

5. *Place instruction in a meaningful context.* Educators today are moving away from abstract presentations of material, instead providing students with opportunities to experience learning in real-world settings. For example, instead of just memorizing math formulas, students work on math problems that have real-world implications.

With Vygotsky's theory in mind, let's examine an early childhood program that reflects these concepts. Tools of the Mind is an early-childhood education curriculum that emphasizes children's development of self-regulation and the cognitive foundations of literacy. The curriculum was created by Elena Bodrova and Deborah Leong (2007, 2015) and has been implemented in more than 200 classrooms. Most of the children in the Tools of the Mind programs are considered at risk of academic failure because of their living circumstances, which in many instances are characterized by poverty and other difficult conditions such as being homeless and having parents with drug problems.

Tools of the Mind is grounded in Vygotsky's (1962) theory, with special attention to cultural tools and the development of self-regulation, the zone of proximal development, scaffolding, private speech, shared activity, and play as important activity. In a Tools of the Mind classroom, dramatic play has a central role. Teachers guide children in creating themes that are based on the children's interests, such as treasure hunt, store, hospital, and restaurant. Teachers also incorporate field trips, visitor presentations, videos, and books in the development of children's play. They help children develop a play plan, which increases the maturity of their play. Play plans describe what the children expect to do in the play period, including the imaginary context, roles, and props to be used. The play plans increase the quality of their play and self-regulation.

Scaffolding children's writing is another important theme in the Tools of the Mind classroom. Teachers guide children in planning their own message by drawing a line to stand for each word the child says. Children then repeat the message, pointing to each line as they say the word. Then the child writes on the lines, trying to represent each word with some letters or symbols.

Research assessments of children's writing in Tools of the Mind classrooms revealed that they have more advanced writing skills than do children in other early childhood programs (Bodrova & Leong, 2007, 2015). For example, they write more complex messages, use more words, spell more accurately, show better letter recognition, and have a better understanding of the concept of a sentence. The effectiveness of the Tools of the Mind approach also was examined in another study of 29 schools, 79 classrooms, and 759 students (Blair & Raver, 2014). Positive effects of the Tools of the Mind program were found for the cognitive processes of executive function (improved self-regulation, for example) and attention control. Further, the Tools of the Mind program improved children's reading, vocabulary, and mathematics at the end of kindergarten and into the first grade. The most significant improvements occurred in high-poverty schools.

Evaluating Vygotsky's Theory

How does Vygotsky's theory compare with Piaget's? We already have mentioned several comparisons, such as Vygotsky's emphasis on the importance of inner speech in cognitive development and Piaget's view that such speech is immature. Figure 7 compares the two theories. The implication of Piaget's theory for teaching is that children need support to explore their world and discover knowledge. The main implication of Vygotsky's theory is that students need many opportunities to learn with a teacher and more-skilled peers (Gauvain, 2016; Holtzman, 2017). In both theories, teachers serve as facilitators and guides rather than as directors and molders.

Even though their theories were proposed at about the same time, most of the world learned about Vygotsky's theory later than they learned about Piaget's, so Vygotsky's theory has not yet been evaluated as thoroughly. Vygotsky's view of the importance of sociocultural influences on children's development fits with the current belief that it is important to evaluate contextual factors in learning (Yu & Hu, 2017).

Some critics say that Vygotsky was not specific enough about age-related changes (Gauvain & Perez, 2015). Another criticism is that he overemphasized the role of language in thinking. His emphasis on collaboration and guidance also has potential