

Promoting Self-Regulation in Early Years: Tools of the Mind

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Abstract

The aim of this paper is to provide information and suggest ways to develop young children's self-regulation through Tools of the Mind program. Characteristics of preschool and kindergarten children indicate their potential for the development of self-regulation. They are capable of voluntary control of their emotions, their social interactions, and problem-solving activities (Bronson, 2000). Self-regulatory abilities are of fundamental significance for children's general and academic development. Research point to the need for children to develop self-control, self-direction, and positive strategies to cope with life situations which of these abilities has been accepted as a form of self-regulation (Bronson, 2000). Tools of the Mind is a program developed based on Lev Vygotsky's views with a particular aim of promoting children's self-regulation. This paper reviews the need for development of self-regulation in early years and how Tools of the Mind program supports this skill. The risks of the lack of self-regulation and its results in early childhood learning environments are discussed within the paper. The components of the Tools program are revealed within activity examples. The implementation of developmentally appropriate and play based activities in an enjoyable manner help children improve their thinking and enhance self-regulatory skills. Children practice self-regulation through carefully designed academic activities and make-believe play. The article underlies the need for self-regulation in early years and suggest ways to promote self-regulation.

Keywords: self-regulation, early childhood education, tools of the mind

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Erken Çocukluk Döneminde Öz-Düzenleme Becerilerinin Desteklenmesi: Zihnin Araçları Programı

Öz

Çalışmanın amacı öz-düzenleme becerilerinin okulöncesi dönemde desteklenmesinin gerektiğine dikkat çekmek ve bu amaçla tasarlanan zihnin araçları programının öz-düzenleme becerilerini nasıl desteklediği hakkında bilgi vermektir. Öz-düzenleme çocukların dikkatini verme, hareket ve davranışlarını kontrol etme, amacına uygun bir şekilde hareket etme, sosyal ilişkilerinde empati kurma ve işbirliği yapma becerilerini kapsar. Bu becerilerin okulöncesi dönemde edinilmemesi çocuklarda akademik problemler, anti-sosyal davranışlar ve okula karşı isteksiz tutum ile sonuçlanmaktadır. Bunların yanında öz-düzenleme becerilerine erken çocukluk döneminde yeterince önem verilmemesi çocukların ileriki dönem başarılarını da olumsuz etkilemektedir. Bu nedenlerle çocukların öz-düzenleme becerilerine yönelik etkinlik önerileri içeren ve öğretmen uygulamaları öneren zihnin araçları programı çalışmanın temel felsefesini oluşturmaktadır. Zihnin araçları programı akademik ve sosyal becerilerden özellikle dil ve bilişsel gelişim alanlarını hedef alan bir uygulama önerisidir. Program dahilinde öğretmen rolünde, öğrencilerin rolünde ve müfredat içeriğinde bu başarıyı hedef alan basamaklar bulunmaktadır. Program temelini Lev Vygostky'nin çocuk gelişimi ve öğrenmesine yönelik kuramından almaktadır ve kuramın okulöncesi öğrenme ortamlarında uygulanmasına yönelik bir sistem olarak literatüre yansımaktadır. İçsel isteklendirme, öz-düzenleme ve oyun programın önemli karakteristiklerini oluşturmaktadır. Uluslararası literatürde zihnin araçları programının özellikle öz-düzenleme ve dil gelişimi boyutlarına yönelik araştırmalar bulunmaktadır. Bu araştırmalardan elde edilen sonuçlar çocukların öz-düzenleme becerilerinde artış olduğunu, nörobilişsel testlerde daha yüksek sonuçlar aldıklarını, ses ve dil çalışmalarında başarılı olduklarını göstermektedir. Bu çalışma ile literatürde henüz yeri çok az olan öz-düzenleme becerilerinin okulöncesi dönemde desteklenmesi gerektiğine dikkat çekmek amaçlanmaktadır. Öz-düzenleme becerilerinin akademik etkinlikler dahilinde destekleyen zihnin araçları programı hakkında bilgi verilmiştir. Okulöncesi öğretmenlerine öz-düzenleme becerilerinin erken dönemde nasıl destekleneceğine yönelik uygulama tabanlı öneriler sunulmuş ve etkinlikler tanıtılmıştır.

Anahtar Sözcükler: öz düzenleme becerileri, erken çocukluk eğitimi, zihnin araçları

Introduction

What is Self-Regulation?

Self-regulation is a mechanism enabling to control one's impulses and doing something because it is needed. Children with self-regulatory abilities can think on possible consequences of their actions and consider alternative actions that would be more appropriate depending on the condition (Bodrova & Leong, 2008). For example, children generally know that they should solve their problems by talking, but only children with self-regulatory abilities are able to use them and talk instead of fighting. This skill is not used only in social interactions (emotional self-regulation), but in thinking (cognitive self-regulation) as well. For example, to see the number three when it appears under a sheet with four apples, a child with a level of self-regulation will overcome the desire to think on the sheet and consider the number of apples (Bialystok & Martin, 2003; Bodrova & Leong, 2008). These two facets of self-regulation - emotional and cognitive- are related. For example four year old children who are not able to control their emotions have difficulty while following an adult's directions when they are six and will not become reflective learners in next grades (Bodrova & Leong, 2007). Self-regulation should not be confused with obedience or compliance. Children with higher levels of self-regulation know how to behave when an adult is not watching them. They can digest their impulses long enough to determine the most appropriate actions.

Understandings concerning self-regulation are influenced by the thoughts of Lev Vygotsky (1978). Vygotsky, with his writings, focused on the higher mental processes involved in self-regulation. Self-regulated learning is “an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition,” (Pintrich and Zusho 2002, p. 250). Self-regulated students are meta-cognitively, socially, motivationally, and behaviorally active in problem solving processes. Students who are advanced self-regulators typically prompt meta-cognitive strategies: self-verbalization, self-evaluation, and self-consequences (self-provided rewards or punishments) in order to successfully decode (comprehend and interpret) and encode new information which generates internal feedback.

Why Self-Regulation?

Bronson (2000) emphasized on the need for children to develop self-control, self-direction, and positive strategies for life situations. Early childhood education programs upgrade their instruction to increase children's academic capabilities, however many children have problems with learning reading, writing and early math skills. One of the reasons behind this problem that should be considered is children's lack of self-regulation (Bodrova & Leong, 2005). Even appropriate materials are covered by teachers, many children are not paying attention and have difficulties

with following directions. These children also get trouble with their peers. Teachers begin to use their efforts to manage the classroom rather than effective teaching in such situations (Bodrova & Leong, 2005).

Research has drawn attention to the contributions of self-regulation to learning (Veenman & Spaans, 2005; Wang, Haertel, & Walberg, 1990). Early development of executive-functioning and self-regulatory abilities have fundamental roles for children's readiness to school and their academic abilities (Blair & Diamond, 2008; Blair & Razza, 2007). Children with early emotion regulation abilities found more easily following instructions, focusing attention, and cooperating with peers and teachers (Rubin, et al., 1999).

Table 1

Myths and Adult Implementations (adapted from Bodrova & Leong, 2005)

Myths	Implementations	Results
Children are immature to control their own	Waiting for children to become mature	Children are not provided to develop self-regulation. Teachers get difficulty to cope with misbehaviors.
If children have inadequate self-regulatory skills, they experience a medical condition, such as ADHD	Identification and diagnosing	Children who might not need are put on medication.
Children with less self-regulatory skills have aggressive personalities.	Instituting "you are out" role	Increase in expulsion rates
Teacher control is the solution for children to learn to regulate their own.	Teacher-directed activities	Children lack of experiencing self-initiated activities
Parents do not let children to learn self-regulation	Blaming parents, attempting to change parenting practices	Children miss the opportunity to develop self-regulation in class.

Self-Regulation and Tools of the Mind

Tools of the Mind is an early childhood curriculum based on the theory of Lev Vygotsky. The approach that shaped the pedagogy of the Tools of the Mind is that cognitive and social-emotional self-regulation are accepted as an integrated unit. Practices suggested by this program have been linked with self-regulation skills with short term and long term results. Schools should provide for children to develop social and cognitive skills that allow them to become self-regulated learners who can establish positive social relationships in the teaching and learning process and to adopt to specific situations such as following directions, motivation to learn, having tendency and willingness to play by the class rules.

In a Tools classroom children are provided learning opportunities to practice these skills. In such a classroom teachers do not use reward or punishment for behavior management. In many programs teachers are given suggestions specifically on classroom management. Activities are designed to promote social and emotional skills in children with problematic behaviors. In Tools classrooms activities are designed to promote self-regulation capabilities of children. So, children learning “*paying attention, remembering on purpose, and being able to flexibly move from one aspect of a learning task to another*” do not need extra effort to be managed.

Tools of the Mind is systematic intervention program comprehending all of the elements in a learning environment with two major aims: promoting self-regulation and improving academic outcomes. Cognitive and social-emotional aspects of self-regulation are combined each other and they are embedded in academic content and make-believe play. Children experiencing such kind of activities practice self-regulation while strengthening their academic capabilities. In Tools program assessment is integrated with the curriculum. Dynamic assessment which individualizes children’s learning styles is clearly linked to the instruction.

Throughout the Tools curriculum, activities purposefully supporting self-regulation are made available. Children are supported to use *mental tools* to use self-regulatory behaviors independently. The acquisition of mental tools help children gain control of their behaviors, both internal and external. Children learn to participate in their learning rather than just recipients of instruction. It is emphasized by the program that these skills are not often the result of teaching only letters and using flashcards.

As a post-Vygotskian perspective, it is emphasized throughout the program that the emergence of self-regulation depends on social interaction. Children’s engagement in “other-regulation” supports their self-regulation. Activities promoting children to regulate their behaviors by another person’s behaviors and promoting children to regulate others’ behaviors are necessary conditions for self-regulation.

Children in Tools classrooms are provided individualized scaffolding interactions linked to Zone of Proximal Development to be able to perform a new task independently. So the activities address to children with different learning styles and capabilities. Tools teachers aim to individualize scaffolding and teaching to support self-regulation rather than teaching directly to the classroom.

The fundamental characteristics presented above both serve as a tool to support self-regulation. However, teachers require making changes in their instructional practices, and behavior and classroom management strategies.

Table 2

Traditional and Tools Practices (adapted from Bodrova & Leong, 2007)

Traditional Practices	Tools Practices
Teachers widely use reinforcement as a strategy to motivate children.	Tools teachers support children's intrinsic motivation rather than external drive. Teachers carefully design activities to allow children to self-monitor, plan and follow through. Children find opportunities to practice how to behave when an adult is not there.
Teachers focus on teaching, selecting contents, and correcting children's errors.	Teacher's focus is on children to help them correct their errors. They need a deep understanding for effective feedback and scaffolding.
Assessment is widely practiced as a separate component and placed at the end of the activity.	Tools teachers use dynamic assessment and focus on immediate feedback to help child understand his/her mistake in real-time.
Children who get difficulty with class rules need help from the teachers.	Teachers have to let children develop strategies to control their impulses and adapt to classroom rules.
Teachers use "time out" rule for children with aggressive behaviors.	Teachers understand children's aggressive behaviors; see these behaviors as learning goals to develop self-regulation skills.

Mental Tools for Self-Regulation

Mental tools foster children to transform from the most scaffolded performance to the independent one. Effective usage of zone of proximal development enables children to be independent workers. First phase of this process involves new tools created by an adult. Then children are encouraged to use these tools in their activities to perform better. At the last phase the children internalize the tool and adapt it to the new conditions. Children maintain the higher performance level that they reach with the assistance of an adult independently as they learn to use the mental tools effectively. Mental tools should be used when children need them. As children acquire the new skill, the mental tool used to support the skill should be removed from the content (Bodrova & Leong, 2007).

Mediators are an example of mental tools that is "...something that stands as an intermediary between an environmental stimulus and an individual response to that stimulus" (as cited in Bodrova & Leong, 2001, p.51). Mediators are tools to help children work independently, solve problems, and to transition from lower to higher mental processes. Teachers, in that case, have to plan activities, what the mediators will be to support children work without assistance. Props created by the teacher are

examples of mediators. For example in the activity “attribute game” the teacher prepares attribute men. The children sort the objects depending on the attribute men that the teacher holds. In another example, “buddy reading” one child reads the story while the other one listens. The reader holds paper lips and the listener holds paper ears. These mediators help keep the children in their roles.

Play is another tool lead to the development of higher mental functions. Mature and intentional make-believe play is a fundamental part of the program. Children are supported to use toys and props in a symbolic way, develop consistent and extended scenarios based on a story, have a pretend role in play, and follow the rules on things that each pretend character can or cannot do. Play is found to contribute to the development of cognitive self-control and regulation (Karpov, 2005). Bodrova and Leong (2005) emphasized on that dramatization and make-believe help children to foster interpersonal skills and self-regulation. Vygotskian view considers language as an important component for cognitive development. Play also provides opportunities for verbal interactions with peers and teachers.

Private speech serves as a mental tool in Tools program. The regulation of the flow of the cognitive processes is observed when children used private speech (Vygotsky, 1987). Like other mental tools, private speech is dependent on the recognition of the teacher of the child’s zone of proximal development. Open-ended activities and questions fostering children to think on their work are crucial to encourage children’s private speech. Group work is essential for these learning activities so that dialogue can be a tool to solve problems together (Bodrova & Leong, 2007).

Recognizing the importance of self-regulation, activities fostering self-regulation is also resulted with effective classroom management practices. Children’s self-regulatory behaviors make them need less assistance of teachers and follow the directions easily. Teachers, with less control over children, give more effort on scaffolding and dynamic assessment rather than coping with problematic behaviors (Bodrova & Leong, 2007).

40 Vygotsky-inspired activities are incorporated by the Tools curriculum. Promoting dramatization and make-believe play, encouraging the use of self-regulation, fostering private speech, facilitating attention and memory are the fundamental aims of these activities. There are activities included in the curriculum that specifically focus on self-regulation: Play plans and learning plans (Bodrova & Leong, 2010).

Play Plans: Children draw or write their roles in play and learn to plan and monitor their performance. At the beginning of their play children are expected to follow their plans. The play is modified as the children interact with their peers, share their plans and new make-believe situations evolve. Children find opportunity to be decision-makers of their actions and evaluate the ways they acted based on

their play plans. Children learn how to modify their plans, decide rules for the next scenarios which helps them to regulate one another.

Learning Plans: This is an activity that children observe and evaluate their performance in class activities. Children monitor their activities and remember the learning centers that they have visited and not visited through the plans. Children plan which work to accomplish in centers.

Buddy Reading, The Numerals Game, Scaffolded Writing, Graphics Practice, Wenger Drawing are other activities included in the Tools curriculum in which self-regulation is embedded in academic content (Bodrova & Leong, 2007). They support self-regulatory skills of children. Children firstly learn to be regulated by others and regulate others and then they practice to regulate themselves. Children regulate themselves through mental tools such as reminders, props, and music. For example in Graphics Practice music is used as an external mediator to support children's self-regulation. Children response to musical cues during the activity and use private speech. In Buddy Reading, children read the books to each other. While they are taking turns to read and listen they use external mediator cards to remind them their roles. Wenger Drawing is a famous activity in Tools curriculum to teach geometric shapes. Children work in small groups and plan a geometric shape to draw. Children are given opportunity to tell their plan and create their planning for the representation of the shape.

The activities serve for different academic purposes with common components. They indicate the translation of Vygotskian perspective into practice in early childhood learning environments. Children improve their academic skills through social interaction and scaffolding. Scaffolding is done both by the teacher or a mediator designed by the teacher considering zone of proximal development. The assistance of the teacher decreases in time and children are encouraged to be independent learners and regulate themselves. Children learn to control their behaviors through mental tools and practice developmentally appropriate self-regulation activities.

Promoting Development of Self-Regulation

Bodrova and Leong (2008) suggested four simple strategies for teachers to promote children's development of self-regulation.

1) Promote all of the children's self-regulatory skills: Self-regulation is a skill that is not needed by children with problems. Practicing purposeful behaviors are beneficial for all of the children. Following the rules with an intentional manner, regulating one's behaviors are both emotionally and cognitively beneficial for children's whole development and learning process.

2) Make children experience mediators with a responsive and supportive manner: Children may seem to regulate their behaviors, when in fact they are teacher regulated. Becoming pseudoregulated is a risk when children are always regulated by

teachers. Teachers should create opportunities for children to practice and internalize the rules of a particular behavior. Three different contexts are recommended for teachers to make children be adapted to the new process. Firstly children will follow the rules by the regulation of the teacher. Then they should regulate their friends in terms of following the rules. Lastly, children should implement the rules to themselves and monitor themselves. For example, when children are playing in the playground, firstly they need to follow the teacher's rules, then children set rules for each other and make sure that nobody breaks those rules, lastly a child wants to jump to another play in the playground remembers that h/she needs to finish the play first.

3) Provide children visual and tangible reminders to regulate themselves: Children's memory and attention need concrete and hands-on materials as they are at early stages of learning self-regulation. For example, teachers may provide microphone for children who are talking during a whole group discussion and make the children who have difficulty while waiting their turns understand that the one holding the microphone only can be heard.

4) Make play an important part of the curriculum: Play is a magical tool in early years with serving different academic and social outcomes. It is also an opportunity for children to regulate their behaviors without an adult's control. Different roles the take on and different scenarios they act make them practice self-regulation.

Conclusions and Implementations

The need for self-regulation in early years and a program aiming to address this need are given within this study with practicable examples of teacher implementations.

The outcomes of Tools curriculum on children increase its importance in early years. Self-regulated learning, focused attention, deliberate memory, task orientation, positive peer interactions, and improved literacy and math skills are the observed outcomes of the curriculum that makes it to be experienced by early childhood teachers (Barnett, Jung, Yarosz, Thomas, Hornbeck, & Stechuk, 2008).

These possible outcomes have led several researchers to take attention to the development of self-regulation in early childhood classrooms. Recent articles have called for research into curriculum that will foster the self-regulation (Diamond & Lee, 2011; Hughes, 2011). Tools of the Mind is a curriculum with a focus of self-regulation embedded in academic content. The activity examples, teacher roles, and children's roles given in detail serve as a valuable resource for teachers to implement the program in their classrooms.

References

- Barnett, W. S., Jung, K., Yarosz, D., Thomas, J., Hornbeck, A., Stechuk, R., et al. (2008). Educational effects of the tools of the mind curriculum: A randomized trial. *Early Childhood Research Quarterly, 23*(3), 299-313.
- Bialystok, E., & Martin, M. M. (2003). Notation to symbol: Development in children's understanding of print. *Journal of Experimental Child Psychology, 86*, 223-243.
- Blair, C., & A. Diamond. 2008. Biological Processes in Prevention and Intervention: The Promotion of Self-Regulation as a Means of Preventing School Failure. *Development and Psychopathology, 20*, 899-911.
- Blair, C., & R.P. Razza. 2007. Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. *Child Development 78* (2), 647-63.
- Bodrova, E. & Leong, D. J. (2001). Vygotsky, the Mozart of psychology. *Early education today 15*(4), 48.
- Bodrova, E. & Leong, D. J. (2005). Why children need play. *Early Childhood Today, (20)*1, 6.
- Bodrova, E. & Leong, D. J. (2005). Self-regulation: A foundation for early learning. *Early Childhood, 20*(1), 6.
- Bodrova, E. & Leong, D. J. (2007). *Tools of the mind: the Vygotskian approach to early childhood education* (2nd ed.). Columbus, OH: Merrill/Prentice Hall.
- Bodrova, E., Leong, D. J. (2008) Developing self-regulation in young children: Can we keep all the crickets in the basket? *Young Children, 63* (2), pp. 56-58
- Bronson, M.B. 2000. *Self-regulation in early childhood: Nature and nurture*. New York: Guilford.
- Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in children 4-12 years old. *Science, 333*, 959-964.
- Hughes C. (2011). Changes and challenges in 20 years of research into the development of executive functions. *Infant Child Development. 20*, 251-271
- Karpov, Y. 2005. *The Neo-Vygotskian approach to child development*. New York: Cambridge University Press.
- Pintrich, P. R., & Zusho, A. (2002). *The development of academic self-regulation: The role of cognitive and motivational factors*. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 249- 284). San Diego, CA: Academic
- Rubin, K. H., Nelson, L. J., Hastings, P. D., and Asendorpf, J. (1999). The transaction between parents' perceptions of their children's shyness and their parenting styles. *International Journal of Behavioral Development, 23*, 937-957.
- Veenman, M. V. J., & Spaans, M. A. (2005). Relation between intellectual and metacognitive skills: Age and task differences. *Learning and Individual Differences, 15*, 159-176.

- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1987). Thinking and speech (N. Minick, Trans.). In R. W. Rieber & A. S. Carton (Eds.), *The collected works of L. S. Vygotsky: Vol. 1. Problems of general psychology* (pp. 39-285). New York: Plenum Press. (Original work published 1934)
- Wang, M. C., Haertel, G. D., & Walberg, H. J. (1990). What influences learning? A content analysis of review literature. *Journal of Educational Research*, 84(1), 30-43.

