



Illinois State Board of Education

Research Summary:

Approaches to Learning – Self-Regulation (ATL-REG) Domain in the DRDP-K (2015) and KIDS (2015) Kindergarten Assessment Instruments

The **Approaches to Learning – Self-Regulation (ATL-REG)** domain assesses two interrelated areas that are recognized as important for children’s school readiness and success. Approaches to learning and self-regulation have been combined into one assessment domain because of the strong connections between these two areas of development. The approaches to learning skills and behaviors include engagement and persistence, and curiosity and initiative. The self-regulation skills include self-control of feelings and behavior, and shared use of space and materials. Each is associated with the development of *executive function skills* that support the child’s self-regulation of attention, thinking, and behavior (Center on the Developing Child, 2011).

The developmental processes identified in all four measures of the ATL-REG domain are each associated with the development of *executive function skills*. *Executive function skills*, which are developing cognitive capacities that manage more basic mental and behavioral processes (Center on the Developing Child, 2011; Zelazo & Muller, 2002), appear to be particularly important to school readiness because they affect children’s capacity to engage in learning activities, to persist when doing challenging tasks, and to regulate their behavior when frustrations arise in daily interactions with peers (Vitiello, Greenfield, Munis, & J’Lene, 2011). The most important executive function skills are the growth of behavioral inhibition (resisting an impulse to instead do what is appropriate or necessary), working memory (being able to hold information in mind and use it), cognitive flexibility (including switching perspectives, goals, or mental focus), error detection, and self-monitoring. Each of these capacities develops significantly during the preschool years and continues to develop in the primary grades, in part owing to advances in brain development (Best & Miller, 2010). With the growth of executive function skills, children become more competent in the self-regulation of thinking, attention, behavior, and emotions.

ATL-REG 1: Curiosity and Initiative in Learning

How children approach new learning and problem-solving challenges is a critical feature of their academic success (California Department of Education, 2008, p. 25). Young children’s natural curiosity, interest, and self-confidence in their ability to discover the answers to their questions are a central component of their capacities to benefit from learning opportunities (Thompson, 2002; CDE, 2008, Vol. 1, p. 25).

This measure highlights how children explore the environment in increasingly focused ways to learn about people, things, materials, and events. Children’s natural curiosity, interest, and self-confidence in their ability to discover the answers to their questions are a central



Illinois State Board of Education

component of their capacities to benefit from learning opportunities (Wang & Barrett, 2013). In the early preschool years, children explore how things work through observing, manipulating, or asking simple questions about them. By the later preschool years children are able to use familiar strategies, tools, or sources of information to carry out simple investigations to learn about things, materials, people, or events. By kindergarten, children are able to use strategies, tools, or sources of information systematically to carry out extensive investigations to learn about things, materials, people, or events. The kindergarteners' ability to compare multiple sources of information related to an object, person, or event of interest, their expanding working memory (being able to hold information in mind and compare it with other information), and their developing cognitive flexibility (switching perspectives on the object of interest from different information sources) reflects growth in their capacity to take initiative in learning (Best & Miller, 2010; Center on the Developing Child, 2011). The capacity to compare multiple sources of information is an advance on earlier levels that focus primarily on exploration and investigation of single information sources.

ATL-REG 2: Self-Control of Feelings and Behavior

This measure highlights how children develop strategies for regulating their feelings and behavior that are increasingly independent of adult assistance (Thompson, 2011). In the preschool years, children acquire behavioral strategies for managing their feelings, such as taking turns, substituting words for outbursts, and leaving distressing situations. As they move to the primary grades, children acquire more cognitively oriented strategies for managing their emotions, such as reappraising the situation, changing their goals, and mental distraction (Davis, Levine, Lench, & Quas, 2010; Dennis & Kelemen, 2009). Developing self-regulation also reflects growth in executive function skills, particularly the capacity to inhibit emotionally or behaviorally impulsive responses and instead to respond with words, negotiation, or other socially appropriate behavior (Zelazo & Cunningham, 2007).

ATL-REG 3: Engagement and Persistence

This measure highlights how children grow in their capacity to persist in their understanding and mastery of tasks even if those tasks are challenging or difficult. Early in the preschool years, children enjoy learning and are confident in their ability to make new discoveries, but they may not persist in learning tasks, especially when they encounter obstacles. Later in the preschool years and into kindergarten, children take greater initiative in identifying new solutions, returning to difficult tasks, and persisting to solve problems. The growth of engagement and persistence reflects growth in executive function skills, particularly (a) the cognitive flexibility necessary to devise new solutions to difficult problems, and (b) the capacity to engage in sustained multistep activities that require keeping a superordinate goal in mind while planning and executing the substeps involved in its achievement (Zelazo & Muller, 2002). By contrast, younger children are more likely to become frustrated by difficult problems and distracted in their enactment of multistep procedures, and thus are less likely to persist until the goal is accomplished.



Illinois State Board of Education

ATL-REG 4: Shared Use of Space and Materials¹

This measure highlights children’s developing capacity to share the use of space and materials with others. During the preschool years, children make significant advances in their capacity to share the use of space and materials with others (e.g., Fehr, Bernhard, & Rockenbach, 2008; Hamann, Bender, & Tomasello, 2013; Rochat et al., 2009). Whereas early in preschool, children play more often by themselves and are primarily oriented toward short-term collaboration with peers, later in preschool and into kindergarten children demonstrate a capacity to engage in more sustained collaborative activity involving mutual assistance. Sharing is a psychologically complex achievement for young children as it requires their being able to understand and interpret the feelings, intentions, beliefs, and desires of others (Wu & Su, 2014). It also requires the cognitive flexibility to switch perspectives between one’s own desires and those of one or more peers, and the inhibition of the impulse to secure materials and space for oneself and instead offer to share or secure resources for another. In these respects, sharing draws on developing executive function skills (Best & Miller, 2010; Center on the Developing Child, 2011).

¹ Relates to fairness and respect for others construct addressed in the Preschool Learning Foundations in History-Social Science (CDE, 2008, Vol. 3).



Illinois State Board of Education

References:

Approaches to Learning and Self-Regulation (ATL-REG)

- Best, J. R., & Miller, P. H. (2010). A developmental perspective on executive function. *Child Development, 81*, 1641–1660.
- California Department of Education (CDE). (2008). *California preschool learning foundations* (Vols. 1 & 3). Sacramento, CA: CDE.
- Center on the Developing Child. (2011). *Building the brain's "air traffic control" system: How early experiences shape the development of executive function* (Working Paper No. 11). National Scientific Council on the Developing Child. Retrieved from <http://www.developingchild.harvard.edu>
- Davis, E. L., Levine, L. J., Lench, H. C., & Quas, J. A. (2010). Metacognitive emotion regulation: Children's awareness that changing thoughts and goals can alleviate negative emotions. *Emotion, 10*, 498–510.
- Dennis, T. A., & Kelemen, D. A. (2009). Preschool children's views on emotion regulation: Functional associations and implications for social-emotional adjustment. *International Journal of Behavioral Development, 33*, 243–252.
- Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature, 454*, 1079–1083.
- Hamann, K., Bender, J., & Tomasello, M. (2013). Meritocratic sharing is based on collaboration in 3-year-olds. *Developmental Psychology, 50*, 121–128.
- Rochat, P., Dias, M. D. G., Liping, G., Broesch, T., Passos-Ferreira, C., Winning, A., & Berg, B. (2009). Fairness in distributive justice by 3- and 5-year-olds across seven cultures. *Journal of Cross-Cultural Psychology, 40*, 416–442.
- Thompson, R. A. (2002). The roots of school readiness in social and emotional development. *The Kauffman Early Education Exchange, 1*, 8–29.
- Thompson, R. A. (2011). Emotion and emotion regulation: Two sides of the developing coin. *Emotion Review, 3*(1), 53–61.
- Vitiello, V. E., Greenfield, D. B., Munis, P., & J'lene, G. 2011. Cognitive flexibility, approaches to learning, and academic school readiness in Head Start preschool children. *Early Education and Development 22*(3): 388–410.



Illinois State Board of Education

- Wang, J., & Barrett, K. C. (2013). Mastery motivation and self-regulation during early childhood. In K. C. Barrett, N. A. Fox, G. A. Morgan, D. J. Fidler, & L. A. Daunhauer (Eds.), *Handbook of self-regulatory processes in development: New directions and international perspectives* (pp. 337–380). New York, NY: Psychology Press.
- Wu, Z. & Su, Y. (2014). How do preschoolers' sharing behaviors relate to their theory of mind understanding? *Journal of Experimental Child Psychology*, *120*, 73–86.
- Zelazo, P. D., & Cunningham, W. A. (2007). Executive function: Mechanisms underlying emotion regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 135–158). New York, NY: Guilford.
- Zelazo, P. D., & Muller, U. (2002). Executive function in typical and atypical development. In U. Goswami (Ed.), *Handbook of childhood cognitive development* (pp. 445–469). Oxford, United Kingdom: Blackwell.

Additional References:

Approaches to Learning and Self-Regulation (ALT-REG)

- Alexander, K. L., Entwistle, D. R., & Dauber, S. L. (1993). First-grade classroom behavior: Its short- and long-term consequences for school performance. *Child Development*, *64*, 801–814.
- Altermatt, E. R., Pomerantz, E. M., Ruble, D. N., Frey, K. S., & Greulich, F. K. (2002). Predicting changes in children's self-perceptions of academic competence: A naturalistic examination of evaluative discourse among classmates. *Developmental Psychology*, *38*(6), 903–917.
- Backen Jones, L., Rothbart, M. K., & Posner, M. I. (2003). Development of executive attention in preschool children. *Developmental Science*, *6* (5), 498–504.
- Benenson, J. F., Pascoe, J., & Radmore, N. (2007). Children's altruistic behavior in the Dictator Game. *Evolution and Human Behavior*, *28*, 168–175.
- Blake, P. R., & Rand, D. G. (2010). Currency value moderates equity preference among young children. *Evolution and Human Behavior*, *31*, 210–218.
- Conklin, H., Luciana, M., Hooper, C., & Yarger, R. S. (2007). Working memory performance in typically developing children and adolescents: Behavioral evidence of protracted frontal lobe development. *Developmental Neuropsychology*, *31*, 103–128.



Illinois State Board of Education

- Diamond, A., & Taylor, C. (1996). Development of an aspect of executive control: Development of the abilities to remember what I said and to "do as I say, not as I do." *Developmental Psychobiology*, 29(4), 315–334.
- Dweck, C. S. (2002). The development of ability conceptions. In A. Wigfield & J. S. Eccles (Eds.), *Development of Ability Conceptions*. San Diego, CA: Academic Press.
- Dweck, C. S., & Master, A. (2009). Self-theories and motivation: Students' beliefs about intelligence. In K. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 123–140). New York, NY: Routledge/Taylor & Francis Group.
- Harter, S. (2006). The self. In W. Damon & R. M. Lerner (Eds.), *The handbook of child psychology* (6th ed., pp. 505–570). New Hoboken, NJ: John Wiley & Sons.
- Kopp, C. B. (2002). School readiness and regulatory processes. In L. Sherrod (Ed.), *Social Policy Report* (Vol. 16, No. 3, p. 11). Ann Arbor, MI: The Society for Research in Child Development.
- Kopp, C. B., & Wyer, N. (1994, May). Self-regulation in normal and atypical development. In D. Cicchetti and S. L. Toth (Eds.), *Disorders and Dysfunctions of the Self*. Rochester symposium on developmental psychopathology, vol. 5. Rochester, NY: University of Rochester Press.
- Neitzel, C., Alexander, J. M., & Johnson, K. E. (2008). Children's early interest-based activities in the home and subsequent information contributions and pursuits in kindergarten. *Journal of Educational Psychology*, 100(4), 782–797.
- Renninger, K. A. (2009). Interest and identity development in instruction: An inductive model. *Educational Psychologist*, 44(2), 105–118.
- Renninger, K. A., & Su, S. (2012). Interest and its development. In R. M. Ryan (Ed.), *The Oxford Handbook of Human Motivation* (pp. 167–187). New York, NY: Oxford University Press.
- Stipek, D., Newton, S., & Chudgar, A. (2010). Learning-related behaviors and literacy achievement in elementary school-aged children. *Early Childhood Research Quarterly*, 25, 385–395.
- Waters, S. F., & Thompson, R. A. (in press). Children's perceptions of the effectiveness of strategies for regulating anger and sadness. *International Journal of Behavioral Development*.