

Research Guide

College and Career Competency: *Sustained Attention*

Definition:

Sustained attention is defined in the *Encyclopedia of Clinical Neuropsychology* (Cohen, 2011) as “processes that enable sustained performance on tasks over extended periods of time” (p. 2440). In research literature it is also called “task persistence” (Andersson & Bergman, 2011) or “attention span-persistence” (McClelland, Acock, Piccinin, Rhea, & Stallings, 2013). Sustained attention is the ability to maintain focus in order to finish a task in a thorough and timely fashion despite internal or external distractions. In the classroom, sustained attention is characterized by the student’s ability to “look at, listen to and think about classroom tasks over a period of time” (C8 Sciences, n.d.).

Essential Components for Students:

1. Focus on information that is relevant for completing a task (e.g., listening to the teacher).
2. Manage internal and external distractions in order to work continuously on completing a task.

Research:

- Sustained attention is crucial to employee performance in a wide variety of workplace environments. Workplace tasks involving elevated risk, such as driving a truck, directing air traffic, and performing surgery, require individuals to sustain particularly high levels of attention. Across a range of industries, individuals concerned with organizational performance have begun instituting mindfulness initiatives in an effort to promote sustained attention among employees. A recent study by Good et al. (2016) notes that organizations as diverse as Google and the United States Army have developed training to specifically address sustained attention and other types of attention among their employees.
- Sustained attention is related to executive function and **self-regulation**, and has been found to positively predict social and academic outcomes (McClelland et al., 2013). In fact, some research (Wei, Wang, & Klausner, 2012) suggests that learning cannot occur without sustained attention, and that it is a “vital predictor of academic learning outcomes” (p. 191).
- The capacity for students to acquire foundational academic skills and develop positive learning behaviors largely depends on their ability to maintain focus. Walcott, Scheemaker, and Bielski (2010) note that a lack of sustained attention can negatively impact students’ pre-literacy skills, particularly with regard to developing phonemic awareness and mastering letter naming. As Spira and Fischel’s (2005) research shows, ADHD has an especially debilitating effect on students’ sustained attention and ability to acquire necessary literacy skills at grade level. Simple technological interventions, such as having students read text from a screen instead of from a printed page, can promote sustained attention and reading comprehension among students with ADHD and without it (Stern & Shalev, 2013).

- Once students reach adolescence, sustained attention, coupled with early language development, has a direct effect on their self-reliance and performance in academic areas extending beyond the language arts (Gardner-Neblett, DeCoster, & Hamre, 2014). Research by Gardner-Neblett et al. (2014) shows student achievement in mathematics is inextricably bound to the development of sustained attention skills.
- An individual's ability to sustain attention can make the difference between average and excellent academic performance. Indeed, research by Shi et al. (2013) indicates that one of the chief differences between the academic performances of intellectually gifted students and average students is their respective levels of sustained attention during task completion. Intellectually gifted students, the researchers note, almost uniformly display high levels of concentration over extended periods of time.
- Sustained attention affects students' **social awareness** and **conflict management** skills. Studies by Bennett Murphy, Laurie-Rose, Brinkman, and McNamara (2007) and Spira and Fischel (2005) show a strong connection between students' sustained attention and their interpersonal competencies. Research conducted by Bennett Murphy et al. (2007) reveals that preschool students who demonstrate sustained attention skills have a higher level of social competence and a stronger ability to negotiate conflict than those who lack sustained attention skills.

Assessments:

Please note that the assessments listed here reflect what is currently being used in multiple disciplines to measure sustained attention. Not all of these measures will be easily used in classroom settings or by classroom teachers. However, the general knowledge that these measurements exist and the ability to review particular items from these assessments is valuable.

- California State University, Stanislaus provides an informal self-report survey for its students to determine their ability to concentrate (Psychological Counseling Services, n.d.). Students answer "yes" or "no" to questions like "I am easily distracted by background noise." The survey can be accessed at <https://www.csustan.edu/psychological-counseling-services-39>.
- Psychology Today (n.d.) provides a simple 10-question survey to test attention span, using a 5-point scale ranging from *quite often* to *almost never*. A sample question is, "When reading a book or magazine, how often do you find yourself re-reading the same paragraph or skipping ahead?" An overall result with narrative is provided immediately after completing the survey. See http://psychologytoday.tests.psychtests.com/take_test.php?idRegTest=3361.
- The Conners Continuous Performance Test 3rd Edition (CPT 3) assesses attention-related problems and serves as a diagnostic tool for individuals who may be experiencing ADHD or other conditions which affect their attentiveness (Conners, n.d.). The CPT 3 requires that the participant hit the space bar whenever an "X" appears on the computer screen, and takes about 14 minutes to administer. The test gauges four dimensions of an individual's attention: inattentiveness, impulsivity, sustained attention, and vigilance. The CPT 3 comes in parent, teacher, and self-administered forms, and may be used with individuals 8 years and older. Note that this survey needs to be administered by a trained professional. An overview of the CPT 3 and pricing information is available at <http://www.mhs.com/product.aspx?gr=edu&prod=cpt3&id=overview>.
- The Test of Everyday Attention for Children (TEA-Ch) employs nine subtests to measure the attentional capacities of children and adolescents ages 6-16 (Manly et al., 2001). For example, in one of the subtests the child is asked to silently count tones. In another subtest, the child is asked to monitor a stream of digits, looking for a particular sequence. The TEA-Ch employs a 3-

point Likert scale across nine subtests to measure three specific types of attention: focused, sustained, and controlling/switching. Note that this survey needs to be administered by a trained professional. For complete information on the original TEA-Ch, see Manly et al. (2001) at <http://www.ncbi.nlm.nih.gov/pubmed/11806689>. For details, including pricing, on the new TEA-Ch2, see <http://www.pearsonclinical.com/psychology/products/100000480/test-of-everyday-attention-for-children-the-tea-ch.html>.

Instructional Practices:

- As part of a national initiative to educate students about the importance of sun protection, the SPOTS program provides general “brain compatible” strategies to help adolescents retain focus and learn (Crisp, 2008). For example, educators can use a strategy that chunks information to optimize an adolescent’s working memory. The adolescent brain can typically hold seven pieces of information for 20 to 30 minutes. Chunking is a method for grouping multiple items into a coherent set that can be remembered as if it were one item.
- When a student is off-task and inattentive, there are several successful strategies that educators can use (Intervention Central, n.d.). Acknowledging when a student is on-task, however briefly, through praise and encouragement can help reinforce sustained attention. Allowing students choice in instructional activities can increase attention span. Educators can also provide brief attention breaks where the student can engage in a preferred activity whenever they complete a certain amount of work. See <http://www.interventioncentral.org/behavioral-interventions/challenging-students/school-wide-strategies-managing-task-inattention> for a complete list of evidence-based strategies.
- Children prefer to make their own choices when completing learning-related tasks (Fenerty & Tiger, 2010). According to DiCarlo, Baumgartner, Ota, and Geary (2016), children are also more likely to sustain their attention when teachers present them with choices in their schoolwork. When teachers allow children to select books to read or materials for art projects, they promote student engagement and create a learning environment where sustained attention can thrive. For adolescent and even adult learners, choice also plays an important role in learner motivation and attentional performance.
- The Yukon Student Education Network (n.d.) offers teachers an informative handout regarding sustained attention. Adapted from the book *Executive Skills in Children and Adolescents*, the handout features sections regarding the implications for sustained attention in the classroom, a step-by-step guide for teaching sustained attention, modifications for teaching sustained attention for the whole class and secondary students, environmental modifications, suggestions to support students to internalize sustained attention skills and strategies, and a sample self-monitoring checklist. The handout is available at http://www.yesnet.yk.ca/staffroom/selfreg/sustained_attention.pdf.
- Certain reading strategies can help students learn to focus and sustain attention (Hougen, 2015). Briefly providing students background information before they read a text helps them recognize new concepts and then contemplate how they can figure out the text. During reading, asking students to write a statement summarizing the main idea of a section of text requires that they focus on pertinent information, such as “who” or “what.”
- Scott and Fark (2011) present teachers with a strategy for helping students with ADHD acquire stronger sustained attention skills. Their strategy, F.O.C.U.S., utilizes the following memory devices to assist students: focus on the speaker, open your mind, connect, use your eyes, and

select. Scott and Fark's (2011) full article is available at

<http://education.jhu.edu/PD/newhorizons/Journals/Winter2011/Scott>.

- South County Child and Family Consultants (SCFC; n.d.) developed a handout on the topic of sustained attention that provides parents and teachers with strategies, games, and resources for involving students in activities which promote focus or vigilance. To access SCFC's handout, visit <http://southcountychildandfamily.com/resources/executive-functions/sustained-attention/>.
- Flick (n.d.) has created a series of games to help students develop their capacity for attention. His games for teaching sustained attention employ simple materials—a deck of cards and a recording device—and may be played in a matter of minutes. See Flick's games at <http://school.familyeducation.com/learning-disabilities/treatments/37768.html>.
- Wilson and Conyers (2015) suggest that teachers can provide explicit instruction on regulating students' attention. For example, teachers can ask students to share examples of being so focused on an activity that they were able to block out distractions around them. Students can then reflect on how they could apply that level of focus to learning and tasks throughout the school day.
- The physical configuration of a classroom can positively affect student attention (Steelcase, 2015). Classrooms that have mobile seating but no fixed position, where the instructor must stand, allow students to engage more actively in learning and support physical movement, both of which help strengthen attention. Providing space that allows focused and reflective thinking supports the brain's natural rhythm of activity and rest.
- Telling students to "pay attention" may not have the desired effect of getting them to focus on a lesson or classroom activity (Jensen, n.d.). Students will pay attention to noticeable changes in the environment (movement, sounds). The challenge is to have them block out those distractors and shift their attention. Teachers can do this by breaking tasks that require focus into short, 8-minute segments (Jensen, n.d.; Wilson & Conyers, 2015). Teachers can also signal that a change is coming by providing visual and oral cues.

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