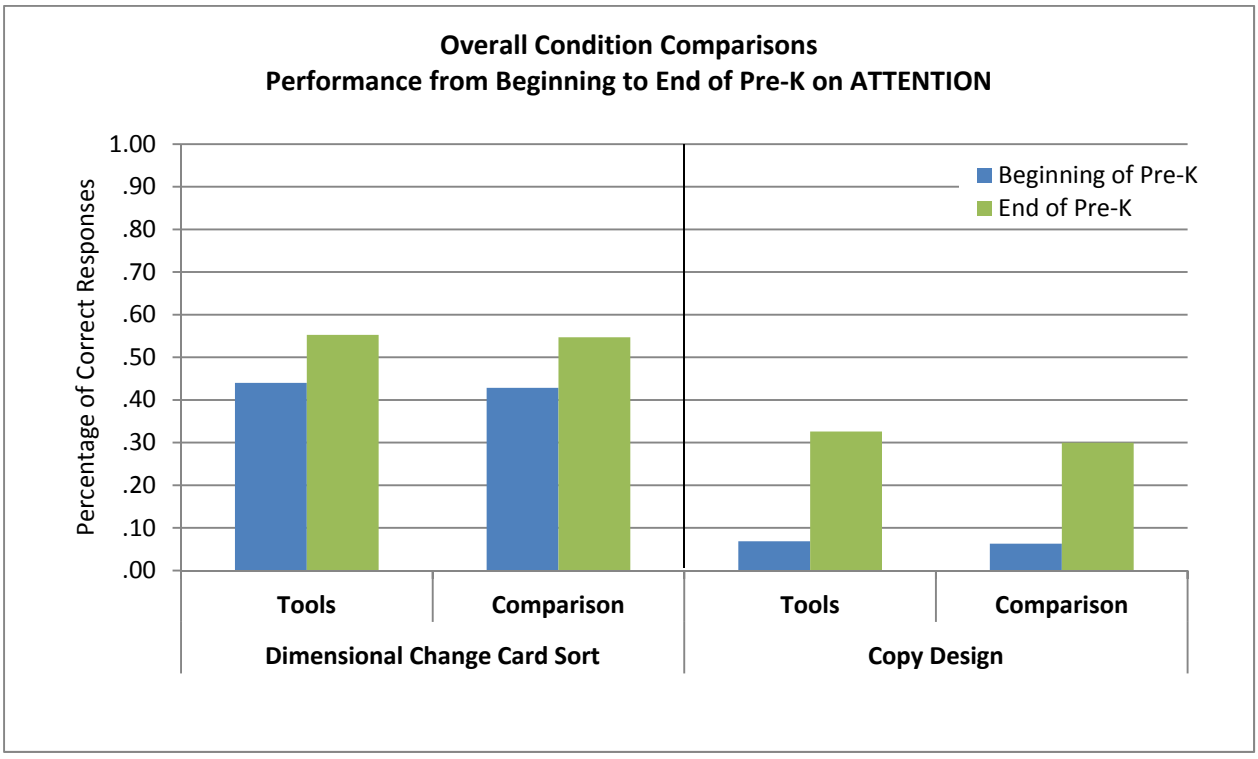
WOODCOCK-JOHNSON III TESTS OF ACHIEVEMENT

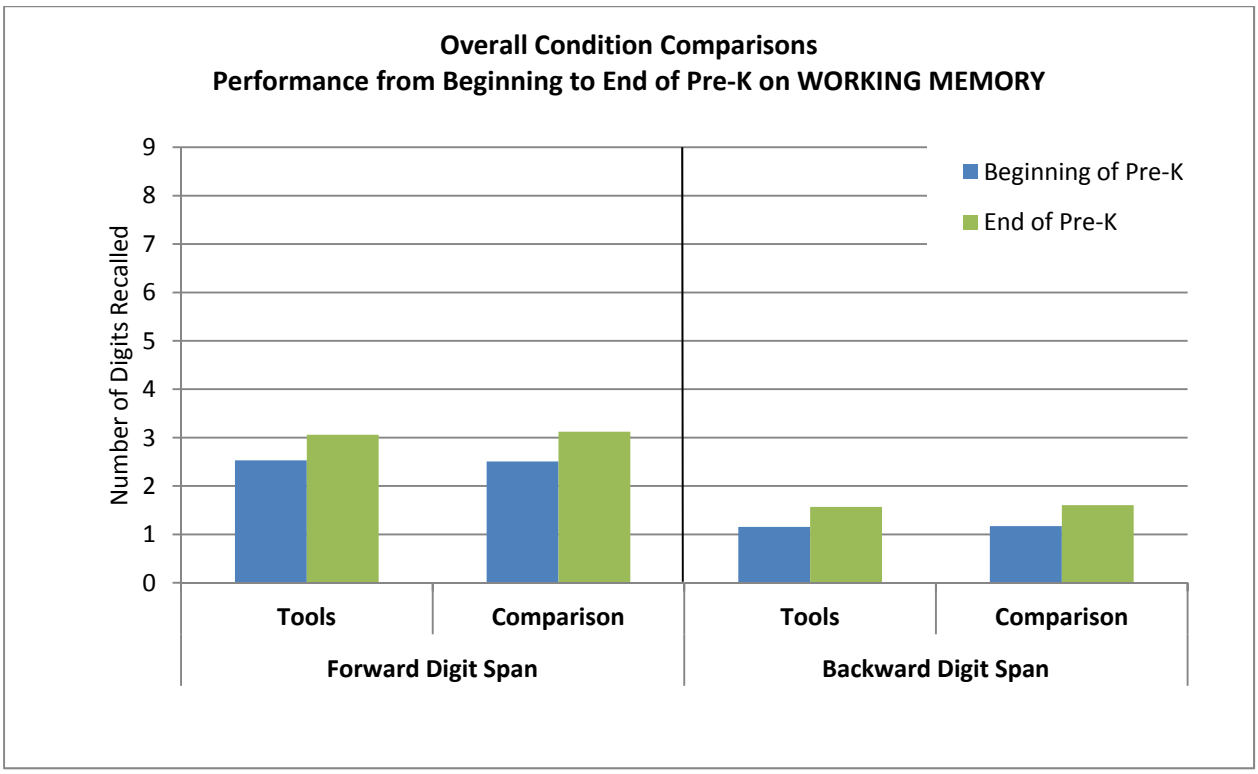


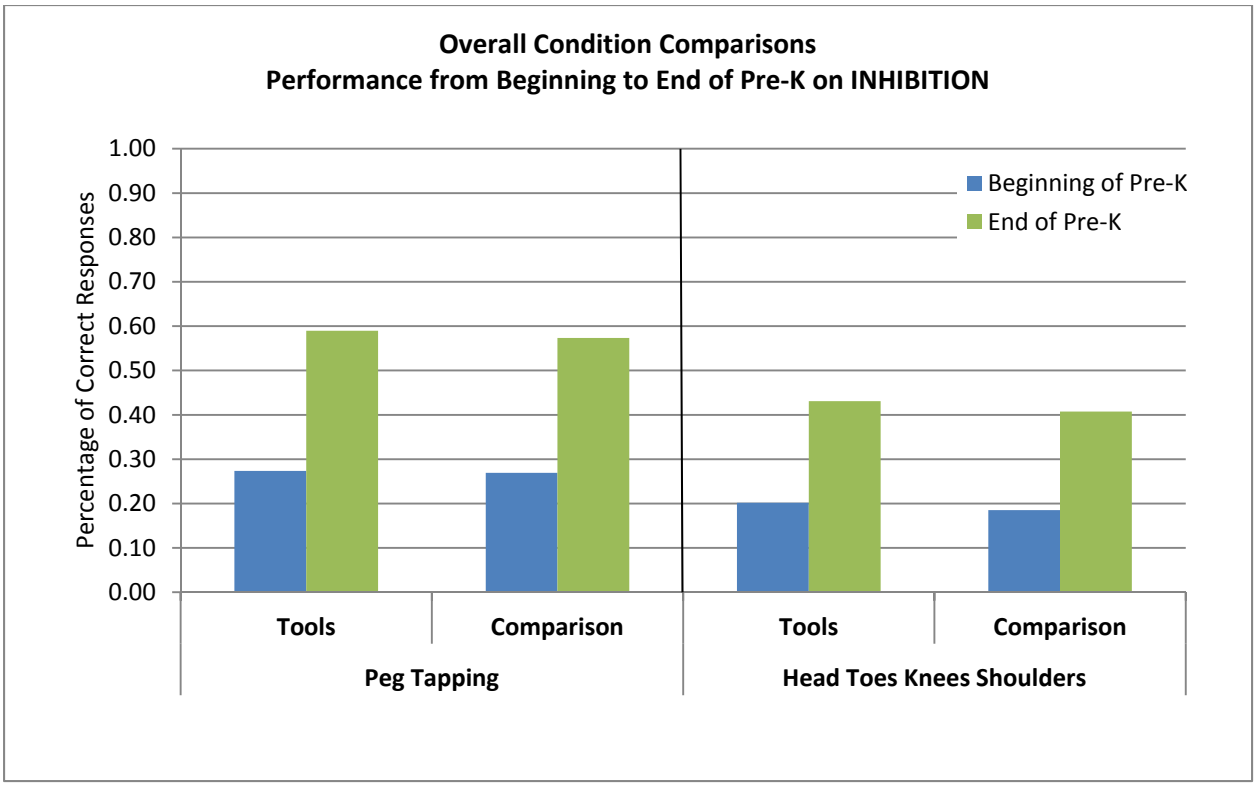


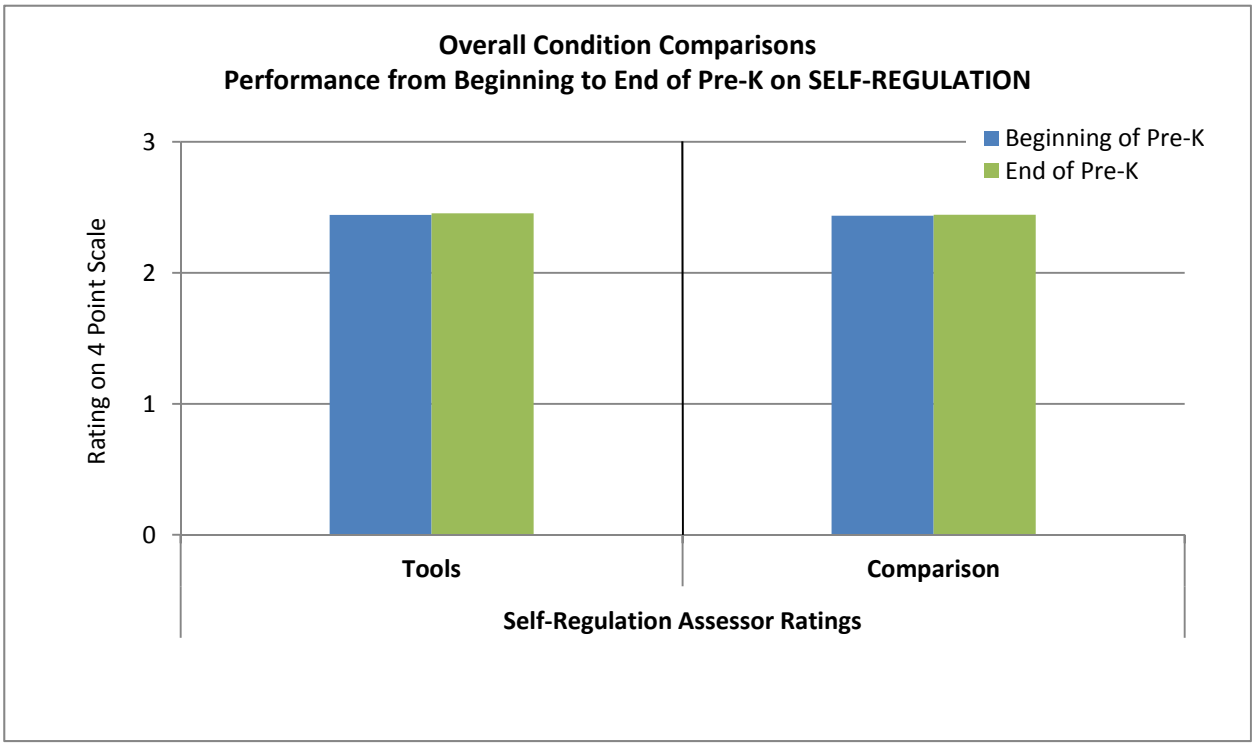

Overall Condition Comparisons
Performance from Beginning to End of Pre-K on Tests of MATHEMATICS
Woodcock-Johnson Standard Score
130
120
110
100
90
80
70
Beginning of Pre-K
End of Pre-K
Tools
Comparison
Tools
Comparison
Applied Problems
Quantitative Concepts

MEASURES OF LEARNING-RELATED COGNITIVE SELF-REGULATION

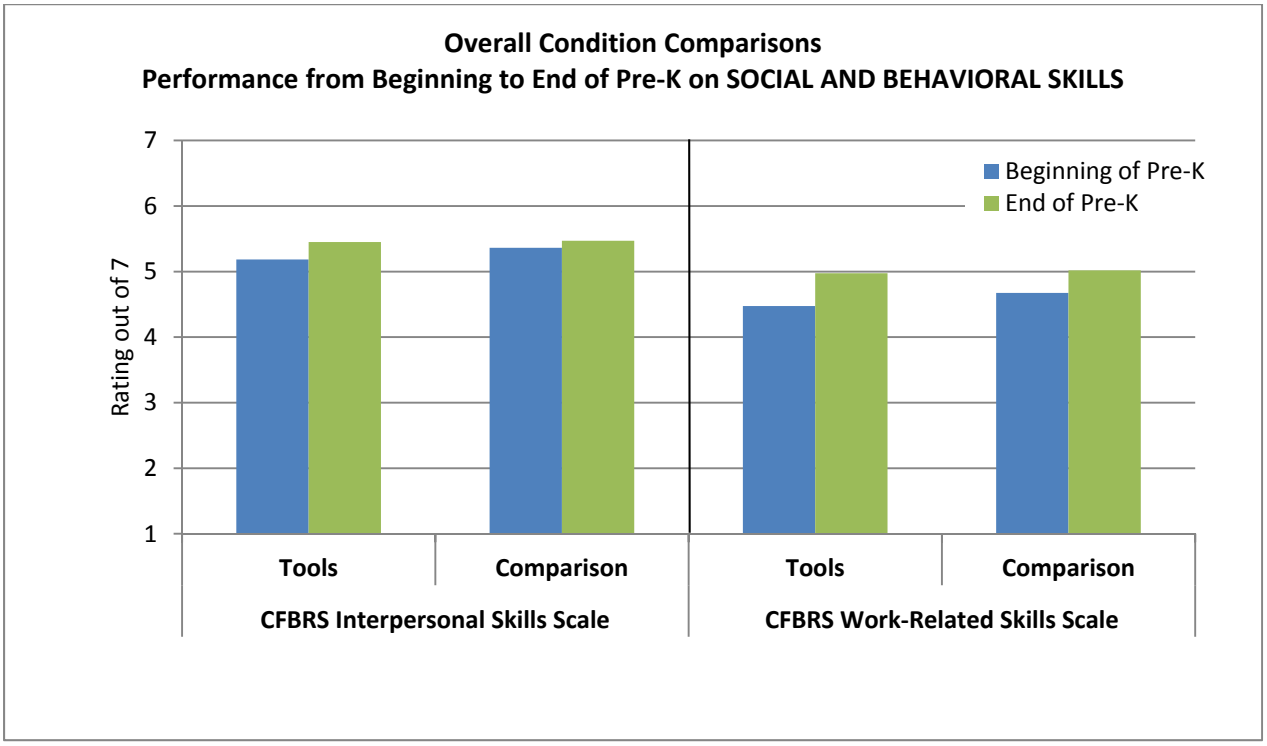


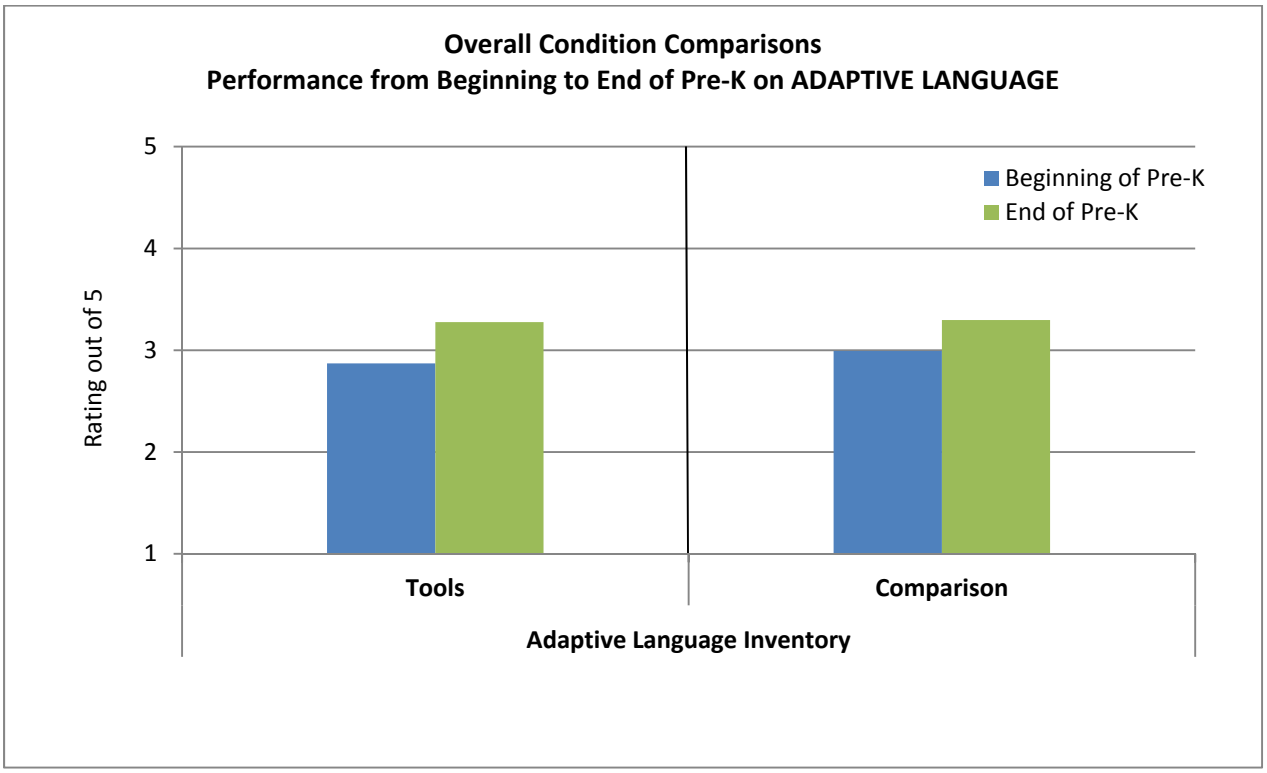



Overall Condition Comparisons
Performance from Beginning to End of Pre-K on INHIBITION
Percentage of Correct Responses
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Beginning of Pre-K
End of Pre-K
Tools
Comparison
Tools
Comparison
Peg Tapping
Head Toes Knees Shoulders


Overall Condition Comparisons
Performance from Beginning to End of Pre-K on SELF-REGULATION
Rating on 4 Point Scale
3
2
1
0
Beginning of Pre-K
End of Pre-K
Tools
Comparison
Self-Regulation Assessor Ratings

CHILD BEHAVIOR RATINGS





CLASSROOM ORGANIZATION ACROSS ALL CLASSROOMS

Narrative Record

The Narrative Record Form is an open-ended format for recording narrative data notes about and rating the activities occurring in the classroom. This system was used in both *Tools* and comparison classrooms to determine similarities and differences among them. The focus of the Narrative Record is *the whole class*; whatever the class as a whole (defined as at least 75% of the children) is doing, that is what is coded. The Narrative Record consists of the following items.

- Episodes of Time: Each instructional episode is coded for beginning and ending times. An episode is defined as beginning when there is a change in the method of instruction or a change in the focus of instruction.
- Codes for Type of Activity (Learning Setting) during the episode
    - Single setting: Whole Group with or without Teacher (WG), Small Group (SG), Meal, Transition
    - Multiple settings: Small Groups and/or free time during Centers (SGC), Out of Room (Outdoors or Specials, such as Library)
- Codes for Content of Instruction (Learning Focus) occurring during the episode (math, reading, language arts, science, social studies, art, music & movement, and none)
- Codes for Level of Instruction provided by the teacher across an episode. These range from no instruction to highly inferential instruction. Inferential means asking open-ended questions; highly inferential involves several turns with inferential questions and follow up.
- Codes for Engagement Level of Students across an episode. These range from very low engagement to extremely and consistently high engagement across the episode.

The Narrative record also tracks the following *Tools*-specific behaviors that could also be exhibited in Control classrooms:

- Positive Behavior Reinforcement by the Teacher or Assistant
- Behavior Reminders by the Teacher or Assistant
- Choral Responses from the Children (Children are encouraged to call out answers)
- Teacher Paired Activities (meaning the teacher has assigned pairs of children to interact)
- Individual Scaffolding by the Teacher or Assistant
- Teacher Directed Private Speech (meaning the teacher has directed children to use private speech)
- Intentional Teacher Mistakes

For more information see: Farran, D.C. & Bilbrey, C. (2004). Narrative Record Observation for classrooms. Nashville, TN: Peabody Research Institute, Vanderbilt University.

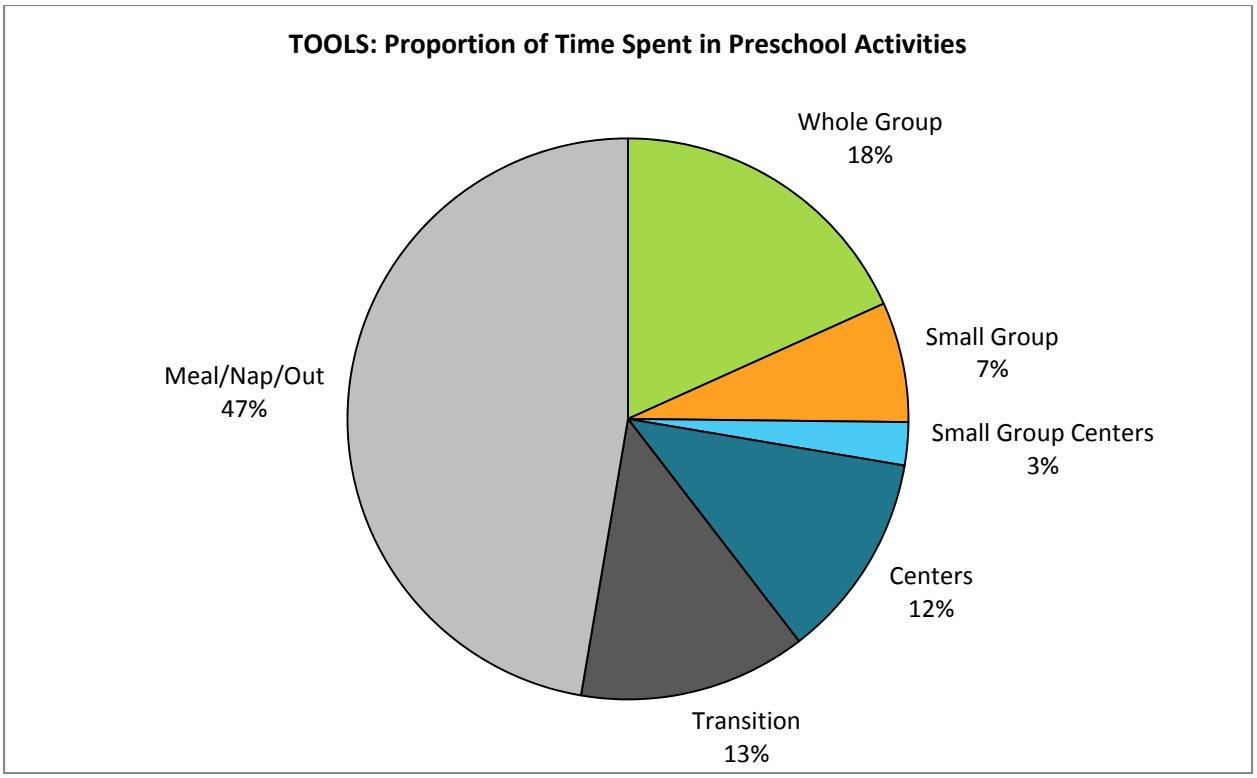
Narrative Record Summary of Findings

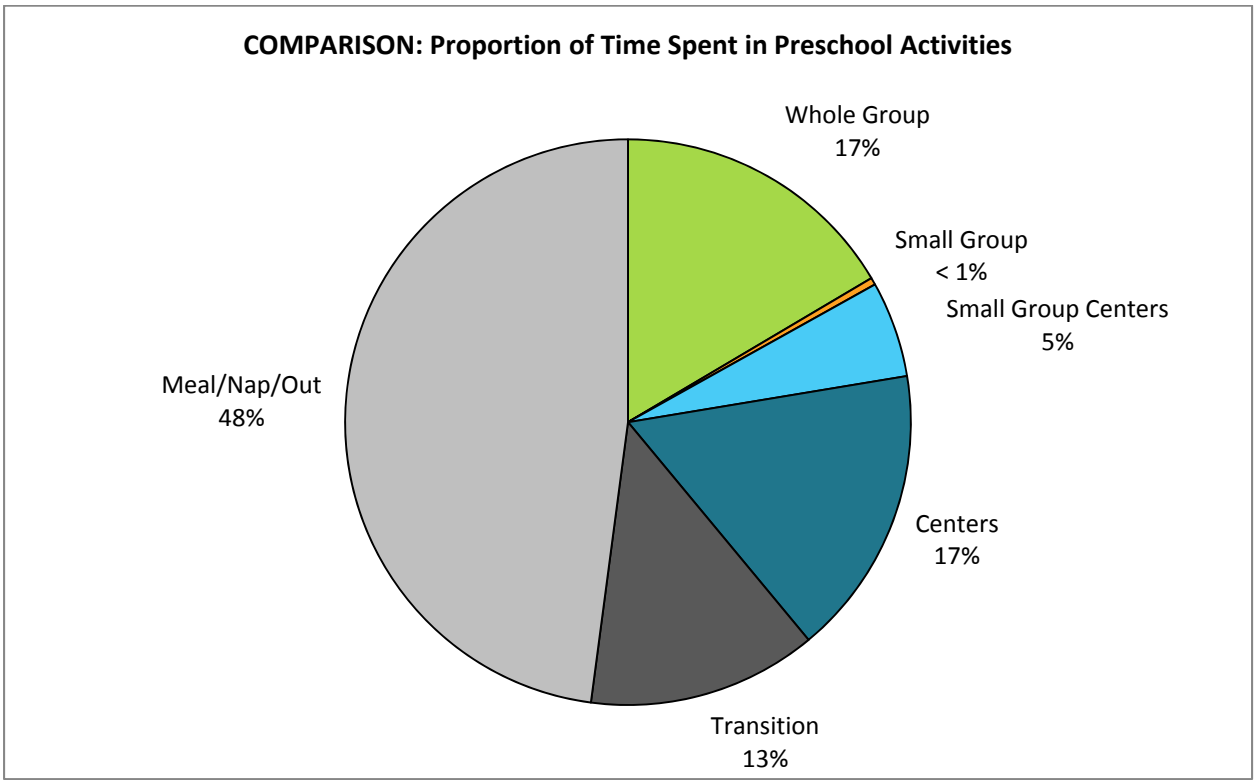
The following graphs depict activities and instructional foci, first for *Tools* classrooms and then comparisons:

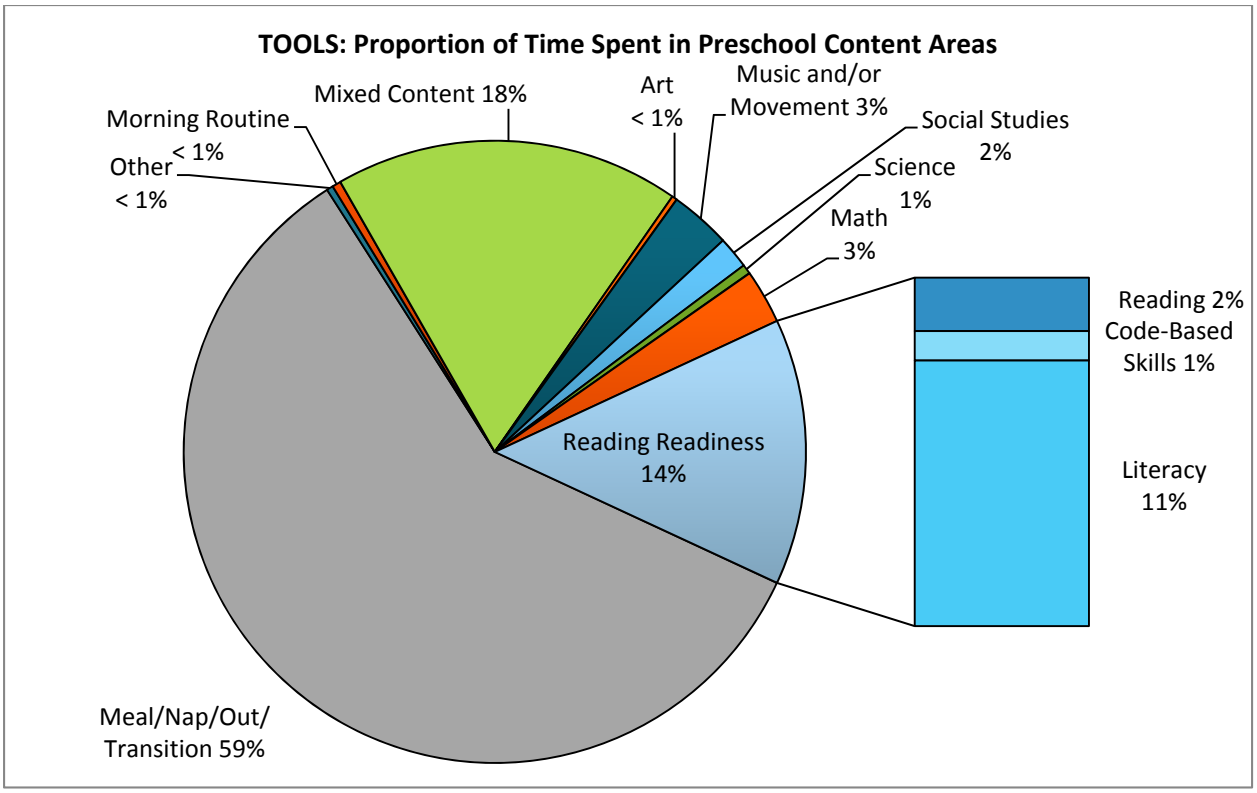
- In both sets of classrooms, almost 2/3 of the day was spent in non-instructional activities or transitions. But classrooms varied in how much "down time" they had. One such activity was meals taken out of the room. Children were fed at least twice during the day, with often only a couple of hours in between. When those meals were taken out of the room, a lot of time was spent getting to and from the cafeteria. Similarly with bathroom breaks, classrooms that took formal group breaks often left the room for extensive periods of time. Classrooms varied in whether the prekindergarten children participated in "specials" – those that did had much less time for children in the room. Classrooms varied in how much time was spent on transitions, ranging from 8% to 23%; transitions also count in down time. Classrooms varied in the amount of down time experienced, from 40% to 78% of the day.
    - These individual classroom differences are important because the more down time a classroom had the lower the achievement gains for its children. *Tools* classroom had no more or less down time than the comparison classrooms. Despite its intentions, *Tools* classrooms spent as much time in transitions as the comparison classrooms
- The two groups of classrooms differed in the amount of Center time provided to the children. In comparison classrooms where more Center time was observed, a common practice to extend center time involved a small group operating for some children while the rest of the children were in centers, (Small Group/Centers on the charts). Children would often rotate through the small group. *Tools* classrooms spent more time in Small Groups, primarily because of Play Planning but not Centers or Small Group centers.
    - These differences are important because the amount of time a classroom spent in Centers combined with time in Small Group Centers predicted greater gains for the children in achievement outcomes.
- The two groups of classrooms differed in instructional content. "Instructional content" in early childhood classrooms is broadly defined. The term "Mixed Content" in the Narrative refers to times when children are engaged in a variety of types of content, most often in Centers. *Tools* classrooms spent significantly more time in Reading Readiness instruction, particularly in Literacy. Literacy instruction involves a combination of code-based and language activities, exemplified best by scaffolded writing. The classrooms were similar in the amount of time spent on math, science and social studies instruction.
    - These differences are important because no effects were found for time in Literacy instruction on any outcomes.
    - The more time classrooms spent in code-based instruction, the greater the children's gains on the Letter-Word Identification achievement subtest
    - The more time a classroom spent in math instruction the greater gains children made in math achievement and also in self-regulation overall.

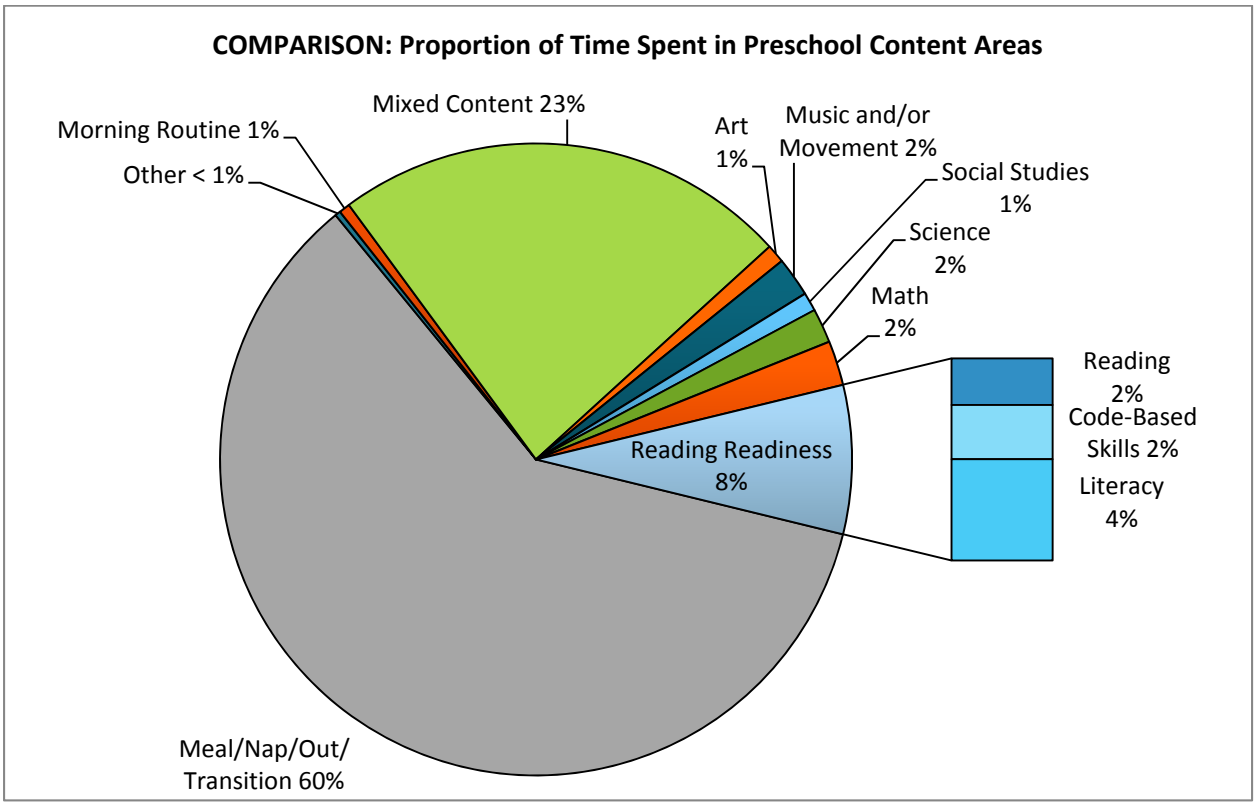
Take Away Thoughts for *Tools* Trainers

1. While *Tools* may not be able to influence how much classrooms are out of the room for meals, etc., it is important to think about how to reduce the transition time within a classroom. Some teachers were much more efficient with their transitions than others, adding time to the instructional day.
2. It is important to note the significantly smaller amount of time spent in Centers in *Tools* classrooms. While *Tools* may consider such time in centers as exploration instead of "play," the time children spent in such activities predicted achievement gains. The issue for *Tools* is how to make the socio dramatic play richer and more deeply informative for children.
3. Despite assertions to the contrary, *Tools* classrooms spent as much or more time in Whole Group instruction as the comparison ones; why is *Tools* so dependent on teaching in a whole group?
4. Examining the focus on Literacy and how it might be strengthened to produce more of the effects *Tools* expects might be fruitful.


TOOLS: Proportion of Time Spent in Preschool Activities
Whole Group
18%
Small Group
7%
Small Group Centers
3%
Centers
12%
Transition
13%
Meal/Nap/Out
47%


COMPARISON: Proportion of Time Spent in Preschool Activities
Whole Group
17%
Small Group
< 1%
Small Group Centers
5%
Centers
17%
Transition
13%
Meal/Nap/Out
48%





PEABODY research institute

CHILD AND TEACHER BEHAVIORS OBSERVED ACROSS ALL CLASSROOMS

Teacher Observation in Preschools (TOP)

The TOP is a system for observing the teacher and assistant's behaviors in preschool classrooms across a day's visit when the children are in the classroom. TOP is based on a series of snapshots of the teacher's and assistant's behavior across a period of time. Each snapshot may be by itself an unreliable piece of information but collectively they combine to provide a picture of how the teacher and assistant are spending their time in a classroom. The teacher's behavior is observed for a 3 second window before scoring. Once scoring has been completed for the teacher, the same procedure is followed for the assistant in the classroom. Teacher and Assistant are coded at the beginning of a "sweep;" children are coded immediately afterward. At the end of an observation, 20 sweeps were collected on the teacher and the assistant. The TOP measures:

- How much and to whom the teacher talks and listens.
- In what types of tasks the teacher or assistant is engaged.
  - Instruction and Assessment
  - Management including: administration, management, monitoring and personal care
  - Behavior: Approving or Disapproving
  - Social
  - None
- The level of ongoing instruction and assessment
  - Low, Basic Skills, Some Inferential, and Highly Inferential
- What areas of learning the teacher/assistant focuses on
  - Specific Learning Focus: math, literacy, science, social studies
  - Other: art, music, fine motor, drama, etc.
  - No Learning Focus: no instruction or assessment
- The tone of the teacher or assistant's interactions with the class

TOP data are not collected when children are out of the room. Only one sweep is allowed during a meal inside the room. TOP focuses on times when teachers and children could interact in the classroom.

For More Information See: Bilbrey, C., Vorhaus, E., Farran, D. & Shufelt, S. (2007) Teacher Observation in Preschool (2008 revision). Tools of the Mind Adaptation (2010). Peabody Research Institute.

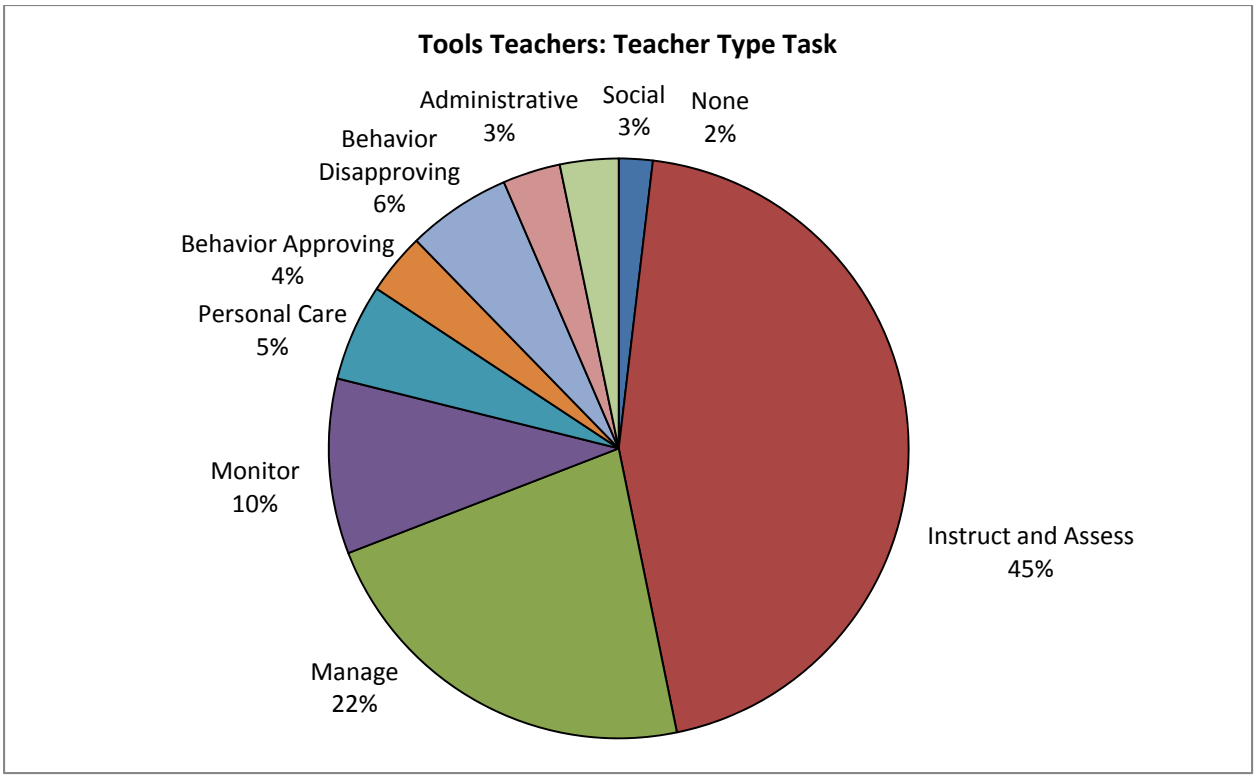
TOP Summary of Findings

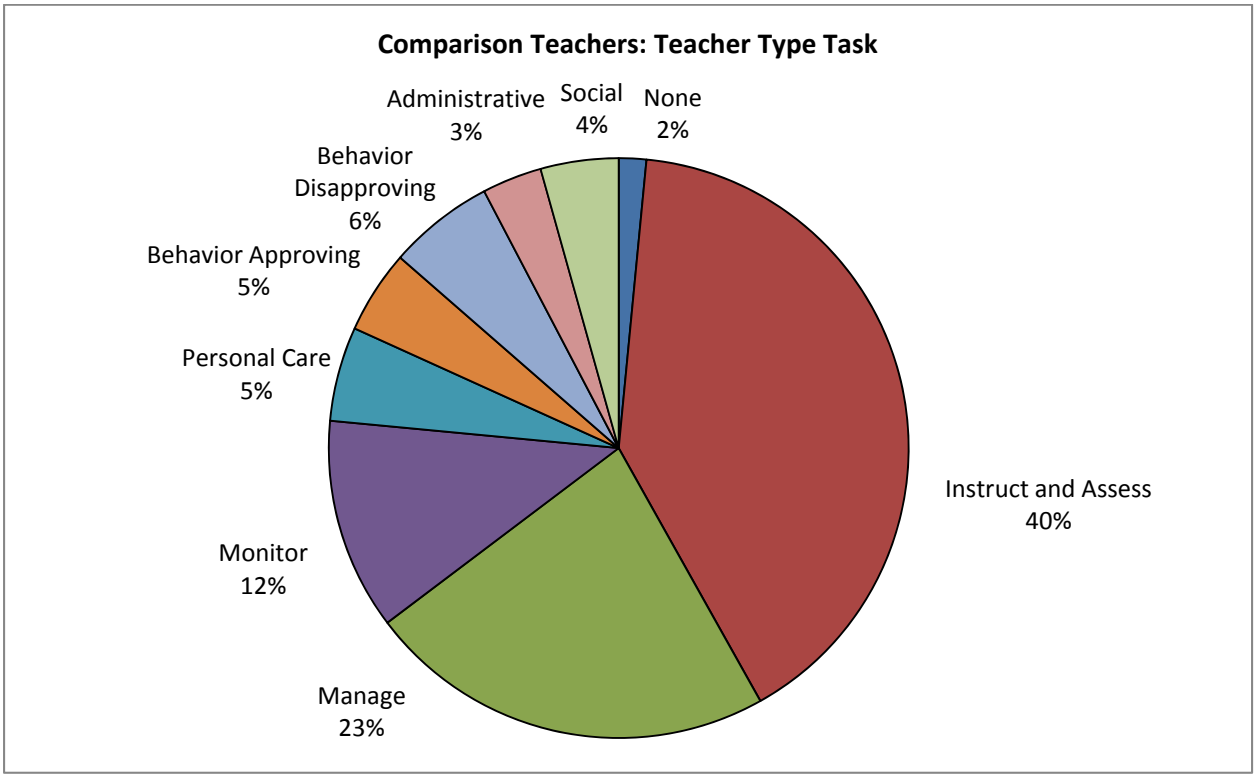
The following graphs depict the types of tasks in which teachers engaged, the focus of their instructional interactions, the amount of talking and listening and to whom, and the tone of their interactions, first for *Tools* teachers and then for comparison teachers. Not depicted is the level of instruction, which had an average rating of 1.89 on a 5 point scale for both groups.

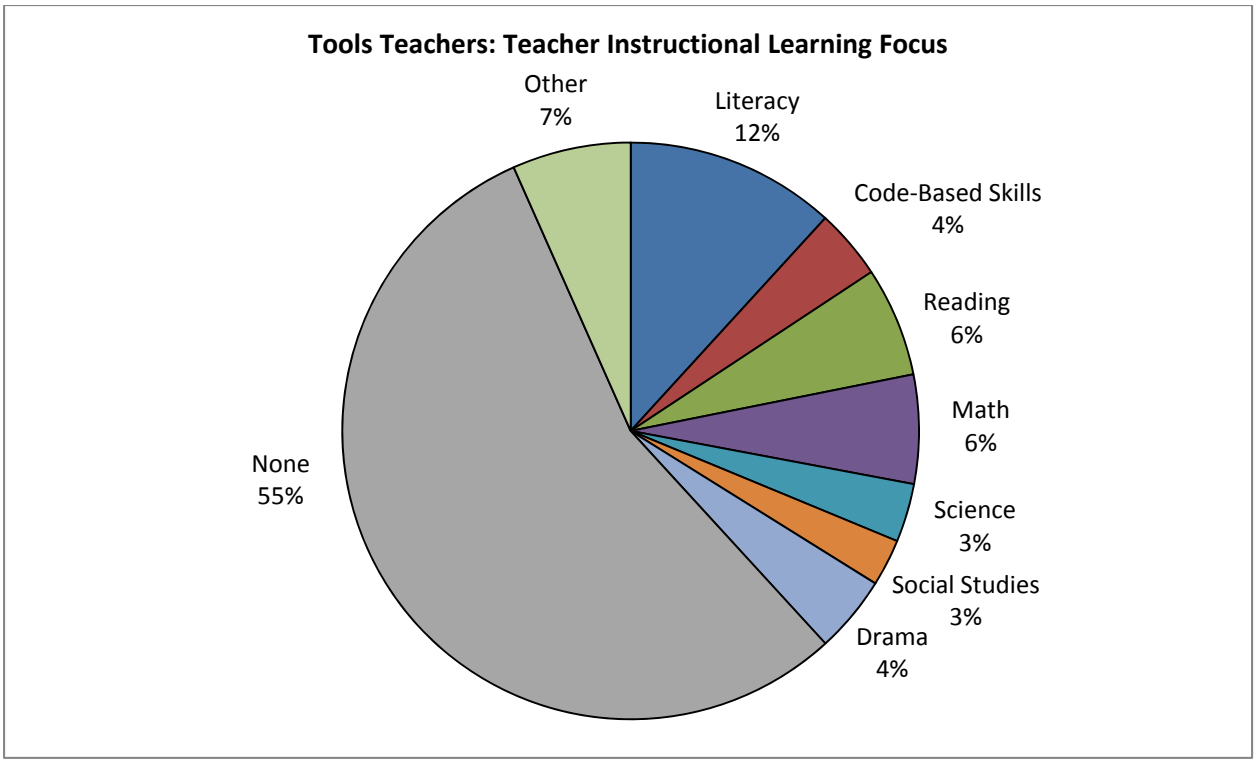
- *Tools* teachers spent slightly more time in instructional tasks than comparison teachers and concomitantly less time managing and monitoring. In each type of classroom, the rates of Behavior Disapproving exceeded Behavior Approving. Contrary to expectations, *Tools* teachers exhibited slightly less Behavior Approving than comparison teachers.
    - These differences are important because Behavior Disapproving was related strongly to less gain in achievement and marginally to less gain in self-regulation. Behavior Approving was significantly related to more gain in self-regulation.
    - Instruction and Manage/Monitor had complex relations to outcomes. Manage/Monitor was positively related to gains in achievement but marginally negatively related to gains in self-regulation. (Monitoring occurred a lot during Center time for comparison teachers; more Center time is related to achievement gain, an association that could account for the relationship to Monitoring.) Instruction was positively related to self-regulation gain.
- TOP Instructional Learning Focus measures all the instructional interactions a teacher has, not just the instructional focus of the entire class as the Narrative Record. TOP Learning Focus includes individual and small group interactions as well as whole group. *Tools* teachers distributed their learning foci differently from comparison teachers. *Tools* teachers spent twice as much time in a Literacy focus, four times as much in Drama, but less time in Code-Based instruction, Science, and Math.
- Teachers are talking most of the time in both classrooms, slightly more in *Tools* classrooms. *Tools* teachers talked slightly more to the whole class and to small groups, and slightly less to individual children.
    - The only teacher talk category related to child outcomes was the amount teachers talked to individual children relating to more gain in self-regulation.
- Teachers in both classrooms rarely listen to children, but less in *Tools* classrooms than in comparisons. Perhaps because there was too little variation in listening to children in the 60 classrooms, there is no relationship between listening to children and any child outcome.
- Teacher tone varied somewhat by type of activity but was not different in *Tools* and comparison classrooms. *Tools* teachers were not warmer than comparison teachers. Teacher Tone was significantly related to greater achievement gain.

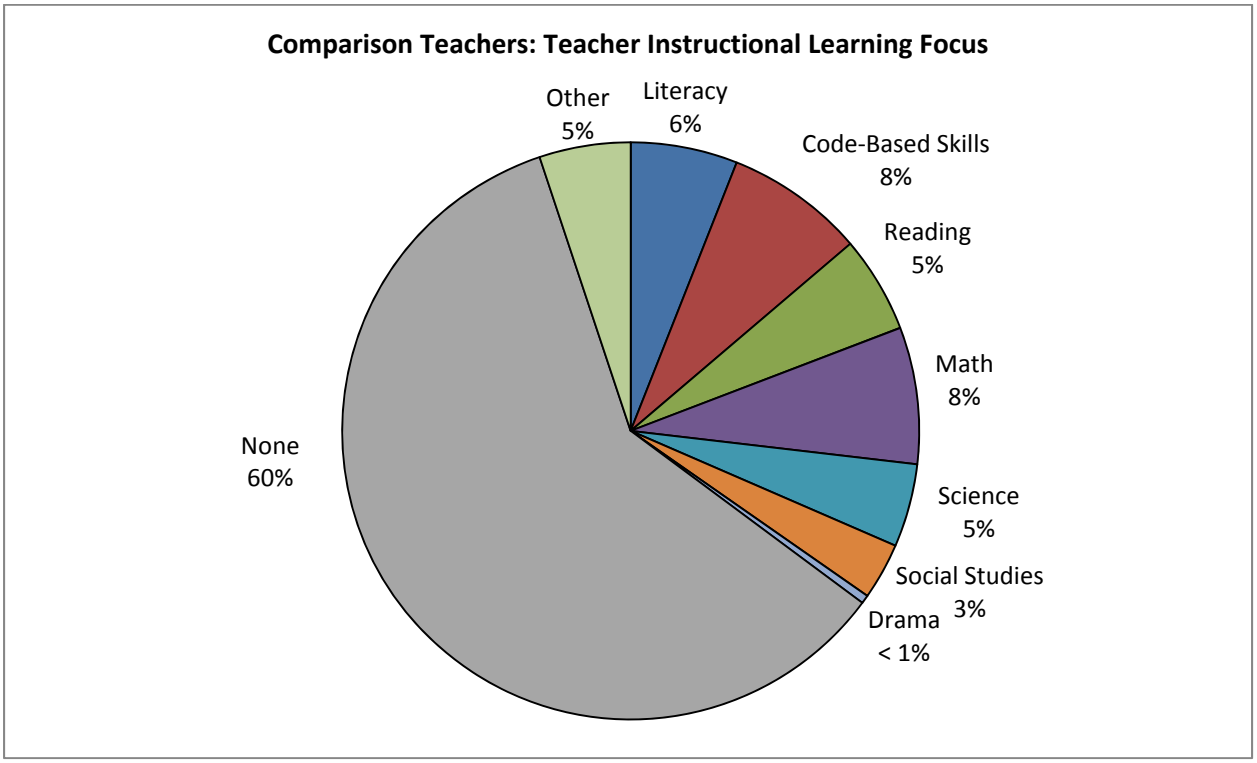
Take Away Thoughts for *Tools* Trainers

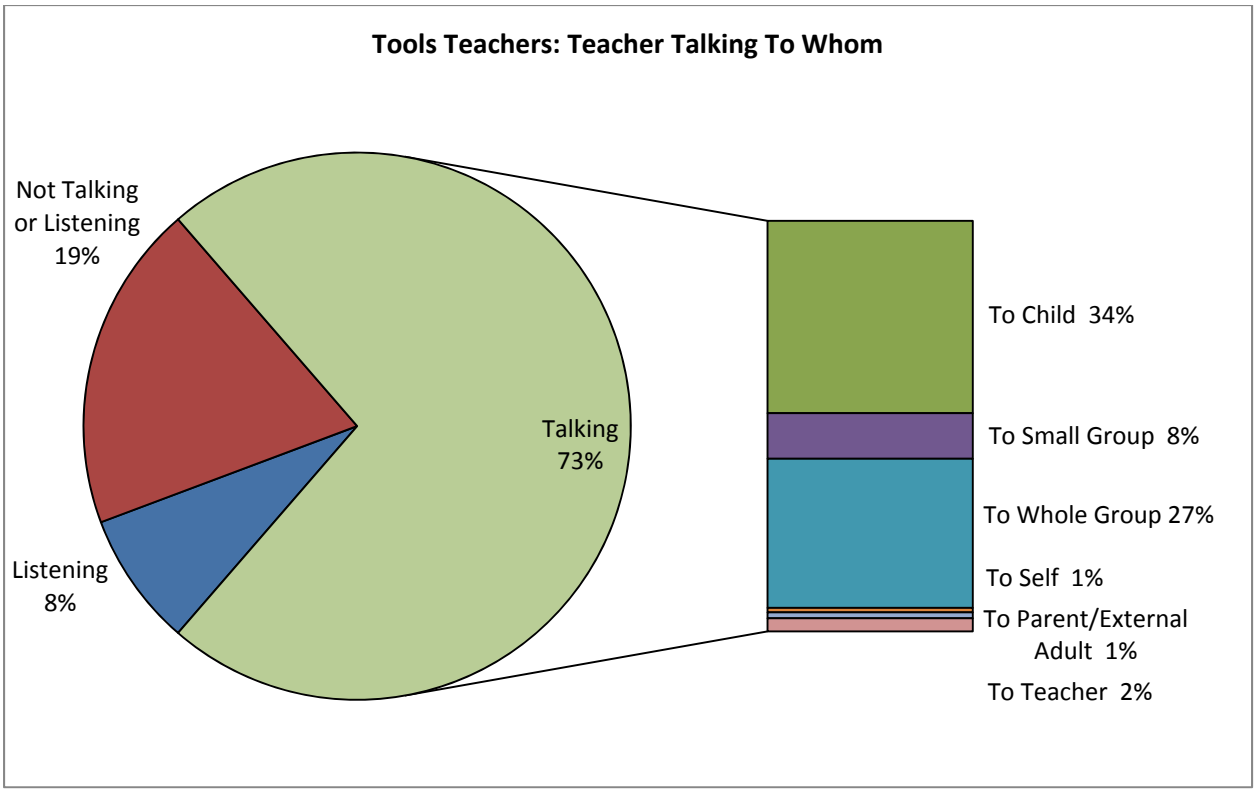
1. Although the *Tools* curriculum stresses positive interactions with children and helping children develop internal regulation and therefore to be less in need of teacher regulation, that goal was not achieved in these classrooms, and its lack turns out to be important. What can *Tools* training do to help teachers engage in less disapproving of behavior and more approving?
2. Although the *Tools* curriculum developers believed that in *Tools* classroom teachers would talk less and listen more, in fact, teachers talked more and listened about the same. The amount of time teachers are talking is a very difficult behavior to change. What could *Tools* trainers do to help teachers develop listening skills?
3. Teachers' observed learning interactions appeared to reflect the foci *Tools* wanted them to have. They spent more time in Literacy and Drama, but perhaps at the expense of Code-Based instruction and Math and Science. These learning emphases did not result in more achievement gains for the children. Why might this be true?

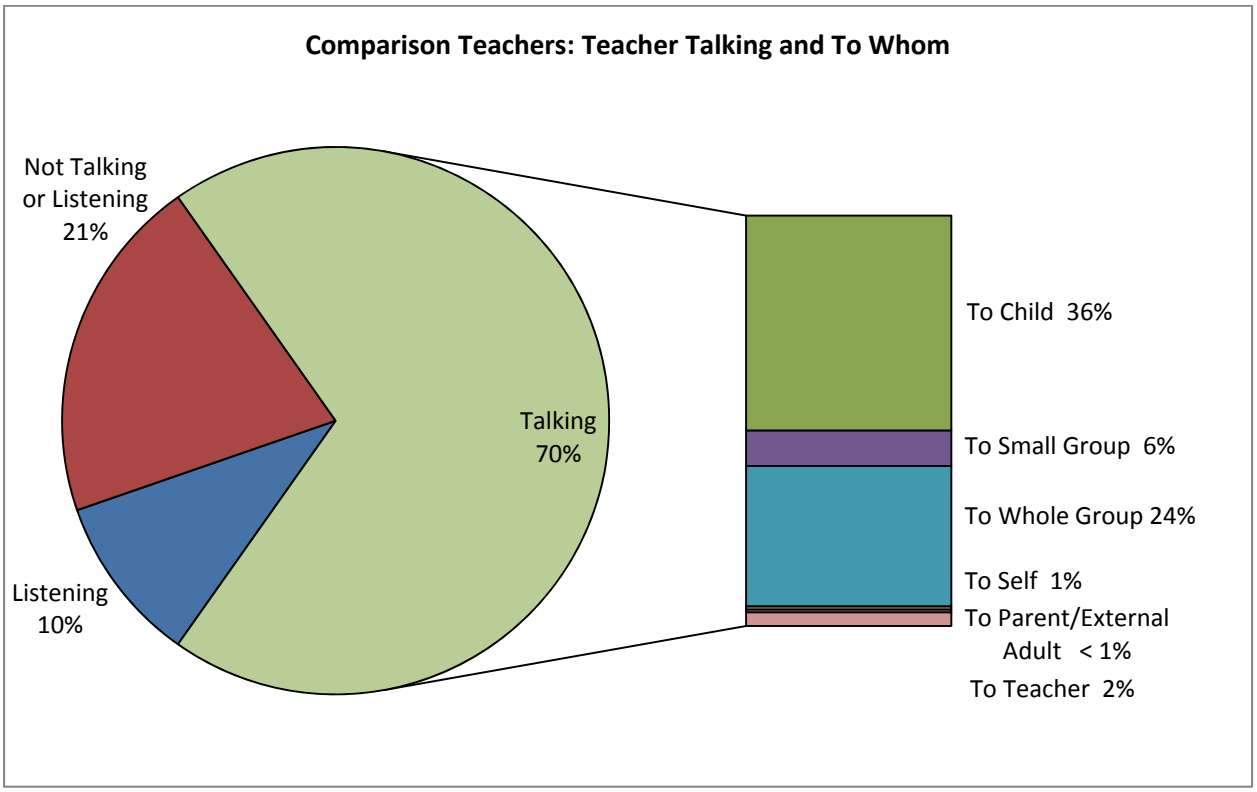

Tools Teachers: Teacher Type Task
Administrative 3%
Social 3%
None 2%
Behavior Disapproving 6%
Behavior Approving 4%
Personal Care 5%
Monitor 10%
Instruct and Assess 45%
Manage 22%

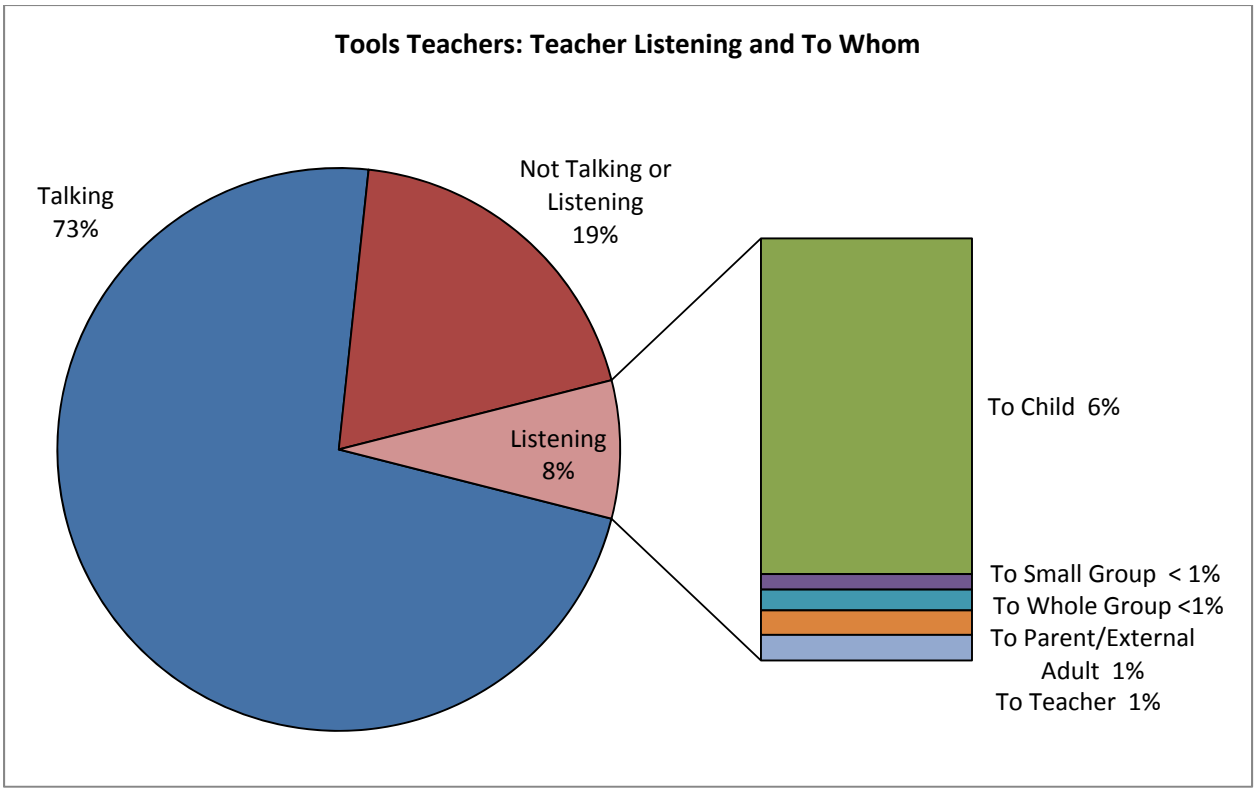

Comparison Teachers: Teacher Type Task
Administrative 3%
Social 4%
None 2%
Behavior Disapproving 6%
Behavior Approving 5%
Personal Care 5%
Monitor 12%
Instruct and Assess 40%
Manage 23%

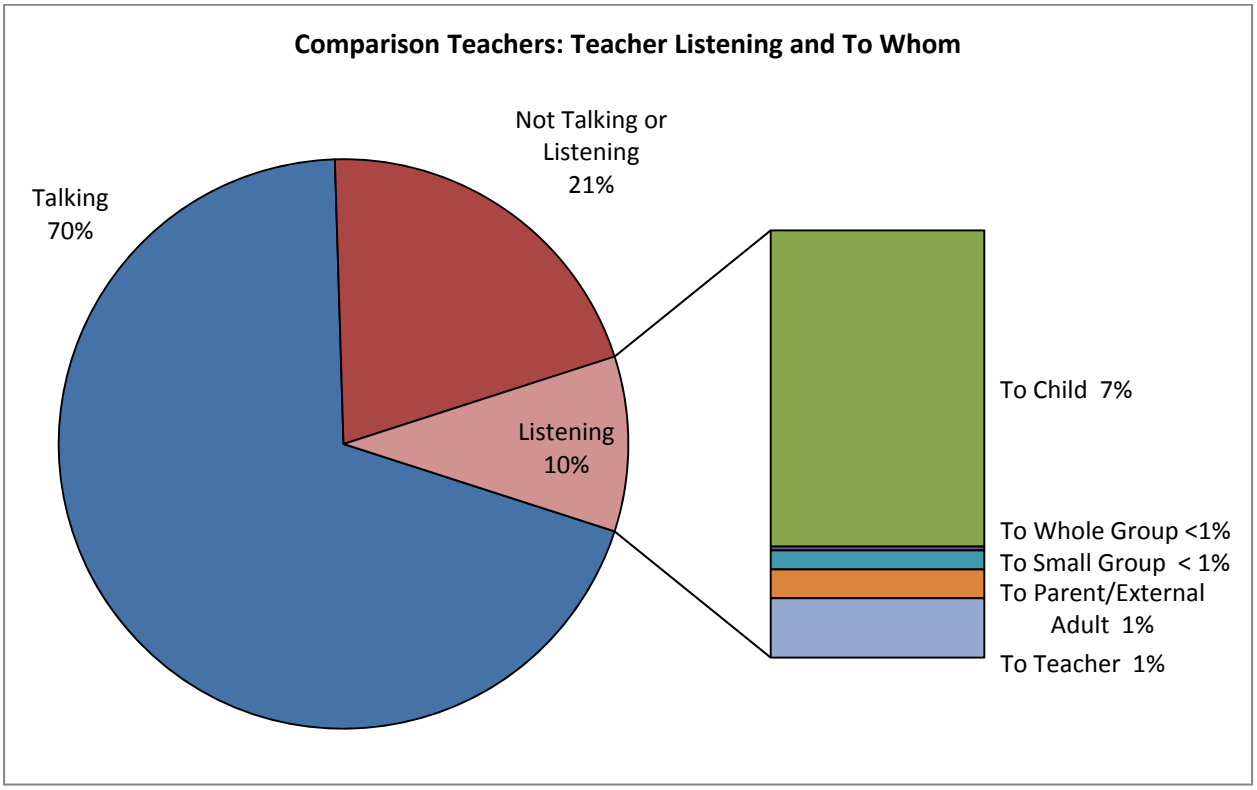

Tools Teachers: Teacher Instructional Learning Focus
Other 7%
Literacy 12%
Code-Based Skills 4%
Reading 6%
Math 6%
Science 3%
Social Studies 3%
Drama 4%
None 55%

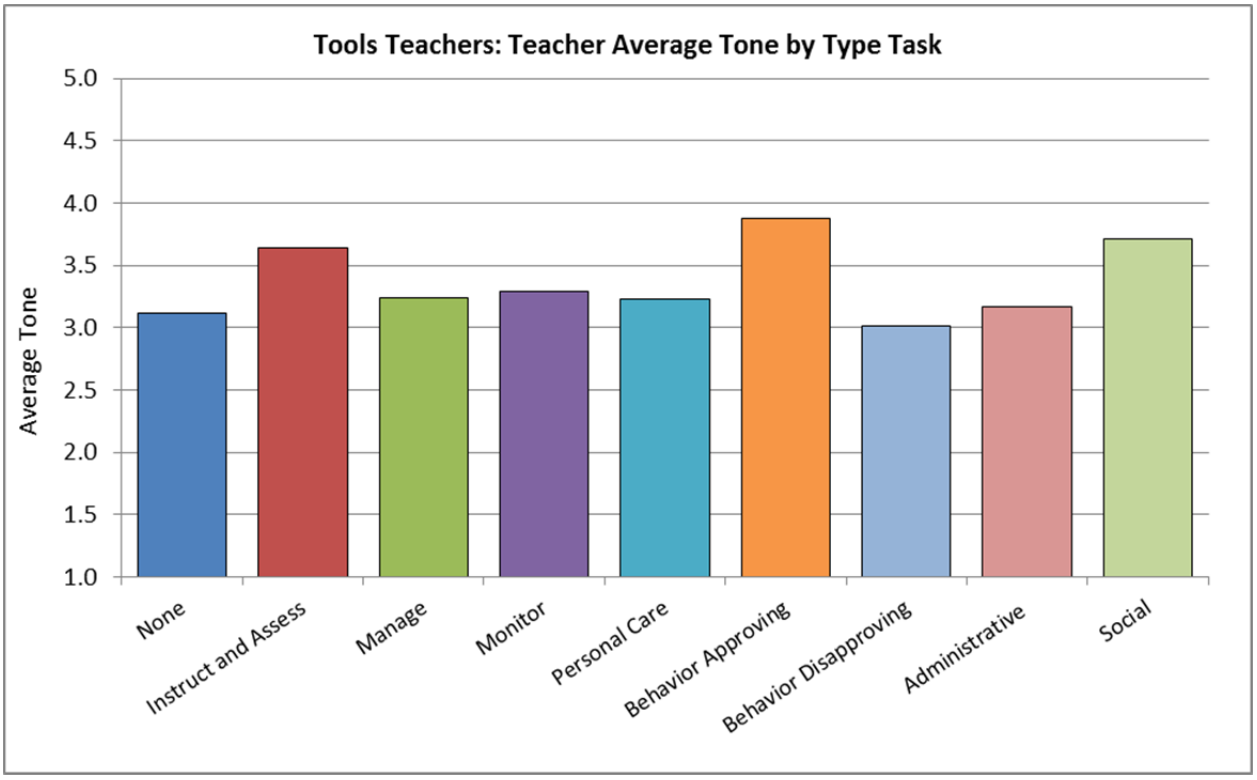

Comparison Teachers: Teacher Instructional Learning Focus
Other 5%
Literacy 6%
Code-Based Skills 8%
Reading 5%
Math 8%
Science 5%
Social Studies 3%
Drama < 1%
None 60%

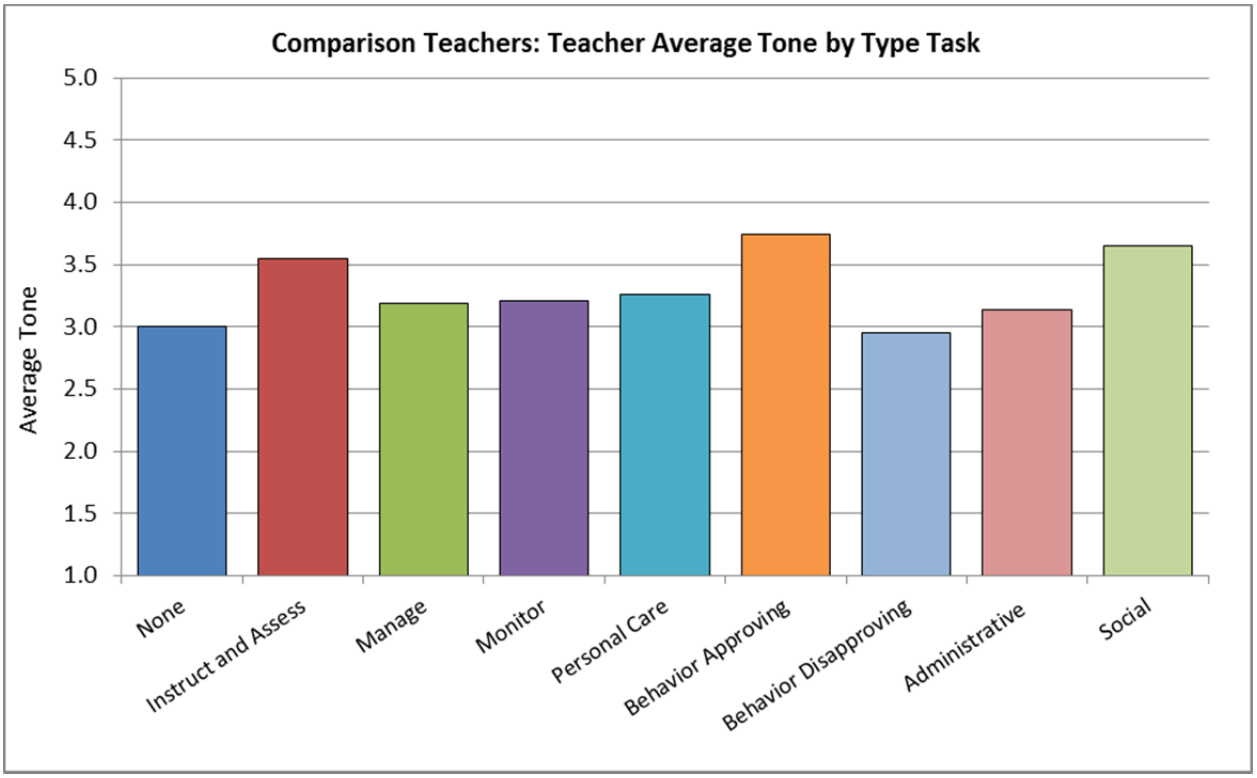

Tools Teachers: Teacher Talking To Whom
Not Talking or Listening 19%
Talking 73%
Listening 8%
To Child 34%
To Small Group 8%
To Whole Group 27%
To Self 1%
To Parent/External Adult 1%
To Teacher 2%


Comparison Teachers: Teacher Talking and To Whom
Not Talking or Listening 21%
Talking 70%
Listening 10%
To Child 36%
To Small Group 6%
To Whole Group 24%
To Self 1%
To Parent/External Adult < 1%
To Teacher 2%


Tools Teachers: Teacher Listening and To Whom
Talking 73%
Not Talking or Listening 19%
Listening 8%
To Child 6%
To Small Group < 1%
To Whole Group <1%
To Parent/External Adult 1%
To Teacher 1%


Comparison Teachers: Teacher Listening and To Whom
Talking 70%
Not Talking or Listening 21%
Listening 10%
To Child 7%
To Whole Group <1%
To Small Group < 1%
To Parent/External Adult 1%
To Teacher 1%


Tools Teachers: Teacher Average Tone by Type Task
Average Tone
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
None
Instruct and Assess
Manage
Monitor
Personal Care
Behavior Approving
Behavior Disapproving
Administrative
Social


Comparison Teachers: Teacher Average Tone by Type Task
Average Tone
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
None
Instruct and Assess
Manage
Monitor
Personal Care
Behavior Approving
Behavior Disapproving
Administrative
Social

Child Observation in Preschool (COP)

The COP is a system for observing children's behavior in preschool classrooms across a day's visit. COP is based on a series of snapshots of children's behavior across a period of time. Each snapshot may be by itself an unreliable piece of information but collectively they combine to provide a picture of how children are spending their time in a classroom (as an aggregate) as well as information about individual differences among children in their preferences. A specific child is observed during a 3 second window and then coded across 9 dimensions before the observer moves to the next child. At the end of an observation, 20 sweeps were collected on each child in the classroom. Consented children are identified by name; all others are identified as "Extra boy" or "Extra girl." The COP measures:

- How much and to whom do the children talk? Listen?
- In which learning settings children are found.
    - Whole Group (with and without teacher)
    - Small Group (with and without teacher)
    - Centers
    - Transitions
    - Other: In classroom activities not captured by above, such as book reading at the beginning of Nap.
- How often children are engaged in activities with different types of learning focus.
    - Specific Academic Learning Focus: math, literacy, science, social studies
    - Other: art, music, fine motor, drama, etc.
    - No Learning Focus
- How involved children are in various learning settings across the day.

As with TOP, COP codes are only collected when the children are in the room and learning interactions could take place. COP is not coded during Naptime, stopping when the lights go off, nor during meal times. If meals happen in the room, one data collection sweep is allowed.

For more information see: Farran, D. et al. (2006), Child Observation in Preschool (2008 revision). Tools of the Mind Adaptation, (2010). Peabody Research Institute.

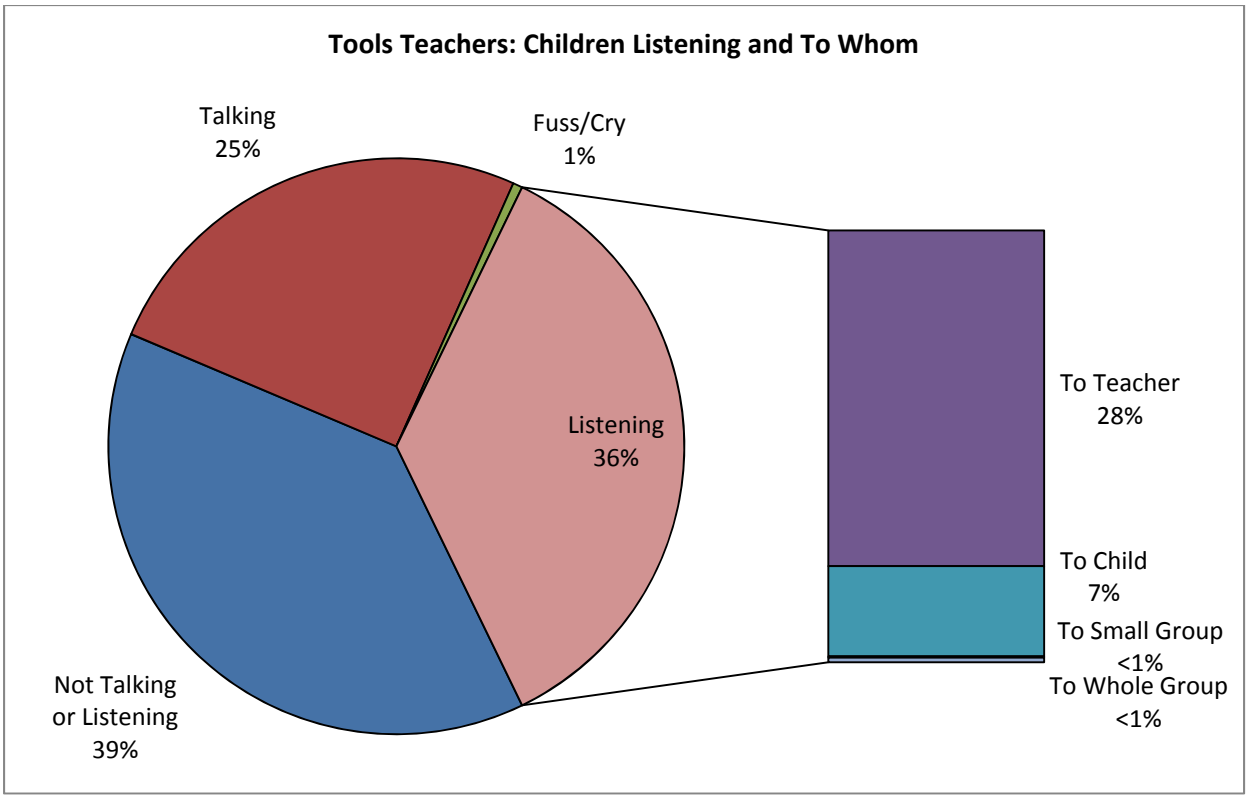
COP Summary of Findings

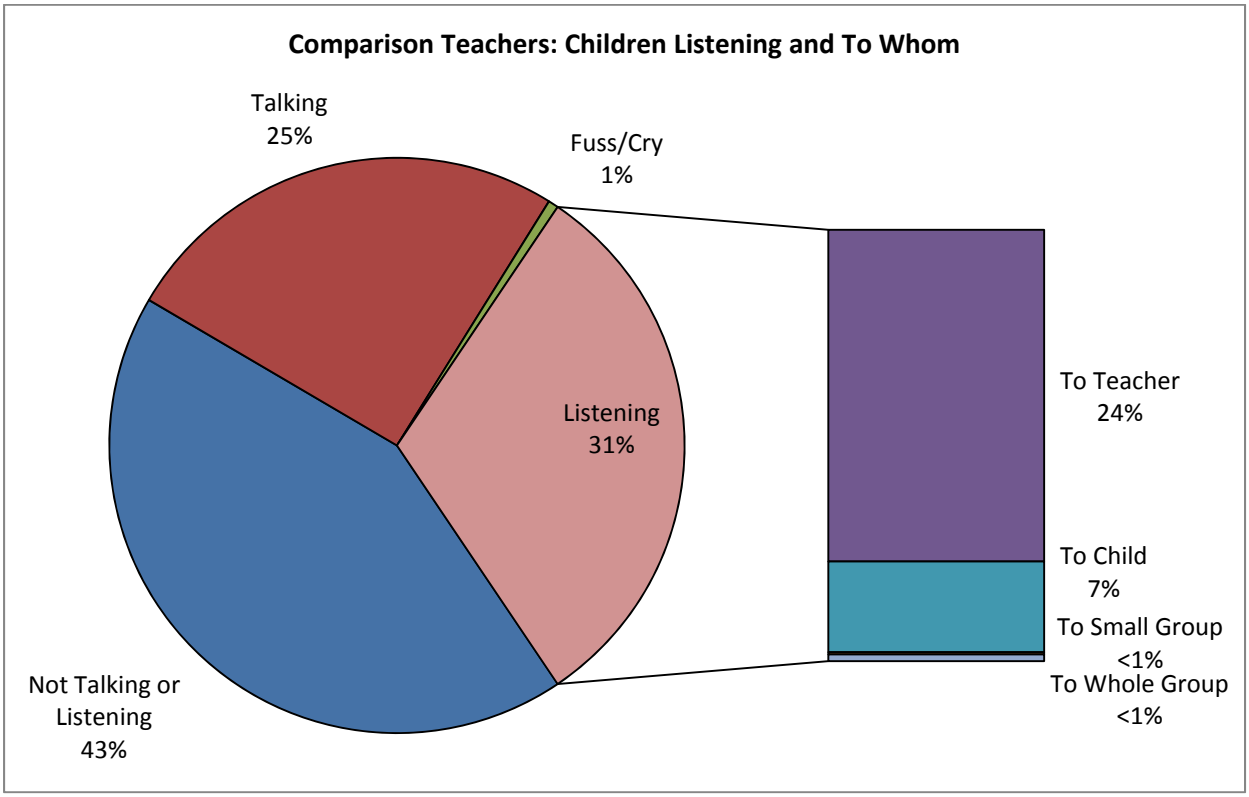
The next graphs depict summaries of the children's behaviors in *Tools* and comparison classrooms. This is a picture of the classroom "from the bottom up" or through the eyes of the children. Presented first are data about listening and talking and to whom, next the learning foci of the children, then their learning interactions, and then the scheduled activities in which they were observed. Finally, involvement levels are presented by scheduled activity.

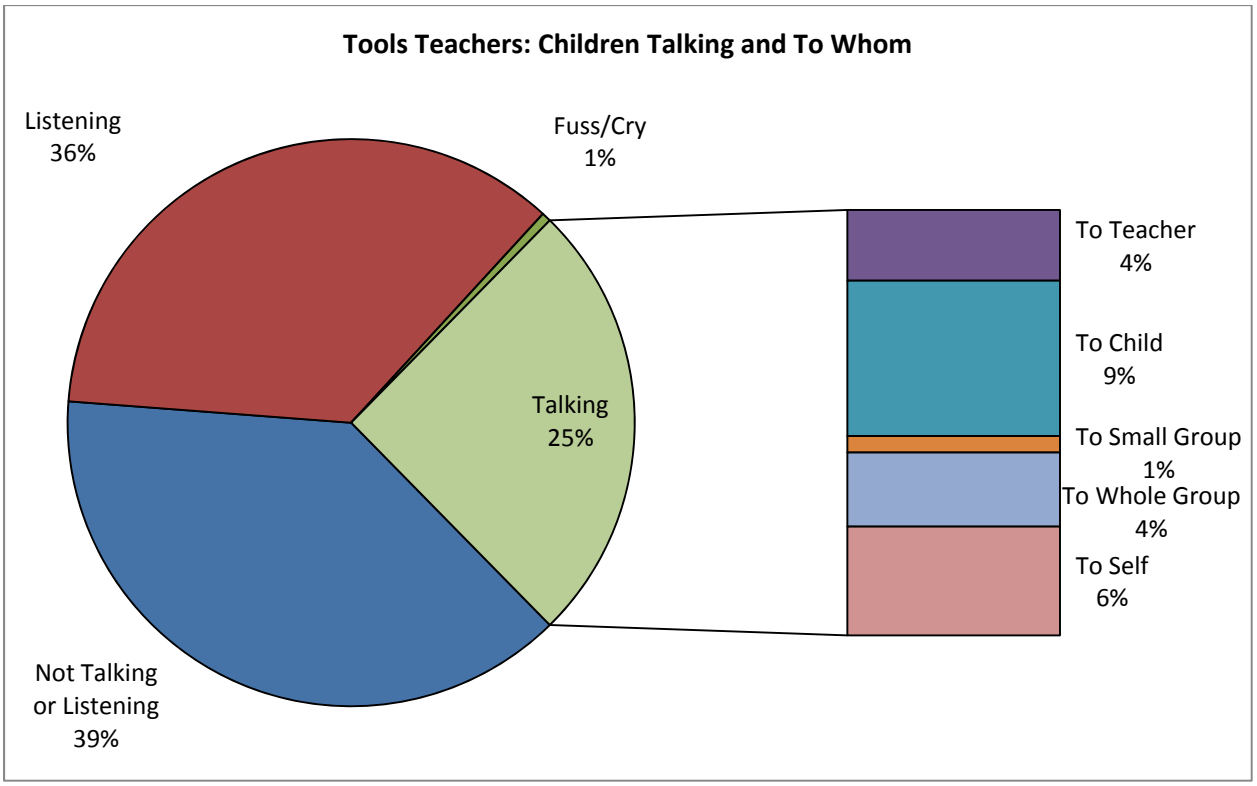
- Children listened more than they talked in both groups of classrooms, and they listened more in *Tools* classrooms. In both classrooms, most of the listening was to the teacher. In both groups of classrooms, children talked 25% of the time. To whom they talked was also similar. About 6% of the times they were observed, children were talking to themselves.
    - Listening to teacher was positively related to more gains in self-regulation; the higher the involvement level while listening to the teacher, the more self-regulation gains.
    - Talk to self, on the other hand, was *negatively* related both to achievement and to self-regulation gains. We cannot determine that context made a difference to this negative relationship.
- More than a third of the time when children could be engaged in learning interactions, they had no learning focus, and this was no different across classroom groups. This does not include the times when children were out of the room, having meals, etc. It does include transitions and other down time, such as when whole group instruction is interrupted because of behavior issues. There were some differences in the learning foci of *Tools* children. They were more often focused on literacy, drama, and reading and less often on language arts (code-based) activities, science, and play with toys.
- The social nature of the interactions is captured in the next graphs. Almost half the time in both groups of classrooms, children were observed in parallel play. Parallel play is almost always the state during whole group instruction but is also observed during all other schedule types. Children in *Tools* classrooms were somewhat more likely to be observed in associative and cooperative interactions, while comparison children were more likely playing alone than in *Tools* classrooms. There were no differences among the classrooms in the amount of Time Out or Unoccupied time observed.
- Children in *Tools* classrooms were much more likely to be observed in Small Group activities, much less likely to be observed in Centers. There were no group differences in the amount of time in Whole Group or Transitions.
- Children in *Tools* classrooms were rated as somewhat more involved in the different types of scheduled activities than children in comparison classrooms. However, average level of involvement was not related to gains in either achievement or self-regulation.

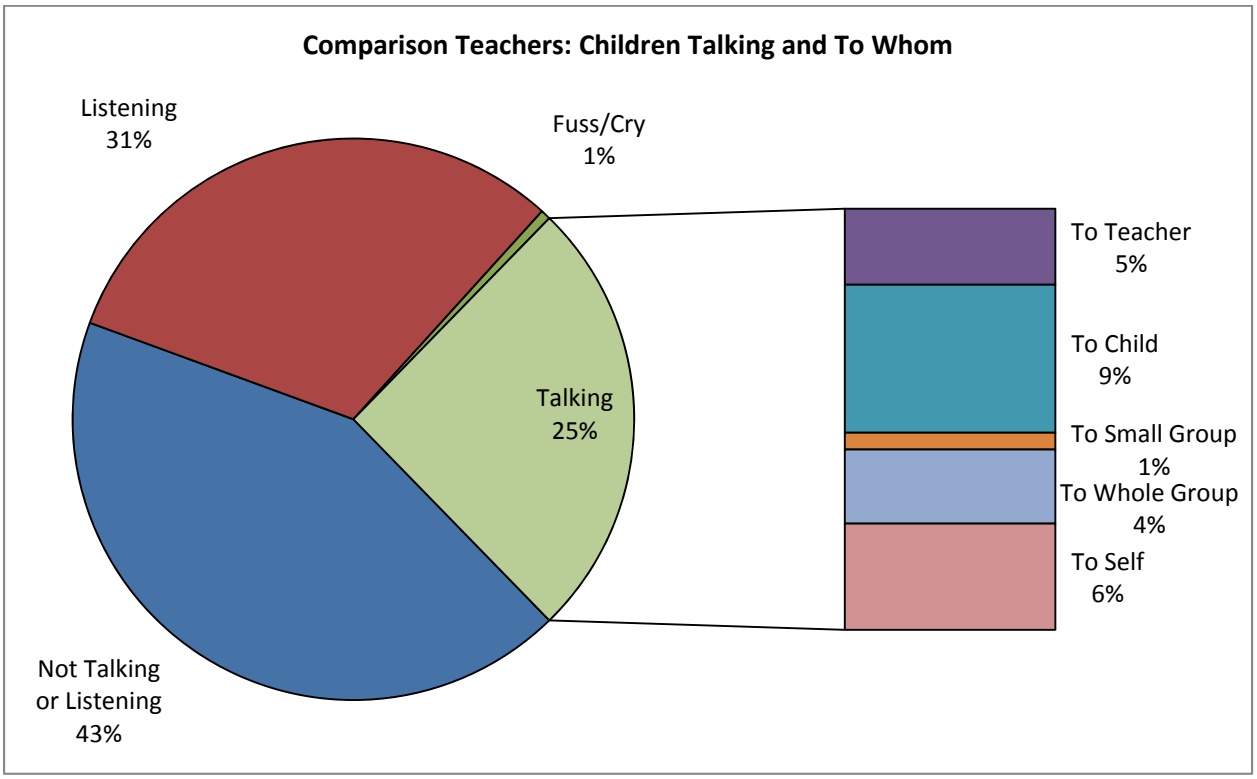
Take Away Thoughts for *Tools* Trainers

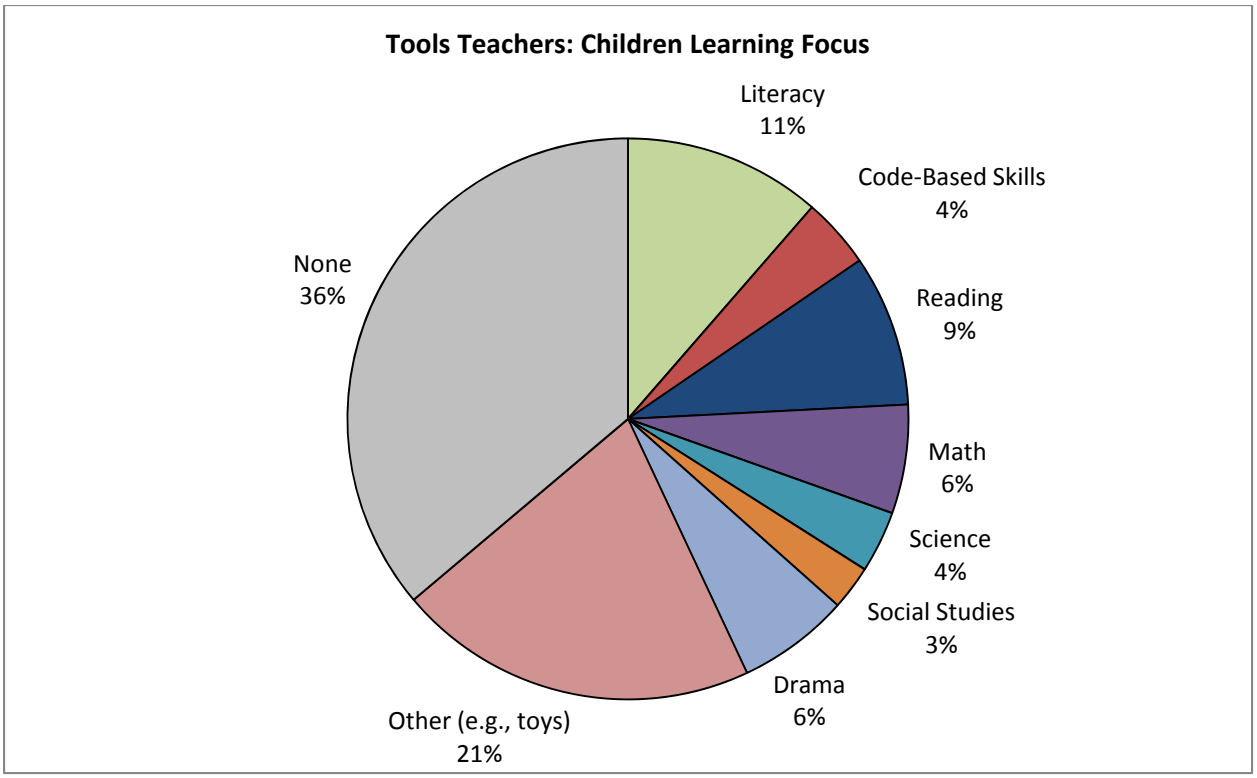
1. Greater amounts of child talk were not observed in *Tools* classrooms in contrast to anticipation. Effective and involved listening appeared to be important for gains in self-regulation. Involved listening is harder to create in whole group instruction. How can *Tools* help teachers engage their children more fully while they are talking to them?
2. Talk to self is a puzzlement, perhaps requiring a more nuanced exploration by the *Tools* staff. Exactly what sort of talk to self does *Tools* want to encourage and how can it help teachers foster the "good" kind?
3. While children in *Tools* classrooms were more frequently observed in associative and cooperative interactions, those learning patterns were nowhere near as frequent as parallel ones. Reducing the amount of Whole Group instruction could reduce parallel interactions, but teachers will still need to be helped to know how to encourage more associative ones.
4. Higher rates of involvement did not translate into higher rates of learning, which opens the question of whether *what* the children were engaged in were the right things to foster learning. Higher involvement at the expense of time to reflect and assimilate, perhaps?

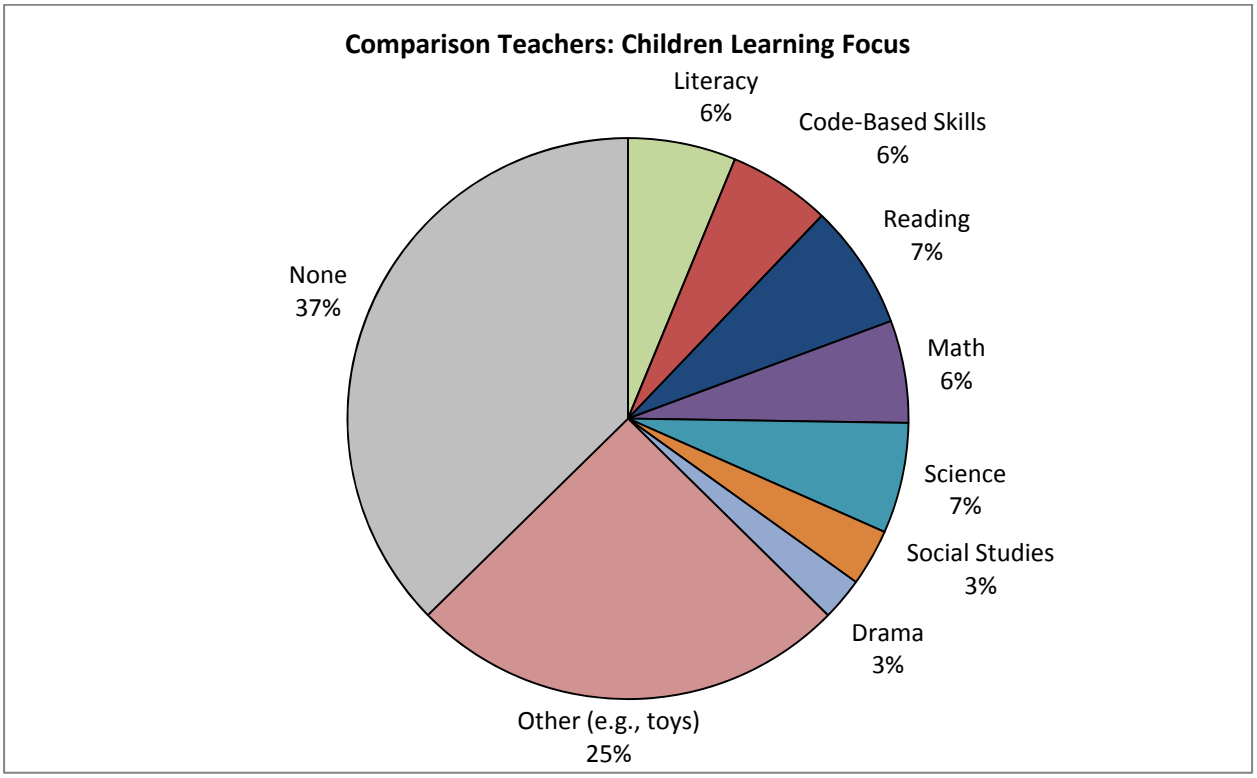

Tools Teachers: Children Listening and To Whom
Talking
25%
Fuss/Cry
1%
Listening
36%
Not Talking
or Listening
39%
To Teacher
28%
To Child
7%
To Small Group
<1%
To Whole Group
<1%

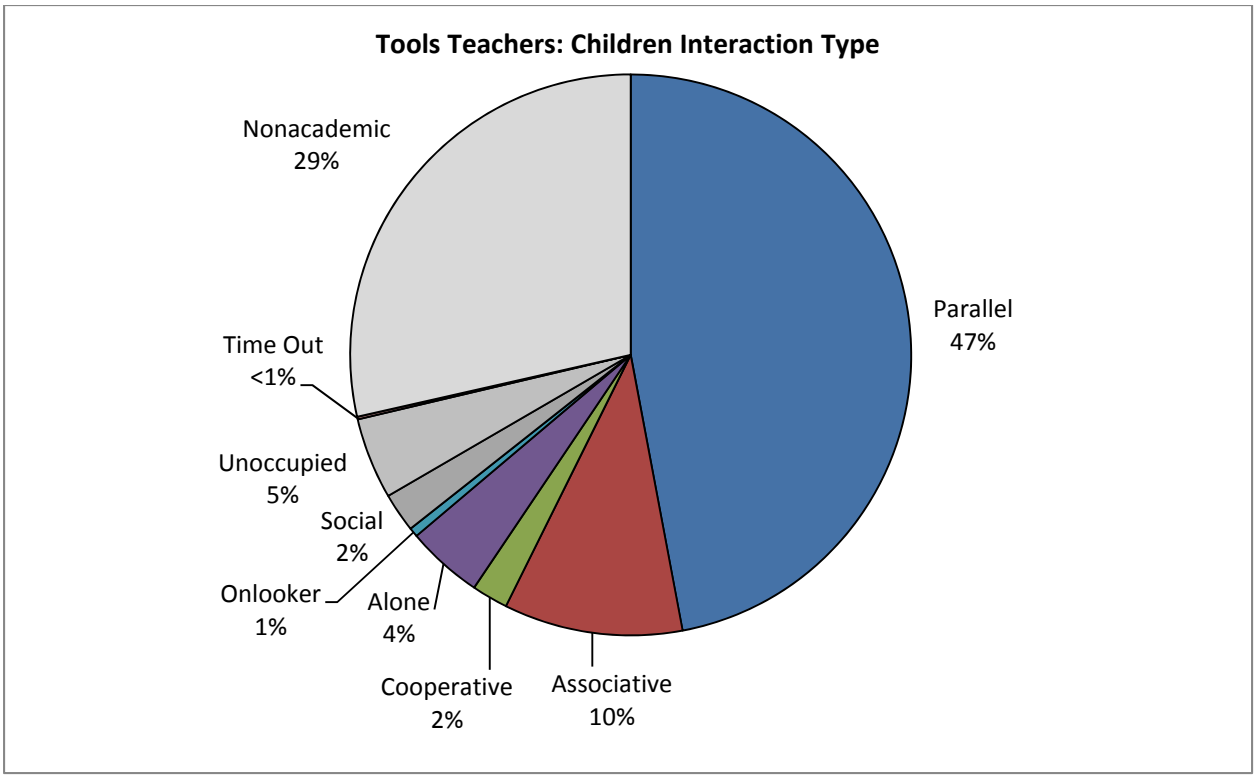

Comparison Teachers: Children Listening and To Whom
Talking
25%
Fuss/Cry
1%
Listening
31%
Not Talking or
Listening
43%
To Teacher
24%
To Child
7%
To Small Group
<1%
To Whole Group
<1%

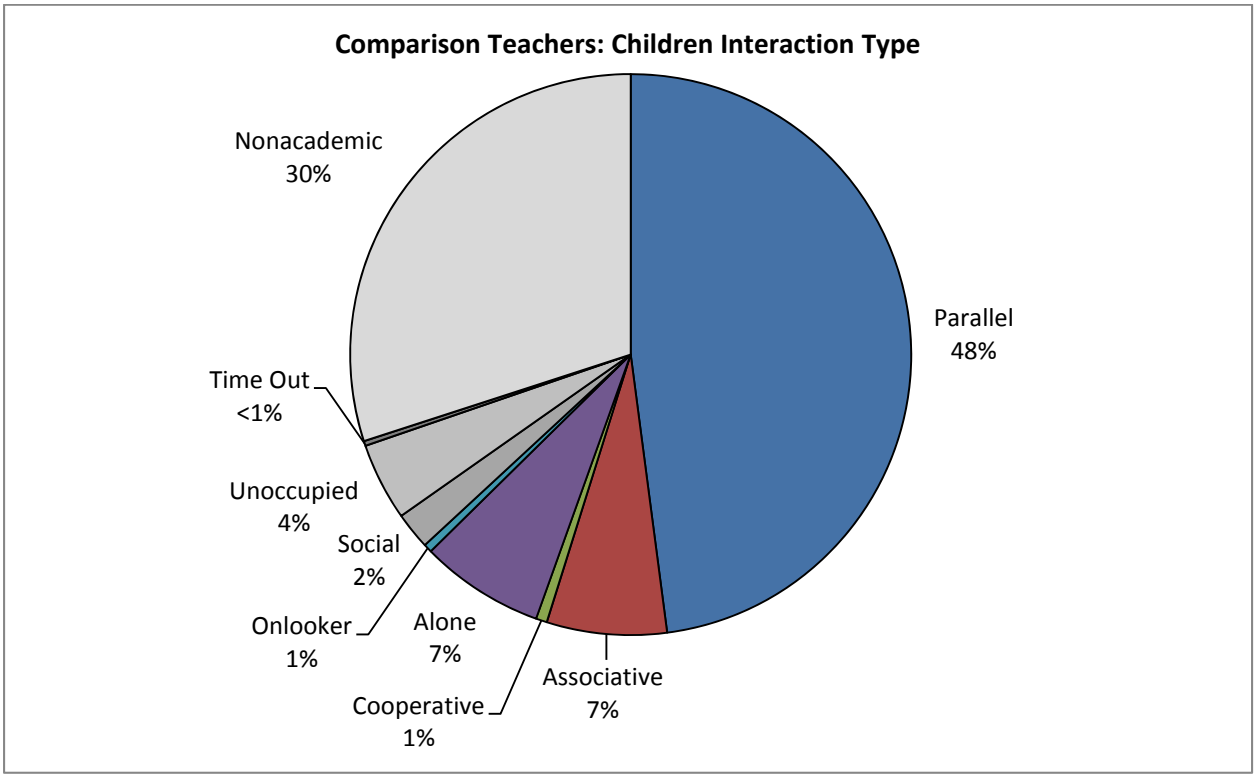

Tools Teachers: Children Talking and To Whom
Listening 36%
Fuss/Cry 1%
Talking 25%
Not Talking or Listening 39%
To Teacher 4%
To Child 9%
To Small Group 1%
To Whole Group 4%
To Self 6%

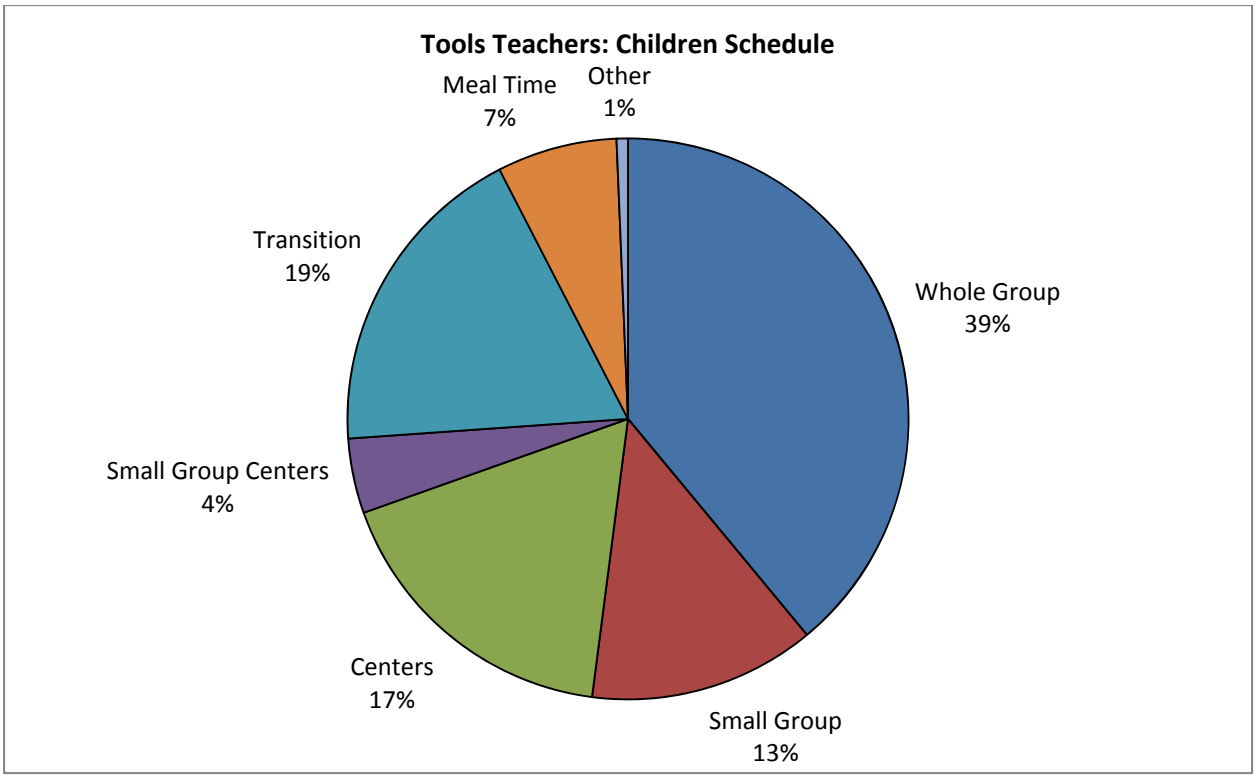

Comparison Teachers: Children Talking and To Whom
Listening 31%
Fuss/Cry 1%
Talking 25%
Not Talking or Listening 43%
To Teacher 5%
To Child 9%
To Small Group 1%
To Whole Group 4%
To Self 6%

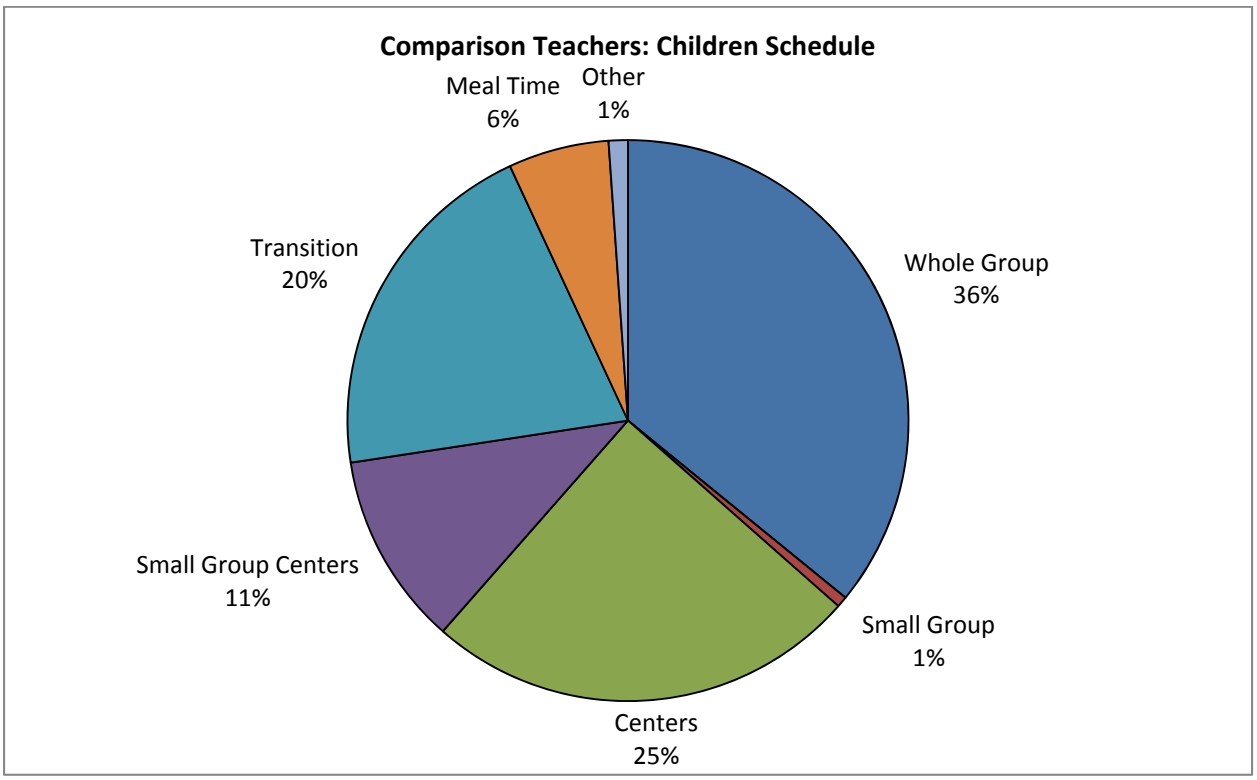

Tools Teachers: Children Learning Focus
Literacy 11%
Code-Based Skills 4%
Reading 9%
Math 6%
Science 4%
Social Studies 3%
Drama 6%
Other (e.g., toys) 21%
None 36%

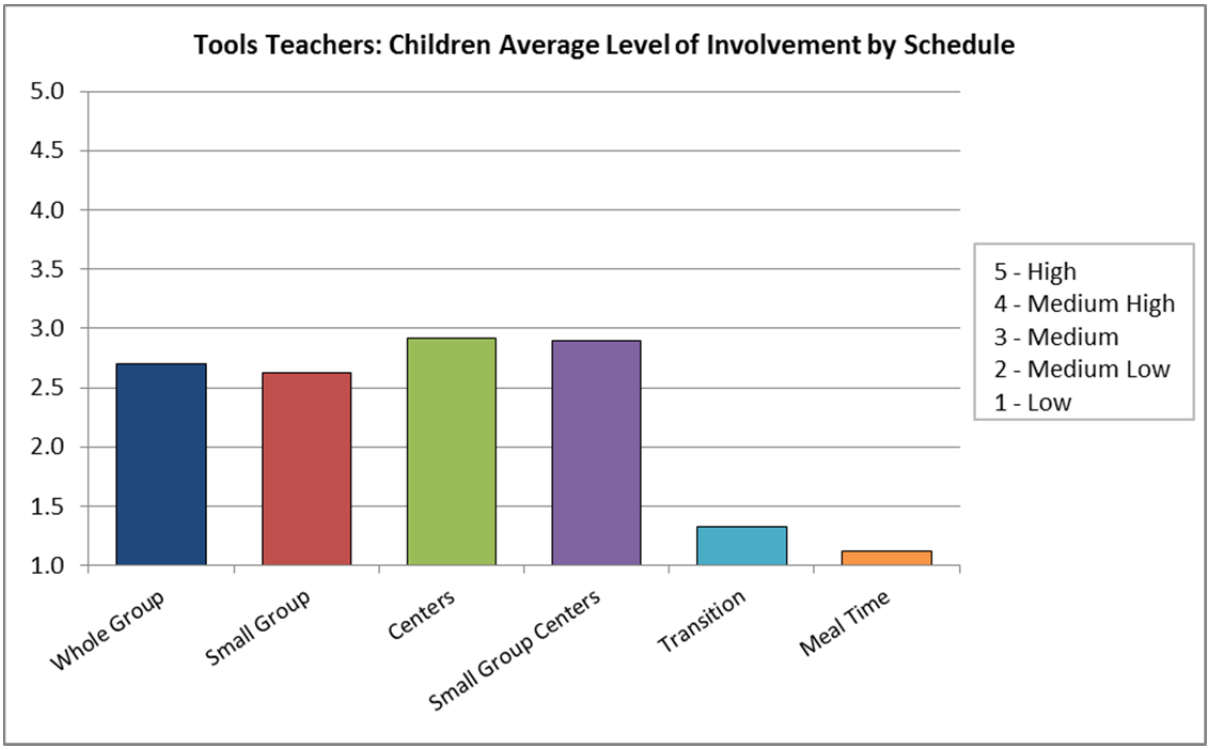

Comparison Teachers: Children Learning Focus
Literacy 6%
Code-Based Skills 6%
Reading 7%
Math 6%
Science 7%
Social Studies 3%
Drama 3%
Other (e.g., toys) 25%
None 37%

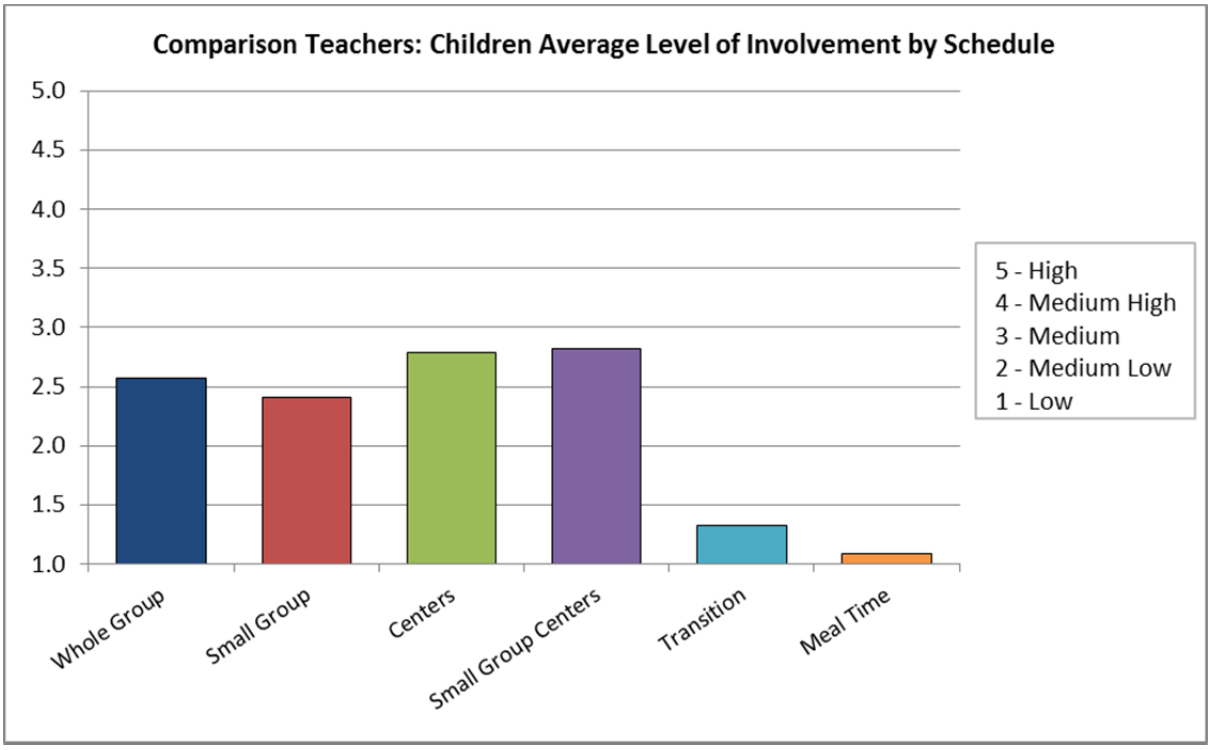

Tools Teachers: Children Interaction Type
Nonacademic 29%
Parallel 47%
Time Out <1%
Unoccupied 5%
Social 2%
Onlooker 1%
Alone 4%
Cooperative 2%
Associative 10%


Comparison Teachers: Children Interaction Type
Nonacademic 30%
Parallel 48%
Time Out <1%
Unoccupied 4%
Social 2%
Onlooker 1%
Alone 7%
Cooperative 1%
Associative 7%


Tools Teachers: Children Schedule
Meal Time 7%
Other 1%
Transition 19%
Whole Group 39%
Small Group Centers 4%
Centers 17%
Small Group 13%


Comparison Teachers: Children Schedule
Meal Time 6%
Other 1%
Transition 20%
Whole Group 36%
Small Group Centers 11%
Small Group 1%
Centers 25%


Tools Teachers: Children Average Level of Involvement by Schedule
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
Whole Group
Small Group
Centers
Small Group Centers
Transition
Meal Time
5 - High
4 - Medium High
3 - Medium
2 - Medium Low
1 - Low


Comparison Teachers: Children Average Level of Involvement by Schedule
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
Whole Group
Small Group
Centers
Small Group Centers
Transition
Meal Time
5 - High
4 - Medium High
3 - Medium
2 - Medium Low
1 - Low

IMPLEMENTATION FIDELITY

POST Observation Rating Scale (PRS)

The PRS is completed immediately after a classroom is observed and is a 5-point Likert-type researcher-developed scale for rating classroom-level characteristics. This instrument was developed following extensive discussions with the *Tools of the Mind* developers during which they identified classroom attributes that were most likely to be different between *Tools* classrooms and other early childhood classrooms. The PRS includes items regarding general classroom characteristics as well as teacher practices, classroom activities, and children's social and academic behaviors. Both observers complete the PRS together following the visit and then combined their ratings into a single consensus rating used for analyses.

For more information see: Yun, C., Farran, D.C., Lipsey, M., Vorhaus, E., & Meador D. (2010). Prekindergarten classroom dynamics rating scale. Nashville, TN: Peabody Research Institute, Vanderbilt University.

PRS Subscale Descriptions

Subscale	Number of Items	Description
General	11	Items related to the general classroom atmosphere.
Center Time	4	Items characterizing children's play during centers.
Classroom Management	7	Items describing teacher- and child-level factors in classroom management.
Teacher Responsiveness	3	Items related to teachers' interactions with children.
Community	6	Items describing peer interactions.
Academic-Learning Related	5	Items characterizing children's behaviors and engagement during academic activities.

Environmental Scan and Checklist

The environmental scan is an observational tool to gauge a classroom's environment and materials. It is derived from a list of early childhood materials the *Tools of the Mind* developers indicate should be available in the classroom. The scan focuses on the play centers and materials accessible to children.

For more information see: Vorhaus, E., Meador, D., & Farran, D. (2010). Tools of the Mind classroom environmental inventory. Nashville, TN: Peabody Research Institute, Vanderbilt University.

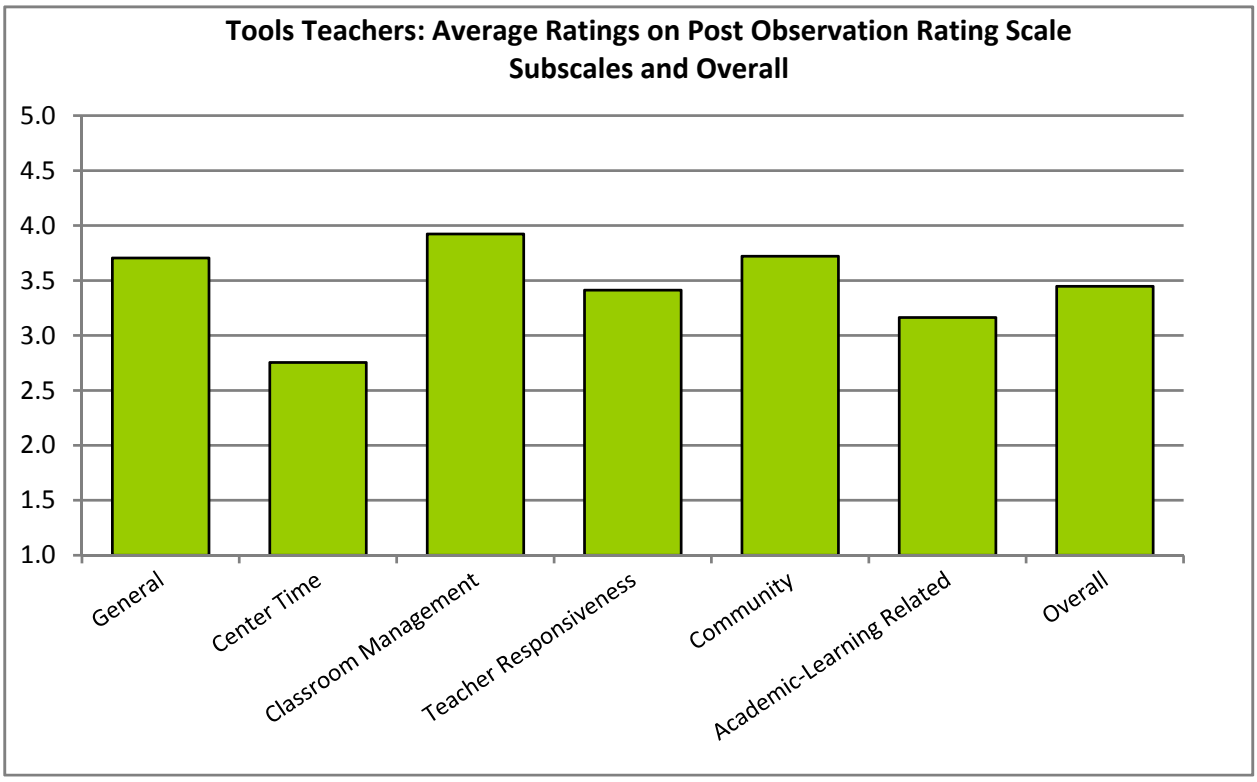
PRS, Environmental Checklist, and *Tools* Themes: Summary of Findings

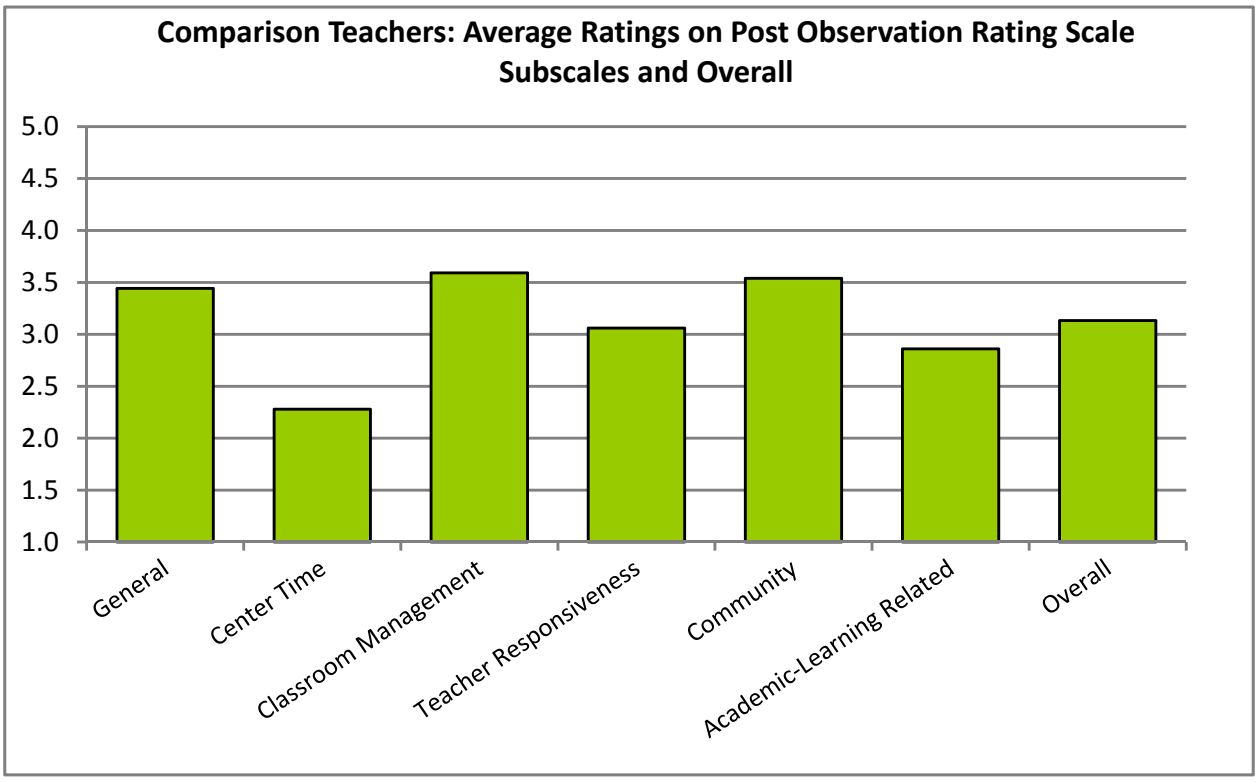
Presented in the follow pages are bar graphs and tables depicting the PRS classroom ratings, the number of centers observed operating at each time point, the presence of early childhood materials in the classrooms, and information about the themes in effect at each observation, including the presence of theme-related books. Information is provided for both *Tools* and comparison classrooms.

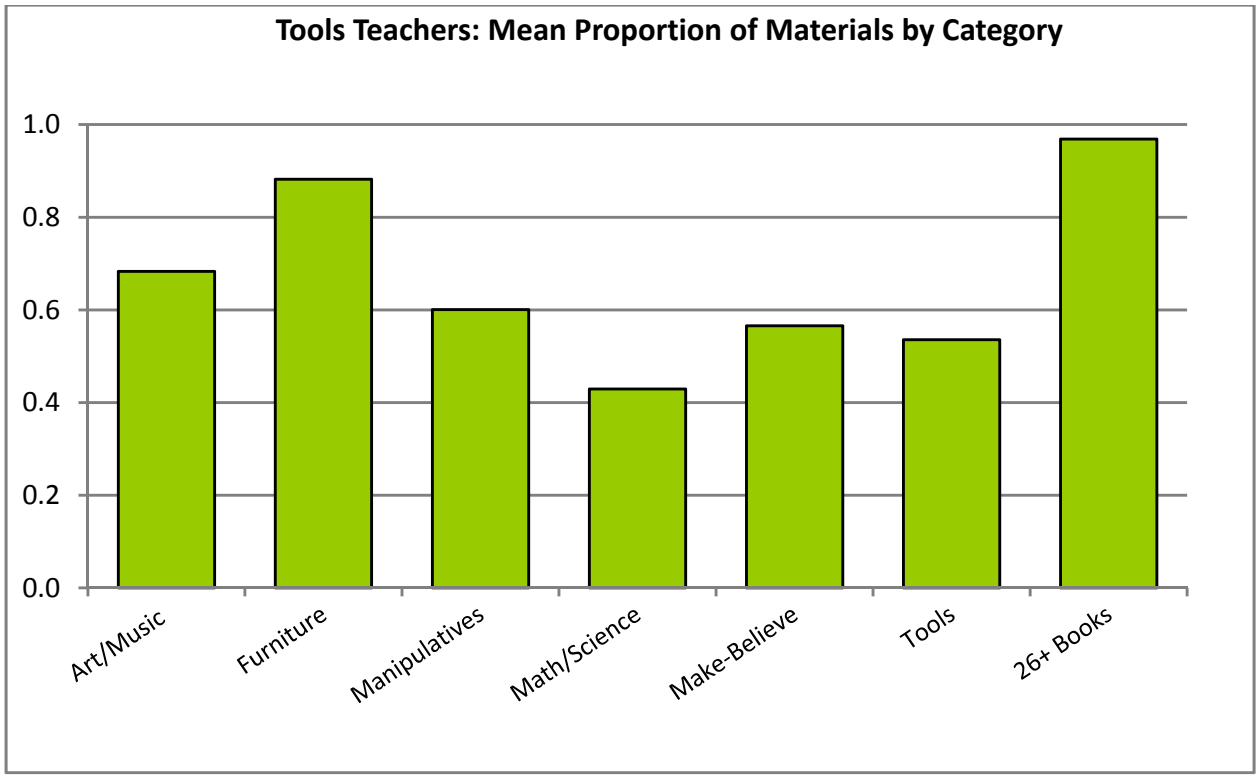
- Observers consistently rated *Tools* classrooms higher on all dimensions covered by the PRS. *Tools* classrooms were appealing places for children to be, and observers responded positively.
    - This is important because PRS ratings are linked to achievement and self-regulation gains. Variation in the ratings predicted amount of gain despite there being no effect on achievement or self-regulation for *Tools* in general.
- *Tools* classrooms had an average of 3-4 make believe play centers open at each observation period. Overall their total free play and MBP centers totaled about the same number as the comparison classrooms
- Both sets of classrooms were well stocked early childhood environments, according to the checklist *Tools* provides the school systems as foundational. The only difference between the groups was in the presence of more *Tools* specific material in the *Tools* classrooms.
- Only 18 of the 32 *Tools* classrooms had a theme operating at all three time points; only 14 had a *different* theme underway.
- About 40% of the classrooms at each observation did not have any theme-related books present.

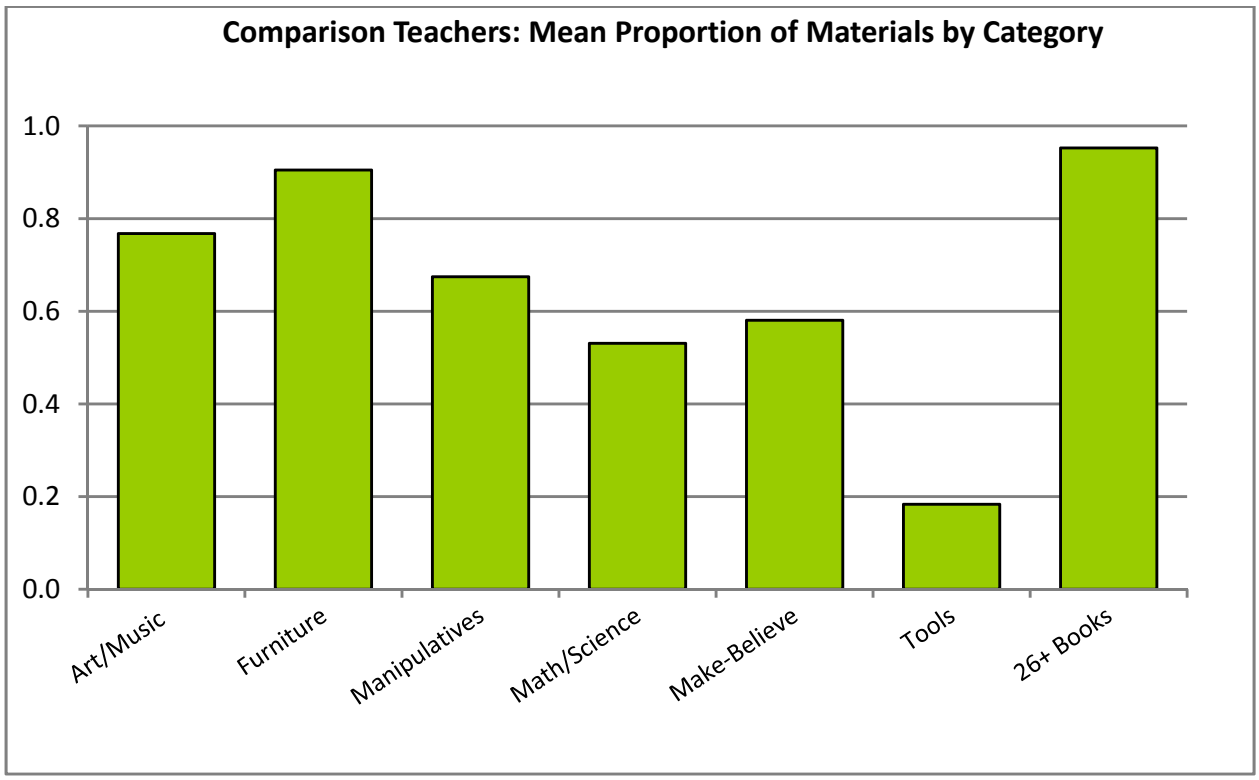
Take Away Thoughts for *Tools* Trainers

1. The PRS may provide a general measure that could be used by trainers to evaluate the general effectiveness of the classrooms they visit. It does require a full morning's observation to complete it, but it seems to be capturing important elements in a classroom. The elements are not sufficient by themselves to produce gain, but they contribute.
2. Creating themes and the associated centers to go with the theme is labor intensive. Teachers appeared to enact the themes that were initially suggested to them (e.g., family, grocery, and medical) but then to trail off when they had to generate their own. How can *Tools* help teachers make this a less burdensome task and one more likely to be successful?


Tools Teachers: Average Ratings on Post Observation Rating Scale Subscales and Overall
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
General
Center Time
Classroom Management
Teacher Responsiveness
Community
Academic-Learning Related
Overall


Comparison Teachers: Average Ratings on Post Observation Rating Scale Subscales and Overall
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
General
Center Time
Classroom Management
Teacher Responsiveness
Community
Academic-Learning Related
Overall


Tools Teachers: Mean Proportion of Materials by Category
1.0
0.8
0.6
0.4
0.2
0.0
Art/Music
Furniture
Manipulatives
Math/Science
Make-Believe
Tools
26+ Books


Comparison Teachers: Mean Proportion of Materials by Category
1.0
0.8
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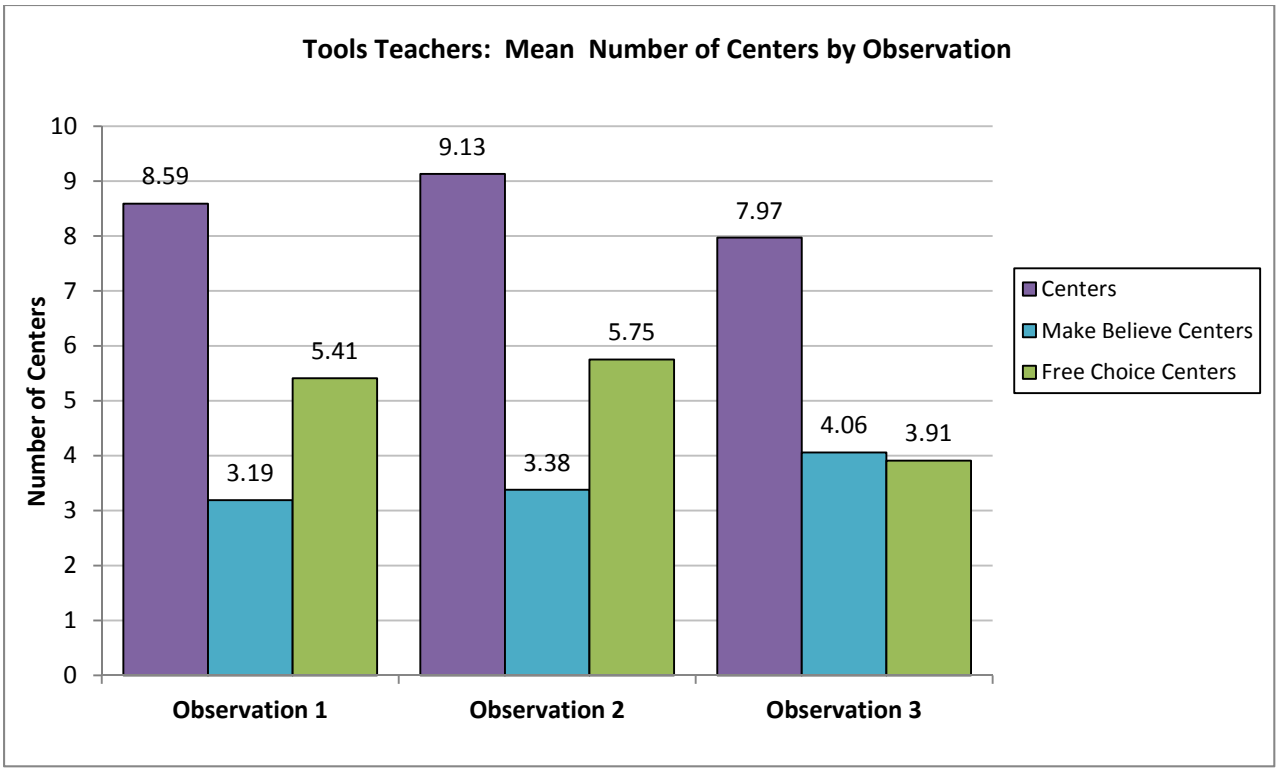
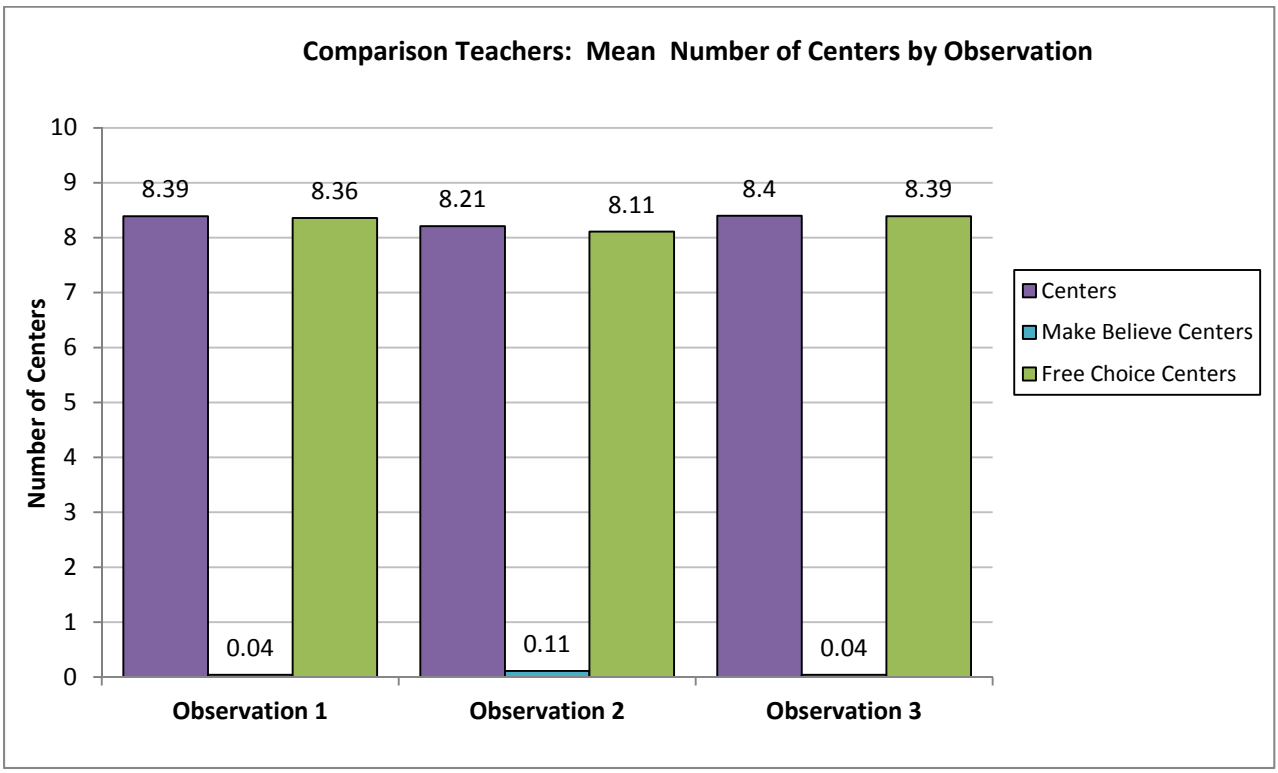
0.4
0.2
0.0
Art/Music
Furniture
Manipulatives
Math/Science
Make-Believe
Tools
26+ Books


Tools Teachers: Mean Number of Centers by Observation
Number of Centers
10
9
8
7
6
5
4
3
2
1
0
8.59
3.19
5.41
9.13
3.38
5.75
7.97
4.06
3.91
Observation 1
Observation 2
Observation 3
Centers
Make Believe Centers
Free Choice Centers


Comparison Teachers: Mean Number of Centers by Observation
Number of Centers
10
9
8
7
6
5
4
3
2
1
0
8.39
0.04
8.36
8.21
0.11
8.11
8.4
0.04
8.39
Observation 1
Observation 2
Observation 3
Centers
Make Believe Centers
Free Choice Centers

TOOLS CLASSROOM NUMBER OF MAKE BELIEVE PLAY CENTERS

Number of Make Believe Play Centers	O1 (n = 32)	O2 (n = 32)	O3 (n = 32)
0	9	6	3
1	0	2	3
2	4	4	2
3	2	1	0
4	5	6	7
5	5	7	9
6	6	6	6
7	1	0	2

SUMMARY OF OBSERVED CLASSROOM THEMES

Number of teachers with

- A theme at all 3 observations: 18
- **Different** themes at all 3 observations: 14
- A theme at 2 out of 3 observations: 11
- A theme at only 1 observation: 3
- The same theme at Observations 2 and 3: 7 (Grocery, Community Helpers, Mall, Restaurant, Hospital)

TOOLS CLASSROOM THEMES AT 3 OBSERVATIONS

Theme	O1 (n = 32)	O2 (n = 32)	O3 (n = 32)
Home Living / Family	5		
Restaurant	17	3	5
Grocery	1	7	2
Medical		8	5
Walmart		3	3
Community Helpers		3	5
Mall		1	2
School		1	2
Dinosaurs		1	0
Pets			2
Farm			1
Airport			1
Fashion			1
No Theme	9	5	3

TOOLS CLASSROOMS WITH THEME-RELATED BOOKS

Number of Theme Books	O1 (n = 32)	O2 (n = 32)	O3 (n = 31)
0	12	14	14
1-2	5	3	5
3-5	3	1	4
6+	12	14	8

Tools Time Block

As a part of the Narrative Record, but specific and adapted to the *Tools of the Mind* curriculum, observers recorded the different *Tools* activities occurring and the length of time each occurred. These data were collected identically in *Tools* and comparison classrooms, but few of the *Tools*-specific activities occurred in comparison classrooms.

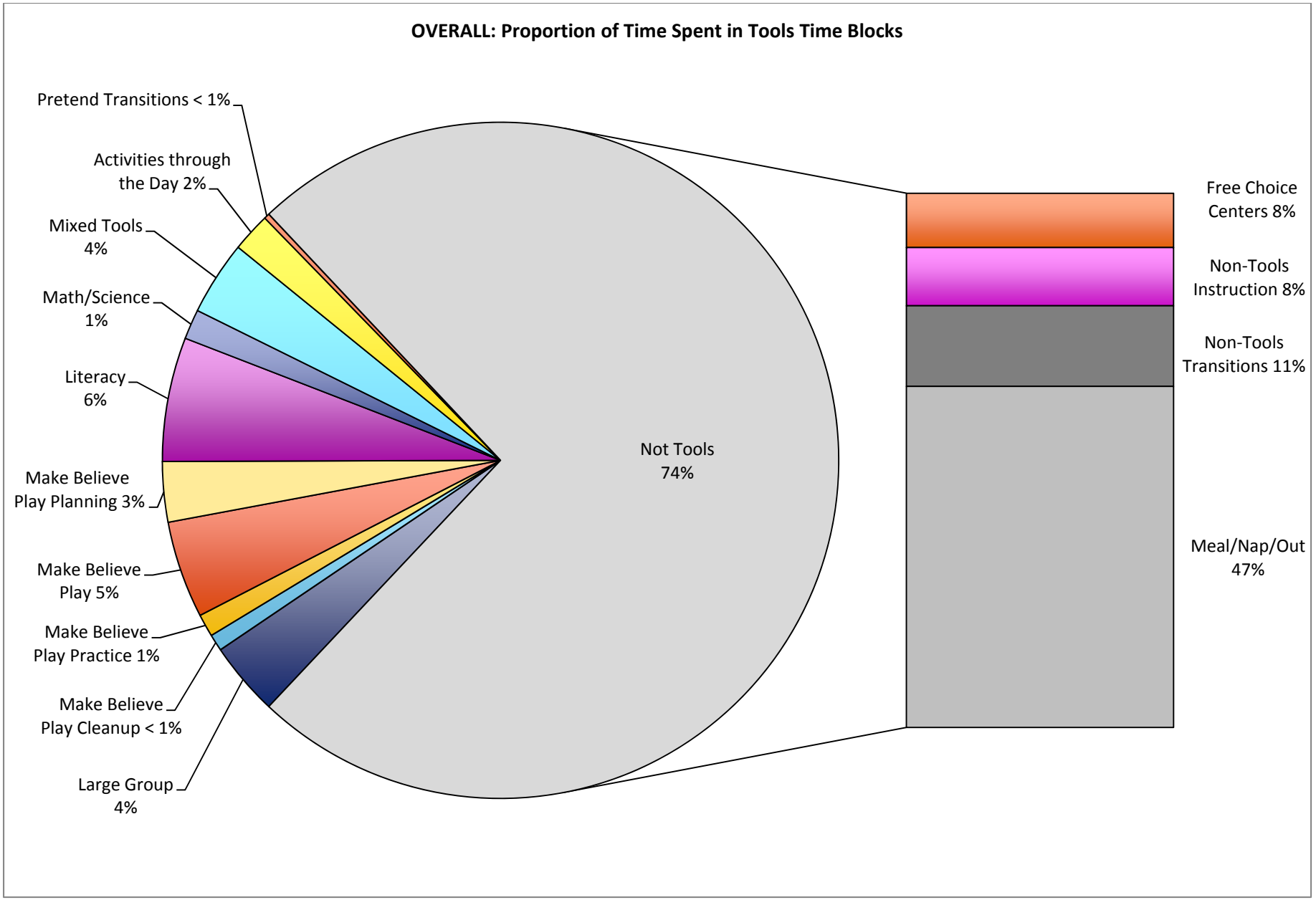
Tools Time Block Summary of Findings

Presented in a single pie chart is the distribution across *Tools* activities and other non-*Tools* activities observed in *Tools* classrooms.

- On average, approximately 25% of the day was actually spent doing *Tools* curricular activities. For 6% of the day teachers implemented Free Choice centers and they spent 8% of their day doing non-*Tools* instruction. While we have not analyzed the content of the non-*Tools* instruction, it is apparent that teachers supplemented the curriculum. The supplements chosen likely varied by classroom.
  - The amount of time spent actually implementing *Tools* was not, however, related to gains in either achievement or self-regulation.
- On average, only 5% of the day was spent in Make Believe Play. *Tools* classrooms spent nearly as much time in Play Planning.
  - The amount of time spent in Make Believe Play was not positively related to gains in either achievement or self-regulation.

Take Away Thoughts for *Tools* Trainers

1. In addition to trying to help teachers reduce the amount of transition time, it appears to be important to help them see how to connect the curriculum to the instructional activities they are used to using. The lack of effects for *Tools* could be a "threshold effect" – perhaps the curriculum has to be implemented across much more of the day to result in effects.
2. The low amount of Make Believe Play appears to be a function, in part, of the amount of time spent in Play Planning.



PEABODY research institute

Tools Fidelity of Implementation

The Tools Fidelity Measure captures the specific *Tools* curriculum activities that occur within a classroom observation period along with information about the specific implementation steps that occur, and mediators that are used. In addition, the curriculum developers furnished a list of behaviors that "should not" happen during each activity that are also captured by observers. The *Tools* Fidelity Measure provides an in-depth look at the degree of curriculum implementation across the year within experimental classrooms. Although this instrument was used in both *Tools* and comparison classrooms, relatively few *Tools* activities were ever coded in comparison rooms.

For more information see: Vorhaus, E. & Meador, D. (2010). Tools of the Mind curriculum implementation fidelity checklist. Nashville, TN: Peabody Research Institute, Vanderbilt University.

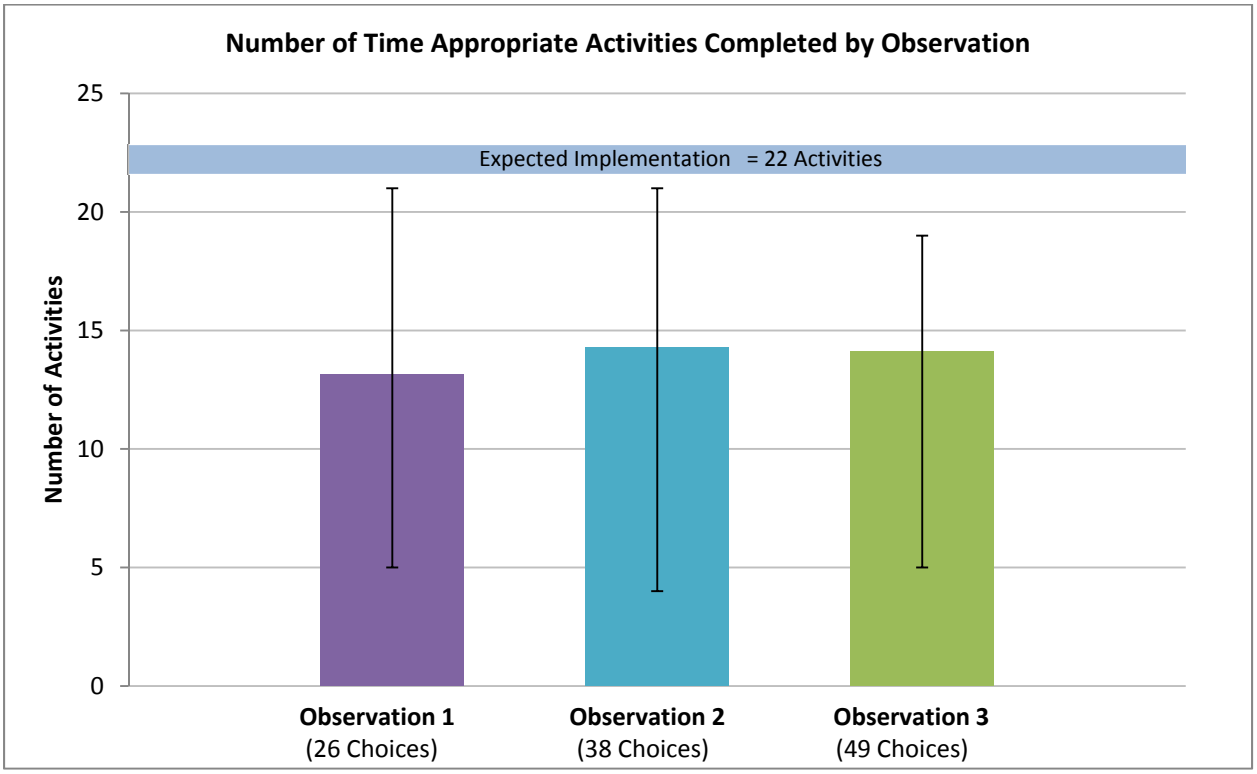
Fidelity of Implementation Results

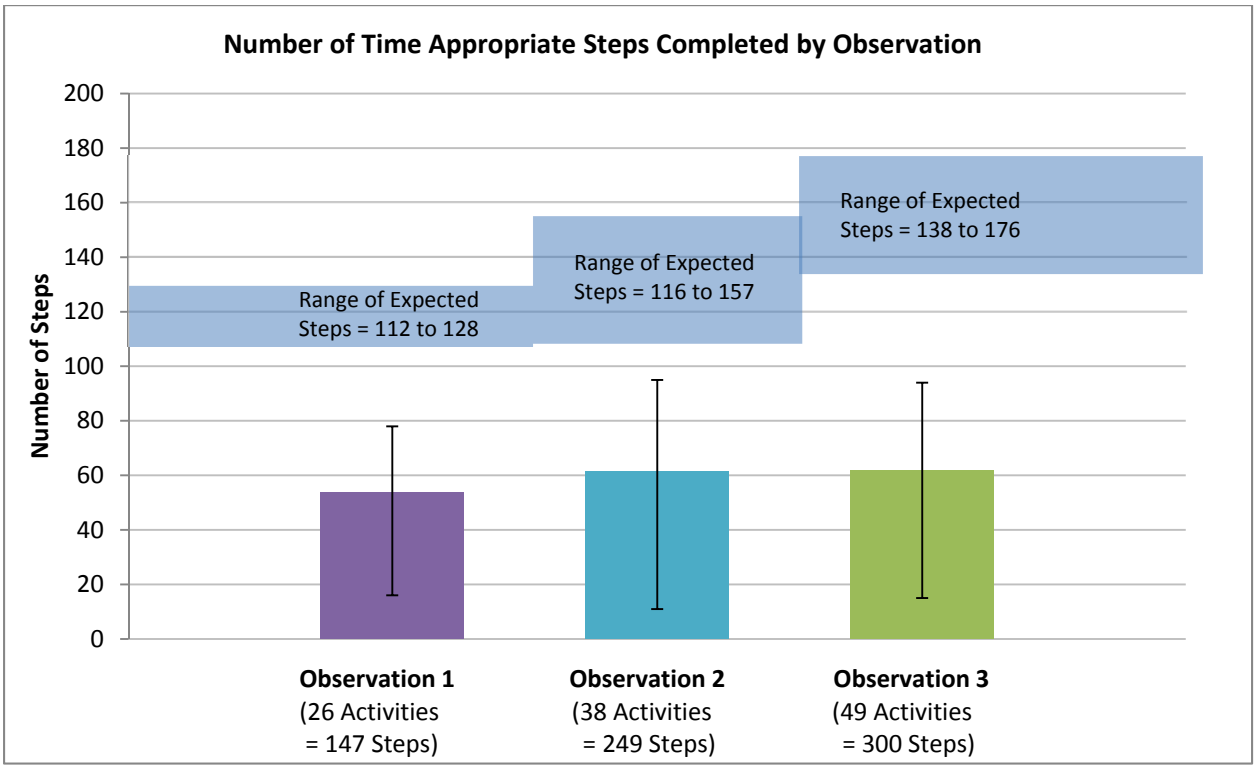
Four bar charts follow. Each portrays the teachers' implementation for each of the three observational periods. The black vertical line on each chart shows the minimum number of curriculum elements the observer saw a teacher doing and the maximum number. The blue horizontal lines on the graphs portray the expected amount of implementation on a given day according to the Tools curriculum manual. Data are presented first for number of activities, second for steps completed, third for mediators used, and last for number of Should Not's observed. Only the number of *appropriate* activities and steps is graphed. If teachers were doing an activity out of sequence or steps that should have been completed, those are not counted. If anything these graphs underestimate how many *Tools* specific activities teachers were carrying out. For example, at Observation 3, *Tools* teachers on average completed 14.5 activities, yet on average only 13.9 were time appropriate.

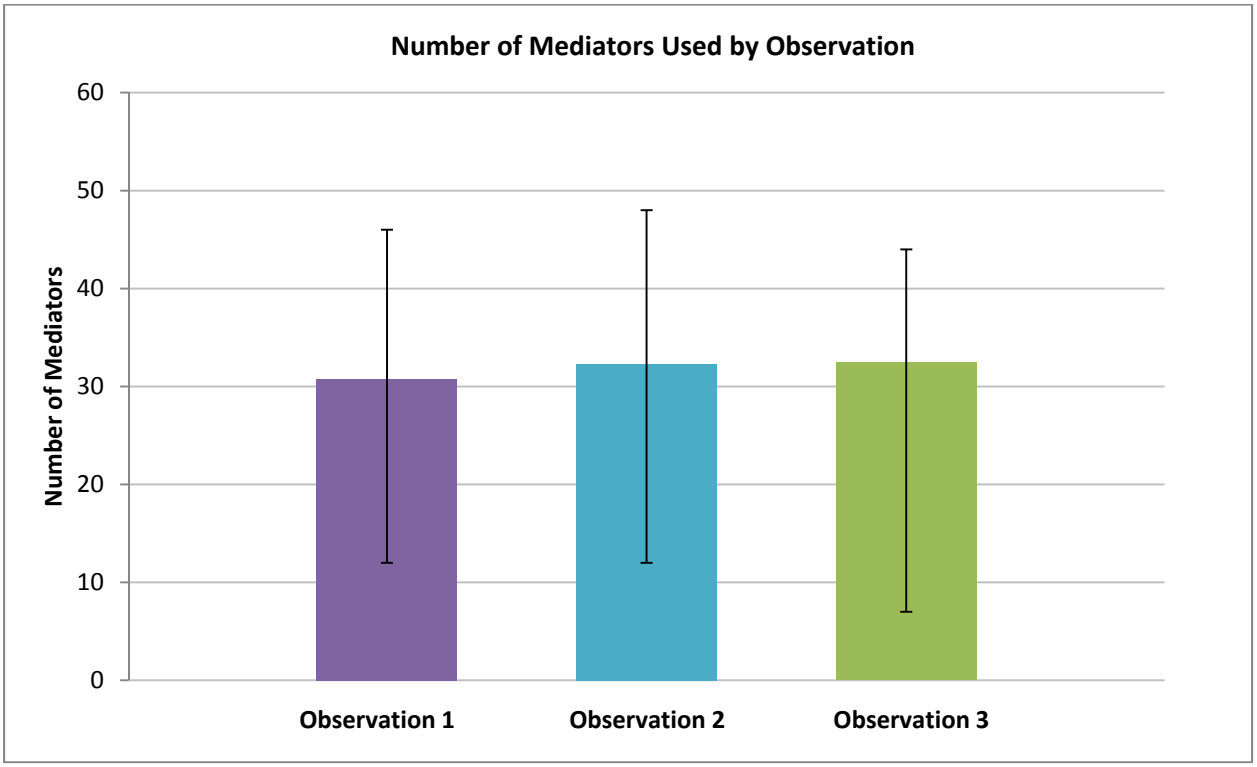
- Across the three observational times, teachers were consistent in the number of *Tools* activities they implemented and the number of steps they enacted within the activities. However, the number of activities, and their subsequent steps, that a teacher can choose to implement increases at each time point. Thus the gap between what teachers were doing and what the curriculum expected them to do and the options teachers must choose among grows wider at each time point.
- Across the three observational times, teachers consistently used 30 mediators, indicating a focus on scaffolding children's understanding of how to behave, as the curriculum suggests.
- Teachers varied in how many incorrect things they did, although in general, teachers did few of the things the developers specifically did not want them to do. They did the most should not's at the beginning and end of the year.

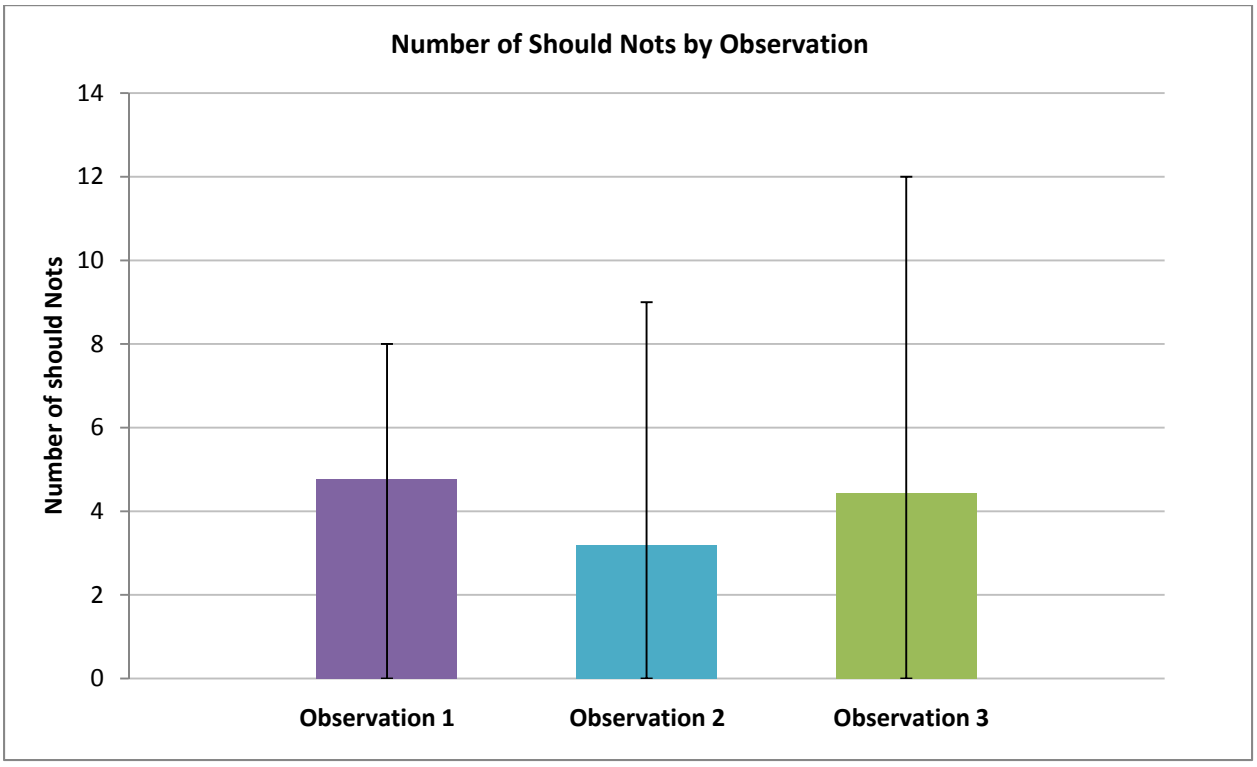
Take Away Thoughts for *Tools* Trainers

1. Within the constraints of an early childhood classroom, there may be a maximum number of activities a teacher can reasonably be expected to do in a day. Guidance for teachers in how to make choices and what to prioritize would seem to be important.
2. As activity expectations go up, teachers may become discouraged about being able to do the curriculum at all.


Number of Time Appropriate Activities Completed by Observation
Number of Activities
25
20
15
10
5
0
Expected Implementation = 22 Activities
Observation 1
(26 Choices)
Observation 2
(38 Choices)
Observation 3
(49 Choices)


Number of Time Appropriate Steps Completed by Observation
Number of Steps
200
180
160
140
120
100
80
60
40
20
0
Range of Expected Steps = 112 to 128
Range of Expected Steps = 116 to 157
Range of Expected Steps = 138 to 176
Observation 1
(26 Activities = 147 Steps)
Observation 2
(38 Activities = 249 Steps)
Observation 3
(49 Activities = 300 Steps)


Number of Mediators Used by Observation
Number of Mediators
60
50
40
30
20
10
0
Observation 1
Observation 2
Observation 3


Number of Should Nots by Observation
Number of should Nots
14
12
10
8
6
4
2
0
Observation 1
Observation 2
Observation 3

Implementation Fidelity: Weighted Scores Calculation

The weighted fidelity score is based on our understanding from the manuals of the appropriate time of implementation for both activities and steps and the perceived level of difficulty for the teacher to carry out the activities. Higher weighted scores reflect greater adherence to curriculum delivery. The weighted fidelity scores reflect only time appropriate delivery. Weighted scores reward teachers who carry out the more complex activities and who enact a larger number of steps. It credits teachers more who had to prepare more extensively to do the activity rather than teachers who might do some easy activities because an observer is present.

From observation to observation, the number of difficult activities within the curriculum increases. This impacts the weighted fidelity score, such that from Observation 1 to Observation 3 there are almost twice as many points possible to create the proportion. This means that completing the same number of time appropriate activities at Observation 1 and Observation 3 will likely yield a lower score at Observation 3.

The first table of three pages lists all the curriculum activities, the appropriate observational time at which it should be seen, the number of steps expected by time point, the number of Should Not's, and whether the activity was Easy, Medium, or Difficult. Easy items were weighted with a maximum score of 10, Medium with a score of 20, and Difficult items with a score of 40. If all the appropriate steps of an activity were enacted, the teacher received the maximum score possible for that activity. Activity scores were then totaled to yield the overall weighted fidelity score used in analyses.

Weighted Score Results

The bar graph following the table depicts the weighted score averages, with maximum and minimums, for each observational time period. The blue horizontal line on the graph portrays the expected amount of implementation on a given day according to the Tools curriculum manual.

Following the graph of weighted score implementation will be an exploration of individual differences among teachers in their implementation level over the year using the weighted scores. As you can see, there was a wide range of curriculum implementation observed. High implementing teachers delivering almost 7 times more *Tools* curriculum compared to their low implementing counterpart.

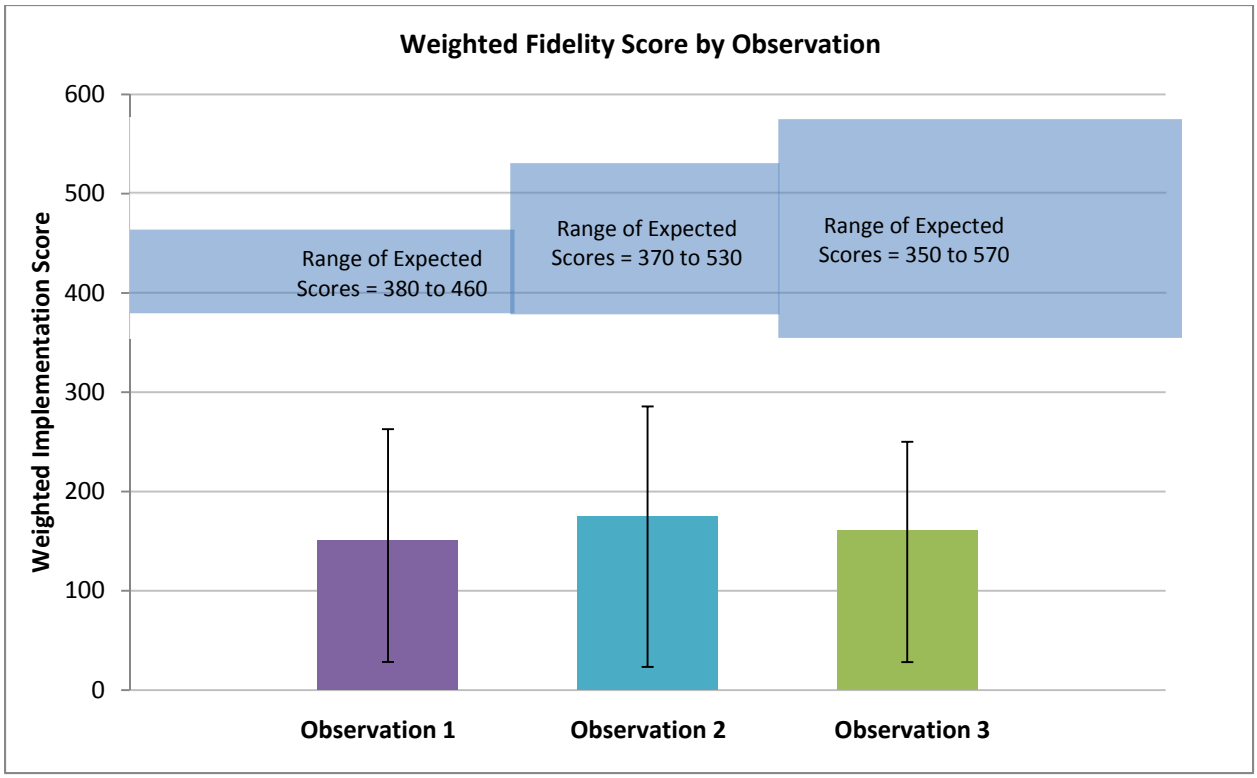
- Even though teachers varied widely in the amount of *Tools* curriculum they delivered, there were no relations found between teachers' overall level of implementation and child academic and self-regulation outcomes. Students in *Tools* classrooms made relatively the same amount of gain over the course of Pre-K on academic achievement and self-regulation regardless of whether teachers completed more time-appropriate or did more complex activities.

FIDELITY ACTIVITIES, STEPS AND WEIGHTED SCORE MEANS BY OBSERVATION TIME FOR *TOOLS* CLASSROOMS

Activities	Level of Difficulty	Observation 1		Observation 2		Observation 3		Should Not's
		Tools Training	# steps	Tools Training	# steps	Tools Training	# steps	
Large Group:								
Mystery Question	E	1	1-5					6
Mystery Shape	E	2	1-4	2,3	1-6			6
Mystery Word	E			3	1-3	3,4	1-7	6
Mystery Numeral	E			3	1-3	3,4	1, 3-7	6
Mystery Pattern	E					4	1-6	6
Mystery Letter	E					4	1-4	6
Mystery Rhyme	E					4	1-4	6
Timeline Calendar	E	1,2	1-5	2,3	1-7	3,4	1-8	6
Weather Graphing	E	1,2	1-3	2,3	1-3	3,4	1-3	2
Message of the Day	M	1,2	1-6	2,3	1-7	3,4	1-8	8
Message of the Day Write Along	D					4	1-7	8
Share the News	E	1,2	1-6	2,3	1-4, 7	3,4	1-4,8	3
Share and Tell	E	1,2	1-5	2,3	1-5	3,4	1-5	3
Tally	E					4	1-4	0
Write Along a Familiar Song/ Finger Play	D					4	1-5	5
Make a Rhyme	M					4	1-5	2
Take Away Sounds	M					4	1-7	2
Class Schedules	E	1,2	1-3	2,3	1-3	3	1-3	0
Make Believe Play Block								
Make Believe Play Planning	D	1,2	1-8, 10	2,3	1-10	3,4	1-11	7
Make Believe Play Practice	D	1,2	1-4	2,3	1-4	3,4	1-8	2
Make Believe Play	D	1,2	1-5	2,3	1-7	3,4	1-11	2

Activities	Level of Difficulty	Observation 1		Observation 2		Observation 3		Should Not's
		Tools Training	# steps	Tools Training	# steps	Tools Training	# steps	
Math/Science								
Remember and Replicate	M	1,2	1-8	2,3	2-9	3	2-7,9,10	1
Puzzles and Manipulatives	E	1,2	1-3					1
Math Memory	M	2	1-8	2,3	1,3-9	3,4	1,3-13	2
Science Eyes	D	2	1-6	2,3	1,2,4-9	3,4	1,2,4,5, 7-12	5
Numeral Game	M			3	1-5	3,4	1,2,4-8	2
Venger Drawing	D			3	1-5	3,4	1-6	0
Attribute Game	M			3	1-4	3,4	1-6	0
Numberline Hopscotch	M			3	1-4	3	1-6	2
I have who has Colors	E			3	1-8	3	1-8	3
I have who has Numbers	E			3	1-8	3,4	1-8	3
I have who has Shapes	E			3	1-8	3,4	1-8	3
Making Collections	D	2	1-4, 6-12	2,3	1-3, 5-12	3,4	1-3, 5-12	0
Patterns with Manipulatives	M					4	1-5	0
Literacy								
Graphics Practice	M	1,2	1-9	2,3	1-8,	3,4	1-8, 11-13	5
Buddy Reading	M	1,2	1-6	2,3	1-9	3,4	1-5, 7-10	5
Elkonin Boxes 1: Jumping the Sounds	D					4	1-5	4
Elkonin Boxes 2: Token Game	D					4	1-4	4
I have who has Letters	E			3	1-8	3,4	1-8	4
Story Labs								
Story Lab: Active Listening	E	1,2	1-6	2,3	1-6	3,4	1-6	4
Story Lab: Connections	E	1,2	1-5	2,3	1-5	3,4	1-5	3
Story Lab: Vocabulary	D	1,2	1-6	2,3	1-6	3,4	1-6	4
Story Lab: Learning Facts	D	2	1-5	2,3	1-6	3,4	1-7	1
Story Lab: Visualization	M	2	1-7	2,3	1-7	3,4	1-8	2

Activities	Level of Difficulty	Observation 1		Observation 2		Observation 3		Should Not's
		Tools Training	# steps	Tools Training	# steps	Tools Training	# steps	
Story Lab: Grammar	D			3	1-10	3,4	1-10	3
Story Lab: Extensions	D			3	1-8, 10	3,4	1-10	4
Story Lab: Predictions and Inferences	D					4	1-6	1
Activities through the Day								
Attention Focusing Activities	E	1,2	1-5	2,3	1-5	3,4	1-6	2
Freeze Game	E	1,2	1-4	2,3	1-5	3	1-5	4
Partner Freeze	E					4	1-7	4
Two Step Freeze	M					4	1-4	4
Freeze on Number	M			3	1-4	3,4	1-5	4
Pattern Movement Game	M	2	1-7	2,3	1-7	3	1-9	3
Complete and Continue	M			3	1-7	3,4	1-7	3
Number Follow the Leader	M			3	1-4	3,4	1-5	2
Pretend Transitions	E	1,2	1-3	2,3	1-3	3,4	1-3	3
Community Building Activities	E	1,2	1-3	2,3	1-3			0
I have who has Name Game	E	1,2	1-6	2,3	1-6	3,4	1-6	1
Mousetrap	E					4	1-5	2
What are you doing Mr. Wolf?	E					4	1-5	2


Weighted Fidelity Score by Observation
Weighted Implementation Score
600
500
400
300
200
100
0
Range of Expected Scores = 380 to 460
Range of Expected Scores = 370 to 530
Range of Expected Scores = 350 to 570
Observation 1
Observation 2
Observation 3

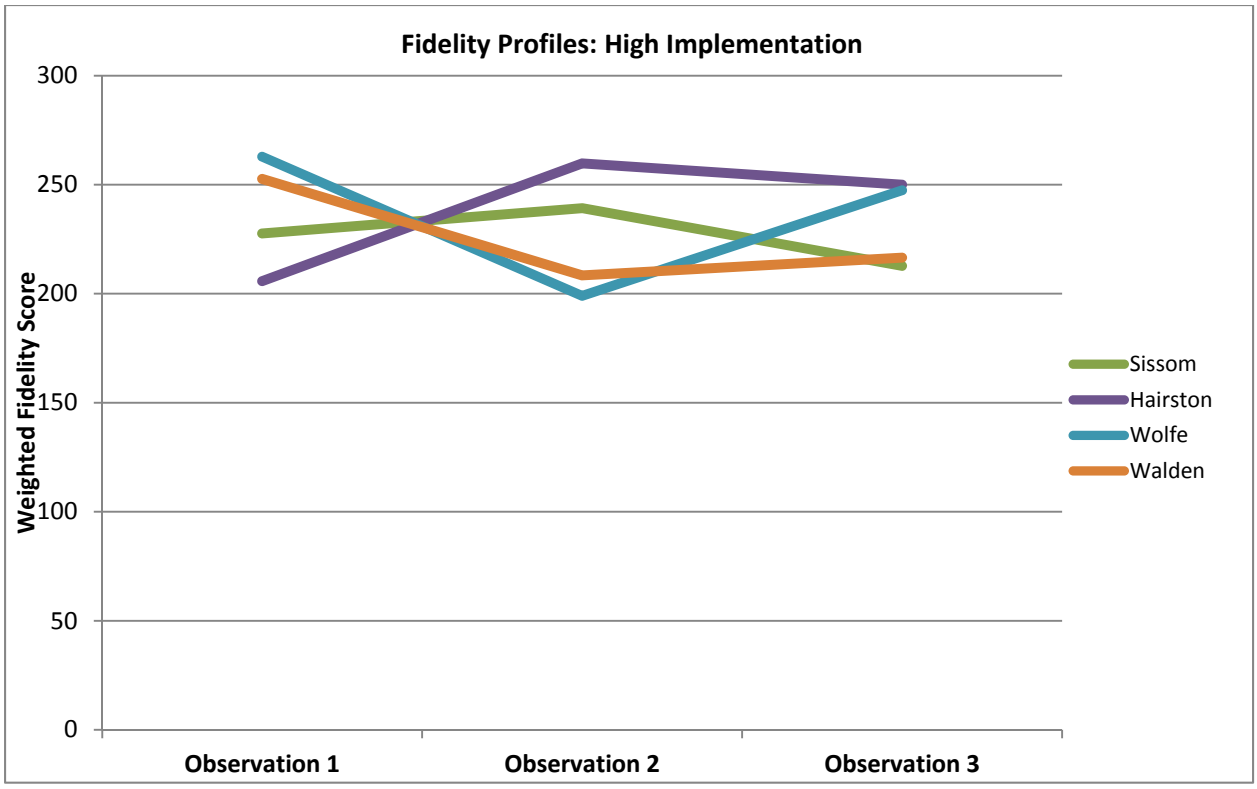
Patterns of Individual Differences Among Teachers in Implementation

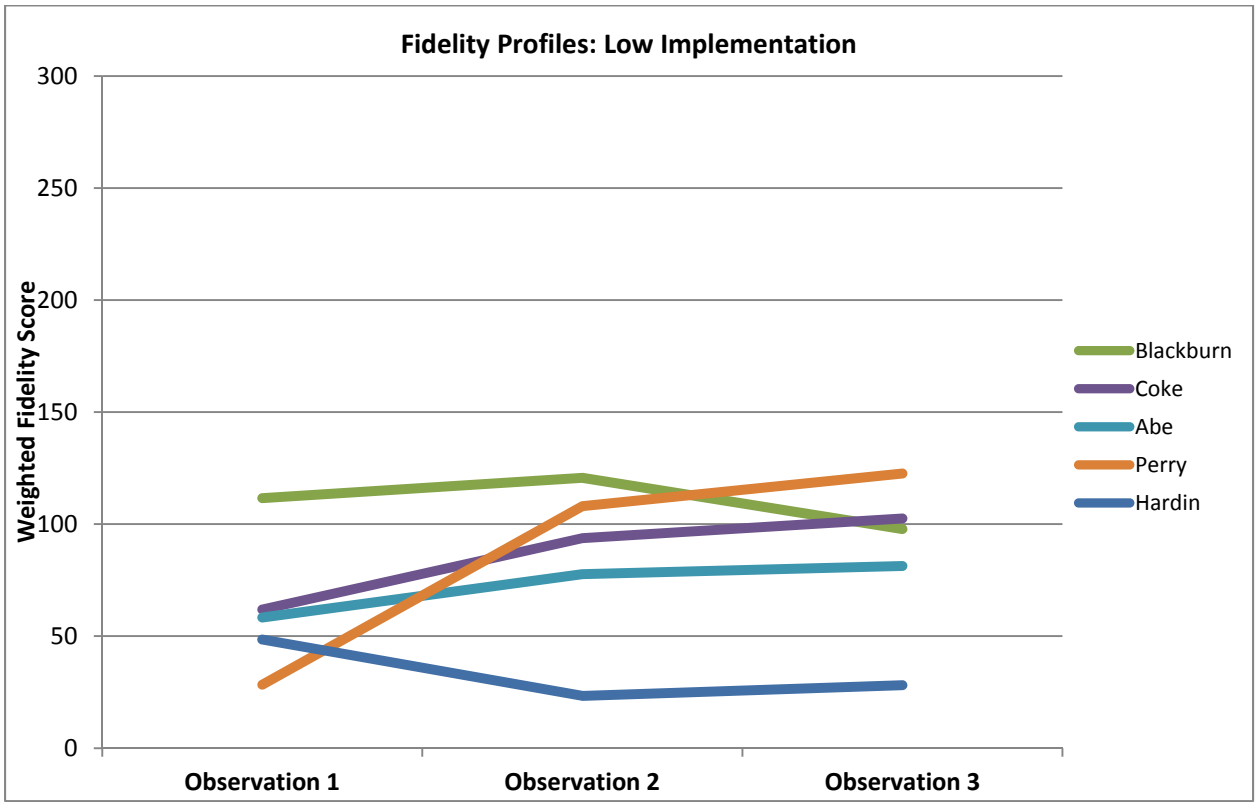
Using the teacher's weighted fidelity score at each time point, a cluster analysis was carried out to determine if there were patterns among the teachers in the level of implementation and in the pattern across the three observations. The following four distinct groups or clusters emerged from the analysis:

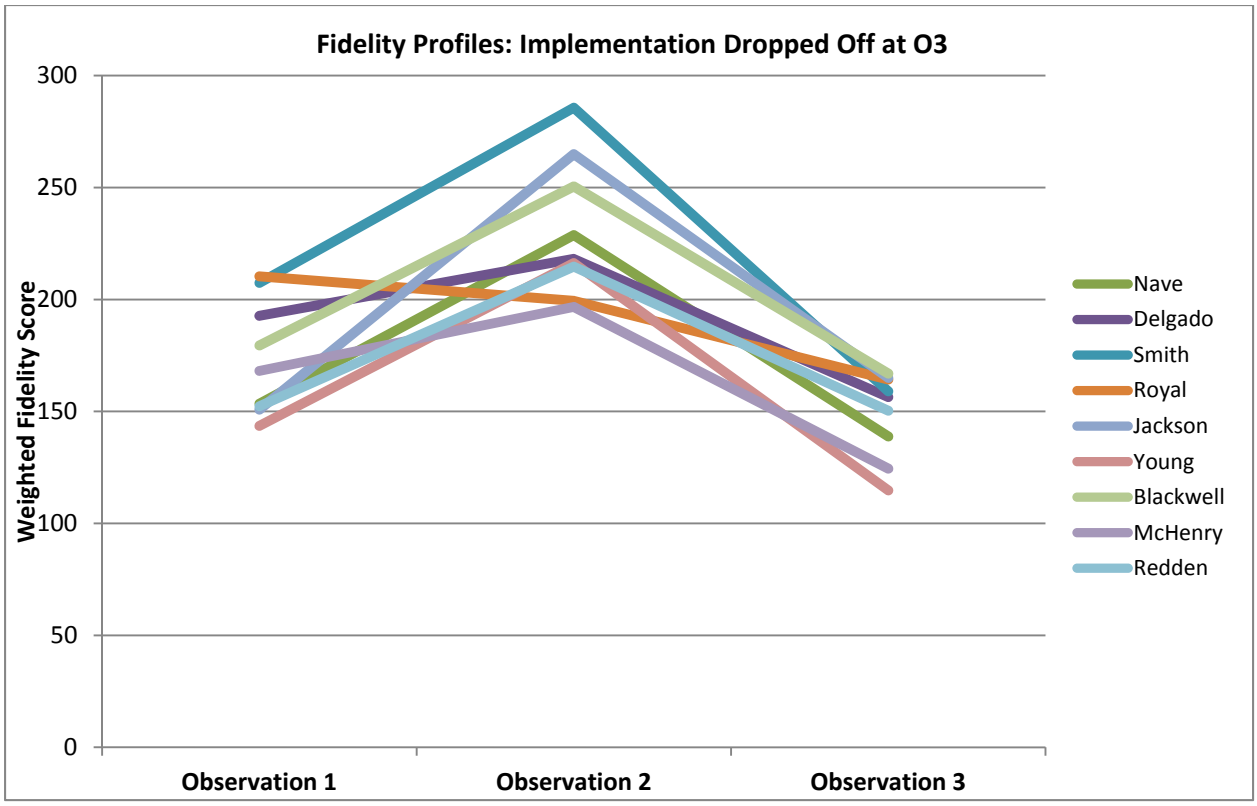
- Cluster 1: High Implementation
  - 4 teachers are included in this group.
  - At all three observations, these teachers had the highest implementation scores.
  - Mean weighted fidelity scores for this group by observation were: O1 = 237.22, O2 = 226.60, O3 = 231.69
- Cluster 4: Low Implementation
  - 5 teachers are included in this group.
  - At all three observations, compared to their peers, these teachers had the lowest fidelity scores.
  - Mean weighted fidelity scores for this group by observation were: O1 = 61.71, O2 = 84.70, O3 = 86.46
- Cluster 3: Implementation Drop-Off at O3
  - 9 teachers are included in this group.
  - The group increased the amount they implemented from O1 to O2, but then decreased their implementation at O3 to levels below O1. At O2 on average these teachers had implementation scores that were comparable to the high implementers.
  - Mean weighted fidelity scores for this group by observation were: O1 = 173.12 O2 = 230.57 O3 = 148.86
- Cluster 4: Non-Specific Implementation
  - 14 teachers are included in this group.
  - The group did not fit any specific pattern in the degree to which they delivered the curriculum.
  - Mean weighted fidelity scores for this group by observation were: O1 = 143.97 O2 = 156.03 O3 = 174.93
- As seen in the following table, the pattern of *Tools* curriculum implementation influenced the gains their students made in achievement and self-regulation. Children with teachers in both the high and low implementation groups made larger achievement and self-regulation gains compared to their peers. (Too few teachers per group for statistical testing.)

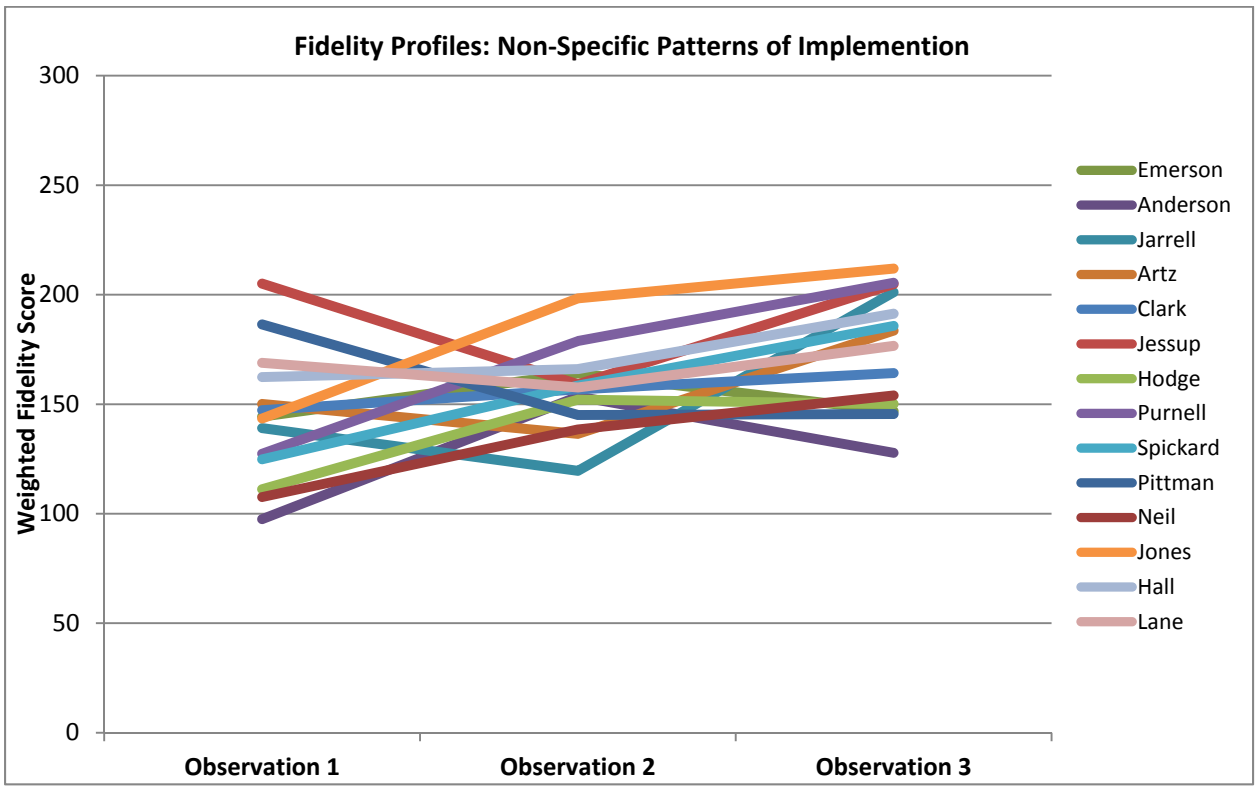
	Woodcock Johnson		Self-Regulation	
Cluster	*M*	*SD*	*M*	*SD*
High Implementers	105.44	13.84	111.65	28.56
Low Implementers	108.68	19.50	103.28	16.89
Drop-Off at O3	96.68	16.74	98.96	10.04
Non-Specific	97.47	12.26	96.18	11.67

Below are graphs illustrating teacher's implementation scores across the three observations. Graphs are organized by clusters (High Implementation, Low Implementation, Drop-Off at O3, and non-specific). There is also a graph illustrating implementation scores across observations for the eight teachers who were rated as being the highest implementers. Names of teachers are provided on the graphs despite our assurance that the observations in their classrooms would not be shared individually. We have chosen to do this because these data relate to implementation of the curriculum, not the teachers interactions with children, and are relevant to the curriculum developers. **But all data provided about individual teachers must remain confidential.**


Fidelity Profiles: High Implementation
Weighted Fidelity Score
300
250
200
150
100
50
0
Observation 1
Observation 2
Observation 3
Sissom
Hairston
Wolfe
Walden


Fidelity Profiles: Low Implementation
Weighted Fidelity Score
300
250
200
150
100
50
0
Observation 1
Observation 2
Observation 3
Blackburn
Coke
Abe
Perry
Hardin





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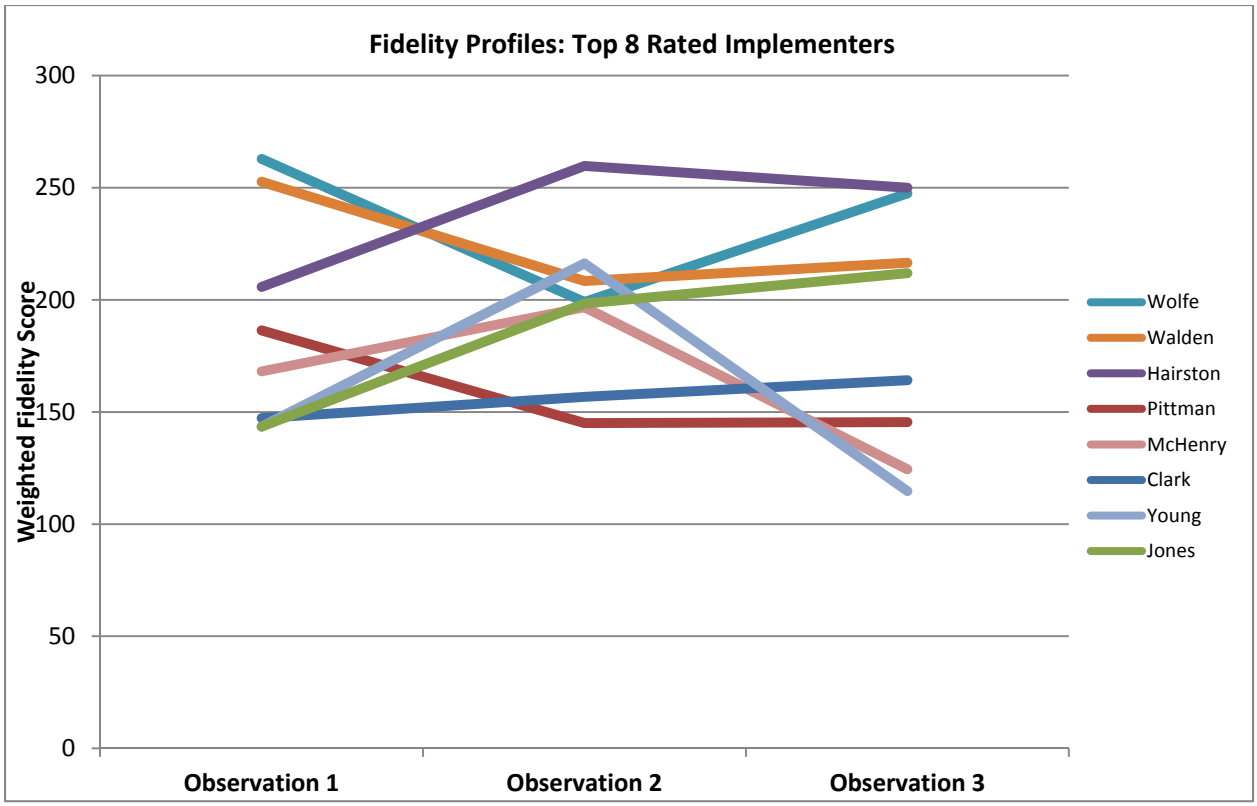
Fidelity Profiles: Top 8 Rated Implementers
Weighted Fidelity Score
300
250
200
150
100
50
0
Observation 1
Observation 2
Observation 3
Wolfe
Walden
Hairston
Pittman
McHenry
Clark
Young
Jones

Further Exploration of Make Believe Play Planning and Play

Because socio-dramatic play is a corner stone of the *Tools* approach, further analyses of Make Believe Play Planning and Make Believe Play were conducted. Presented below is information about the length of time Planning and Play lasted as well as the weighted fidelity score for each. These data were then used to explore the relationship between the quantity and quality of Make Believe Play and Planning and their effects on children's achievement and self-regulation gains. Those data are separately presented.

DESCRIPTIVE STATISTICS FOR TIME SPENT IN MAKE BELIEVE PLAY PLANNING AND MAKE BELIEVE PLAY BY OBSERVATION TIME POINT

	Observation Time 1			Observation Time 2			Observation Time 3		
	M	*Min*	*Max*	*M*	*Min*	*Max*	*M*	*Min*	*Max*
Make Believe Play Planning	11:25	3:00	19:49	13:45	8:05	29:11	13:48	3:11	19:07
Make Believe Play	21:36	7:45	37:40	25:57	11:08	44:35	23:12	7:22	45:37

Note. Descriptive statistics reported in number of minutes.

WEIGHTED FIDELITY SCORES FOR MAKE BELIEVE PLAY PLANNING AND MAKE BELIEVE PLAY BY OBSERVATION TIME POINT

	Observation Time 1			Observation Time 2			Observation Time 3		
	M	*Min*	*Max*	*M*	*Min*	*Max*	*M*	*Min*	*Max*
Make Believe Play Planning (Out of 40)	22.78	0	35.56	27.25	0	36	27.05	0	32.73
Make Believe Play (Out of 40)	17.75	0	40	18.04	0	40	14.66	0	29.09

SUMMARY

Overall, we found no significant effects of the *Tools of the Mind* curriculum on literacy, language or mathematics achievement when compared to business as usual classrooms whose teachers used a variety of curricular approaches.

Similarly, we found no effects on Self-Regulation. Gains in achievement and self-regulation were correlated, r =.35.

The few significant interactions obtained in the analyses did not provide a consistent picture of the curriculum being more or less effective for subgroups of children.

Tools classrooms and Control classrooms were similar in the amount of time on task. Differences were found between Tools and Control classrooms on some aspects of classroom organization. *Tools* classrooms spent more time in small group instruction and more time focused on literacy; they spent less time in centers and small-group centers.

Teachers and children spent more time on drama as a learning focus in *Tools* classrooms compared to Control classrooms. *Tools* spent half as much time on Language Arts as Control classrooms and twice as much time on Literacy as learning foci.

Classrooms were similar in the frequency of teacher and child talk, in the frequency children were observed listening and in the rate of private speech. They were similar in the frequencies of behavior approving and disapproving and in the ratio between the two.

Across all classrooms, time on task and time spent in centers were related to achievement outcomes while the frequency of children's private speech was negatively related to both achievement and self-regulation outcomes.

Across all classrooms, frequency of behavior disapproving was negatively related to achievement and self-regulation outcomes, while the frequency of behavior approving was positively related to self-regulation outcomes. *Tools* and Control classrooms did not differ on behavior approving or disapproving.

According to observations of curriculum fidelity, there was variation among the teachers in the degree to which they implemented the curriculum. Virtually all of the *Tools* teachers implemented substantial portions of the curriculum. Mostly

teachers implemented the activities at the appropriate times and chose a variety of easy, medium and difficult types of activities. Ambiguity about what constitutes full implementation makes it difficult to accurately appraise the level of implementation actually attained.

Variations in fidelity of implementation measures across the full group of 32 *Tools* teachers were not associated with greater gains in achievement or self-regulation. Teachers clustered into patterns of implementation. Four of the 32 teachers were consistent high implementers, while 5 were consistently non-implementers. A substantial group ceased implementing very much at the last observation in late spring. It would be worth exploring why once high implementers dropped off so dramatically and why so few teachers could implement the curriculum at a high level all year.

High and low implementers were found across the five systems, suggesting that the effects were not due to differences in coaching.

Observational measures of fidelity were somewhat consistent with ratings of high implementation provided by *Tools* trainers, coaches, project classroom observers, and the teachers themselves.

Comparisons between the 8 classrooms rated by observers and trainers as having the highest fidelity and the remaining 24 *Tools* classrooms revealed positive effects on a few achievement and self-regulation outcomes, as well as teacher ratings. But those 8 teachers did not form a cluster of implementation scores. Several were in the drop off group.

The key components of *Tools of the Mind* are Make Believe Play and Play Planning. Preliminary analyses suggest an unexpected negative relation between better executed Play and Planning and gains in achievement and self-regulation. Those who did these key components better and for longer had children who made lower achievement and self-regulation gains.

APPENDIX

Provided in the Appendix is a listing of every activity in the *Tools of the Mind* curriculum with descriptive information about how many teachers enacted it at each time point with how many steps. Also listed is the number of should not's observed for each activity.

DESCRIPTIVES FOR TOOLS CLASSROOM ACTIVITIES, STEPS, AND SHOULD NOTS BY OBSERVATION TIME POINT

Activities	Observation 1		
	N Teachers Completing Activity	Appropriate* Step Means	Should Not Means
Large Group			
Mystery Question (Maximum Steps = 5)	20	3.5	1.1
Mystery Shape (4)	9	3.3	1.8
Mystery Word	1	--	0.0
Mystery Numeral	0	--	--
Mystery Pattern	0	--	--
Mystery Letter	1	--	1.0
Mystery Rhyme	0	--	--
Timeline Calendar (5)	31	3.6	1.5
Weather Graphing (3)	31	2.9	1.0
Message of the Day (6)	30	4.3	1.0
Message of the Day Write Along	0	--	--
Share the News (6)	25	3.8	1.0
Share and Tell (5)	0	--	--
Tally	0	--	--
Write Along a Familiar Song/ Finger Play	0	--	--
Make a Rhyme	0	--	--
Take Away Sounds	0	--	--
Class Schedules (3)	5	2.5	--
Make Believe Play			
Make Believe Play Planning (9)	26	6.3	1.7
Make Believe Play Practice (4)	17	2.2	1.0
Make Believe Play (5)	25	2.8	1.3
Make Believe Play Cleanup (3)	24	2.3	1.2

Notes: Bold font indicated activities that were appropriate to implement at the presented observation. Appropriateness of activities and steps were identified based on the *Tools* curriculum's designation of suitable timing for implementation. Means reflect the average number of appropriate steps and should not's observed for those teachers who implemented the activity. See Table for overview of implementation timing for the activities and steps.

Activities	Observation 1		
	N Teachers Completing Activity	Appropriate Step Means	Should Not Means
Math/Science			
Remember and Replicate (8)	9	6.2	1.0
Puzzles and Manipulatives (3)	2	1.5	1.0
Math Memory (8)	3	5.7	--
Science Eyes (6)	4	4.3	2.0
Numeral Game	1	--	0.0
Venger Drawing	0	--	--
Attribute Game	0	--	--
Numberline Hopscotch	1	--	0.0
I have who has Colors	8	--	1.0
I have who has Numbers	0	--	--
I have who has Shapes	1	--	0.0
Making Collections (11)	5	9.0	--
Patterns with Manipulatives	1	--	--
Math/Science			
Graphics Practice (9)	17	6.2	1.0
Buddy Reading (6)	14	3.5	1.6
Elkonin Boxes 1: Jumping the Sounds	0	--	--
Elkonin Boxes 2: Token Game	0	--	--
I have who has Letters	1	--	2.0
Story Lab			
Story Lab: Active Listening (6)	19	3.4	1.4
Story Lab: Connections (5)	8	2.3	1.3
Story Lab: Vocabulary (6)	6	2.3	1.0
Story Lab: Learning Facts (5)	1	2.0	0.0
Story Lab: Visualization (7)	3	4.3	1.0
Story Lab: Grammar	0	--	--
Story Lab: Extensions	1	--	3.0
Story Lab: Predictions and Inferences	1	--	0.0

Activities	Observation 1		
	N Teachers Completing Activity	Appropriate Step Means	Should Not Means
Activities Through the Day			
Attention Focusing Activities (5)	21	2.5	0.0
Freeze Game (4)	27	3.8	1.3
Partner Freeze	1	--	0.0
Two Step Freeze	0	--	--
Freeze on Number	0	--	--
Pattern Movement Game (7)	6	5.5	1.0
Complete and Continue	0	--	--
Number Follow the Leader	0	--	--
Pretend Transitions (3)	10	2.3	1.0
Community Building Activities (3)	1	1.0	0.0
I have who has Name Game (6)	2	4.5	0.0
Mousetrap	0	--	--
What are you doing Mr Wolf?	0	--	--

Activities	Observation 2		
	N Teachers Completing Activity	Appropriate Step Means	Should Not Means
Large Group			
Mystery Question	5	--	2.0
Mystery Shape (6)	7	3.2	2.0
Mystery Word (3)	11	2.5	1.7
Mystery Numeral (3)	9	2.6	1.0
Mystery Pattern	1	--	0.0
Mystery Letter	0	--	--
Mystery Rhyme	0	--	--
Timeline Calendar (7)	32	3.8	1.0
Weather Graphing (3)	29	2.7	1.0
Message of the Day (7)	29	5.3	1.0
Message of the Day Write Along	0	--	--
Share the News (5)	27	2.9	0.0
Share and Tell (5)	0	--	--
Tally	0	--	--
Write Along a Familiar Song/ Finger Play	0	--	--
Make a Rhyme	0	--	--
Take Away Sounds	0	--	--
Class Schedules (3)	10	2.7	--
Make Believe Play Block			
Make Believe Play Planning (10)	5	7.8	2.0
Make Believe Play Practice (4)	7	2.3	2.0
Make Believe Play (7)	11	3.8	1.7
Make Believe Play Cleanup (3)	9	2.3	1.0

Activities	Observation 2		
	N Teachers Completing Activity	Appropriate Step Means	Should Not Means
Math/Science			
Remember and Replicate (8)	1	6.0	0.0
Puzzles and Manipulatives	3	--	1.0
Math Memory (8)	8	5.8	--
Science Eyes (7)	3	6.0	0.0
Numeral Game(5)	3	4.7	0.0
Venger Drawing (5)	9	4.3	--
Attribute Game (4)	2	3.5	--
Numberline Hopscotch (4)	5	3.6	1.0
I have who has Colors (8)	8	5.3	0.0
I have who has Numbers (8)	3	6.0	0.0
I have who has Shapes (8)	3	5.7	0.0
Making Collections (11)	4	7.5	--
Patterns with Manipulatives	1	--	--
Math/Science			
Graphics Practice (8)	17	5.6	1.3
Buddy Reading (9)	15	4.0	1.3
Elkonin Boxes 1: Jumping the Sounds	0	--	--
Elkonin Boxes 2: Token Game	0	--	--
I have who has Letters (8)	7	5.3	1.5
Story Lab			
Story Lab: Active Listening (6)	16	3.1	1.0
Story Lab: Connections (5)	8	2.6	1.7
Story Lab: Vocabulary (6)	7	2.9	1.0
Story Lab: Learning Facts (6)	3	3.0	0.0
Story Lab: Visualization (7)	2	6.0	1.0
Story Lab: Grammar (10)	2	7.0	1.0
Story Lab: Extensions (9)	4	4.5	0.0
Story Lab: Predictions and Inferences	0	--	--

Activities	Observation 2		
	N Teachers Completing Activity	Appropriate Step Means	Should Not Means
Activities Through the Day			
Attention Focusing Activities (5)	22	2.6	1.0
Freeze Game (5)	24	4.6	1.5
Partner Freeze	0	--	--
Two Step Freeze	0	--	--
Freeze on Number (4)	4	3.8	1.0
Pattern Movement Game (7)	7	5.0	1.5
Complete and Continue (7)	0	--	--
Number Follow the Leader (4)	0	--	--
Pretend Transitions (3)	12	2.3	1.0
Community Building Activities (3)	1	2.0	0.0
I have who has Name Game (6)	1	4.0	0.0
Mousetrap	0	--	--
What are you doing Mr Wolf?	0	--	--

Activities	Observation 3		
	N Teachers Completing Activity	Appropriate Step Means	Should Not Means
Large Group			
Mystery Question	2	--	0.0
Mystery Shape	2	--	0.0
Mystery Word (7)	8	2.3	1.3
Mystery Numeral (6)	5	4.2	0.0
Mystery Pattern (6)	4	3.5	0.0
Mystery Letter (4)	5	3.2	1.0
Mystery Rhyme (4)	6	3.2	0.0
Timeline Calendar (8)	32	4.8	1.1
Weather Graphing (3)	28	2.8	1.0
Message of the Day (8)	28	6.1	1.3
Message of the Day Write Along (7)	6	4.8	1.0
Share the News (5)	23	3.1	1.0
Share and Tell (5)	0	--	--
Tally (4)	2	3.0	--
Write Along a Familiar Song/ Finger Play (5)	0	--	--
Make a Rhyme (5)	0	--	--
Take Away Sounds (7)	1	5.0	0.0
Class Schedules (3)	6	2.5	--
Make Believe Play Block			
Make Believe Play Planning (11)	30	7.9	1.9
Make Believe Play Practice (8)	11	3.2	1.0
Make Believe Play (11)	28	4.5	1.2
Make Believe Play Cleanup (3)	24	2.2	1.3

Activities	Observation 3		
	N Teachers Completing Activity	Appropriate* Step Means	Should Not Means
Math/Science			
Remember and Replicate (8)	2	6.0	0.0
Puzzles and Manipulatives	2	--	1.0
Math Memory (12)	0	--	--
Science Eyes (10)	5	4.0	1.0
Numeral Game (7)	1	4.0	0.0
Venger Drawing (6)	6	3.8	--
Attribute Game (6)	5	5.2	--
Numberline Hopscotch (6)	1	5.0	1.0
I have who has Colors (8)	6	5.4	1.0
I have who has Numbers (8)	3	5.5	0.0
I have who has Shapes (8)	4	5.3	0.0
Making Collections (11)	6	8.8	--
Patterns with Manipulatives (5)	3	3.7	--
Math/Science			
Graphics Practice (11)	16	6.6	1.0
Buddy Reading (9)	12	3.1	1.2
Elkonin Boxes 1: Jumping the Sounds (5)	1	1.0	0.0
Elkonin Boxes 2: Token Game (4)	0	--	--
I have who has Letters (8)	11	5.3	1.0
Story Lab			
Story Lab: Active Listening (6)	18	2.9	1.2
Story Lab: Connections (5)	11	2.4	1.2
Story Lab: Vocabulary (6)	4	2.5	0.0
Story Lab: Learning Facts (7)	3	3.7	0.0
Story Lab: Visualization (8)	2	4.0	1.0
Story Lab: Grammar (10)	1	6.0	0.0
Story Lab: Extensions (10)	5	5.6	1.0
Story Lab: Predictions and Inferences (6)	3	3.7	0.0

Activities	Observation 3		
	N Teachers Completing Activity	Appropriate* Step Means	Should Not Means
Activities Through the Day			
Attention Focusing Activities (6)	20	2.2	1.0
Freeze Game (5)	14	4.8	0.0
Partner Freeze (7)	8	6.0	0.0
Two Step Freeze (4)	4	4.0	0.0
Freeze on Number (5)	6	4.2	0.0
Pattern Movement Game (9)	5	4.6	1.0
Complete and Continue (7)	1	6.0	0.0
Number Follow the Leader (5)	0	--	--
Pretend Transitions (3)	9	2.2	1.0
Community Building Activities	0	--	--
I have who has Name Game (6)	1	4.0	0.0
Mousetrap (5)	0	--	--
What are you doing Mr Wolf? (5)	0	--	--