Instruction Without Learning Styles: Possibilities and Promise

Gifted students, much like mainstream students, differ in aptitudes, interests, content knowledge, and motivational profiles. Developing instruction that maximizes all students’ learning while accounting for these differences is important but challenging. A learning styles approach to differentiating instruction has become relatively common within gifted education. The assumption behind the use of learning styles is straightforward: when teachers match instruction to a student’s dominant learning type (e.g., intuitive, analytical, field-dependent) or a preferred learning mode (e.g., visual or kinesthetic), learning should be optimized. However, tailoring instruction to students’ preferred learning styles demands considerable time and resources and there is insufficient research to support the notion that this practice produces better learning.

When hearing that the learning styles approach is not supported by research, educators often have concerns and questions. The goal of this article is not to conclusively disprove or invalidate the learning styles approach. Instead, the aim is to: (1) make educators of the gifted aware of the lack of research evidence supporting the use of learning styles-based instruction, and (2) respond to questions educators of the gifted may have about this research and what it means for instruction. Although some of the alternative approaches we suggest are taken from research with general populations, their application can also enhance gifted students’ learning. Several of the strategies are particularly well-suited for gifted, high-ability, and high-knowledge learners and can be used to supplement instruction.

What the Research Tells Us

The literature on learning styles is immense and the catalogue of commercial products continues to grow. Pashler, McDaniel, Rohrer, & Bjork (2008) reviewed the evidence for learning styles and found few studies that directly tested the primary assumption underlying the learning-styles based approach to instruction. In most cases, students completed questionnaires assessing learning styles preferences which researchers then examined in relation to variables such as underachievement. Curiously, learning styles researchers had largely overlooked the crucial question at the heart of this approach—do students learn best when instruction is tailored to their preferred learning style?

Despite the large number of studies examined, the researchers found only one study that provided positive evidence for the learning styles approach. However, Pashler and colleagues cautiously note that “the study has peculiar features that make us view it as providing only tenu-
ous evidence” (p. 112). More recently, Rogowsky, Calhoun, and Tallal (2015) examined the learning styles of college-educated adults focusing on auditory and visual styles and found no empirical support for the approach’s main hypothesis. These researchers noted that, although this does not mean that every single proposed learning style is necessarily invalidated, there is no support for tailoring instruction to auditory and visual styles. Even though this study was conducted on a young adult population, a similar lack of evidence across ages would be expected. In sum, these findings are consistent with cognitive psychology research; regardless of how information is presented, it is the meaning that people most often learn and remember (Willingham, 2005).

Enhancing Instruction with Psychological Science

Educators of the gifted want to allocate their limited resources to effective instruction. Programming standards put forth by the National Association for Gifted Children (2010) emphasize the use of evidence-based instruction. Educational and cognitive psychologists have developed many evidence-based suggestions that can improve student learning without the use of learning styles. Some of these strategies are presented as responses to questions that teachers may raise in regard to teaching without learning styles.

Differentiating Instruction without Learning Styles

Gifted educators know the importance of differentiation. Although learning styles-based differentiation is frequently suggested for their students, the lack of empirical support implies this may not be the most effective method. Instead, educators should differentiate based on students’ prior knowledge. High-ability students with greater background knowledge tend to benefit from less direct instructional guidance than mainstream populations with lesser prior knowledge. Individualized problem- and project-based instructional formats are examples of minimally-guided approaches. It is important to remember, however, that gifted students occasionally need direct guidance, especially on new content or unfamiliar tasks. Providing process worksheets or worked examples to gifted students with less prior knowledge effectively scaffolds instruction and improves learning.

Retrieval Practice

Pre-assessments are a great way to determine students’ prior knowledge. Frequent formative assessments not only help to inform teachers’ instructional decisions, but may also act as powerful learning events for students. Using retrieval practice, gifted students’ ability to use prior learning is enhanced through the reconstruction of knowledge on formative assessments such as quizzes and low-stakes tests. This effortful retrieval of information improves memory strength, knowledge organization, and higher-order thinking across a variety of ages (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). Bell-ringers and exit-slip sorts are great formats to introduce retrieval practice. For example, asking students to actively apply learned material to novel bell-ringer problems activates prior learning (sort of like stretching “memory muscles”), and prompting students to write the three main points of a lesson without using notes helps them to consolidate essential information. These quick, easy, and research-based strategies can also upgrade problem- and project-based learning tasks.

Before implementing retrieval practice, ask yourself, “What content should students take away from my lesson?” For concepts or vocabulary essential for complex cognition, choose techniques that facilitate the integration of new and old meanings. Elaborative interrogation is a strategy that prompts gifted students to answer provocative questions like, “Why did Truman drop a uranium-based bomb on Hiroshima and not on Nagasaki?” or “Why did the police shoot Fred Hampton?” Create assignments that encourage high-ability learners to use this strategy to master complexly organized content like historical events and narrative texts. Teachers can also prompt students to use self-explanation. This strategy entails verbalizing thoughts while solving problems and is effective for correcting students’ false beliefs. Encouraging gifted elementary students to turn-and-talk about their mathematical reasoning is an exemplary self-explanation strategy.

Although gifted students have excellent recall relative to typical peers, research with gifted adolescents suggests this advantage quickly decays. Memory-enhancing strategies like exit-slip sets, self-testing, and retrieval-based bell-ringers can help gifted students to learn or recall challenging material. For high-ability learners with less prior knowledge, try self-quizzing strategies like flashcard practice or Jeopardy! These strategies can help students master disciplinary concepts by fostering active retrieval processing.

Teaching Students Metacognition

Some educators adopt a learning styles approach to instruction because they believe it teaches students about the learning process and allows for self-reflection. However, instead of encouraging gifted students to identify with a certain learning style, it is more beneficial to create opportunities for them to be metacognitive and self-regulated learners. Because these students often inaccurately judge the time spent studying, the content to be assessed, and the benefits of uncommon study strategies, it is important that they actively reflect on and manage their own learning.

Effective self-regulated learners make optimal decisions regarding what, how, and when to study. Although gifted students are metacognitively advanced relative to typical peers, expert modeling with practice can help them continue to improve, particularly in project- and problem-based learning contexts. For example, Sheppard and Kanevsky (1999) found...
that gifted fifth-graders’ metacognitive awareness improved after five sessions of metacognitive awareness training. This evidence underscores the importance and effectiveness of implementing brief but challenging direct instructional activities aimed at fostering gifted students’ continuous metacognitive development.

Teachers can encourage gifted students to keep “metacognition journals.” Students can use these to track their study habits across a unit, semester, or academic year. Teach gifted students to develop research questions about particular study strategies like elaborative interrogation, self-exploration, and self-quizzing. Students can ask, “Does rereading highlighted text really work?” or “What grammar self-quizzing strategy will raise my ACT scores?” Then students can refer to their journal to judge the accuracy of their predictions and to reflect on what strategies they might modify to enhance future performance. Teachers can also use these journals to formatively assess metacognitive growth.

Educators can use this strategy with younger students by implementing metacognition journals within a long-term narrative framework such as, BCI: Bureau of Cognitive Investigations. Journals can function as official BCI Detective Notebooks and gifted BCI detectives can predict which cognitive culprit (reading strategy) will most effectively identify a text’s main idea. Notebooks can be used to summarize official BCI before, during, and after protocols for investigating informational texts. This strategy can also encourage students to engage in elaborative interrogation and self-explanation techniques. For example, students can be commissioned by the “Laws of Logic” to question suspects’ cognitions to ensure they “check out”, and suspects convicted of “wanton thought” can defend their cognitions before the “Court of Reason” because all ideation is considered innocent until proven inconsistent!

Engage and Motivate Students without Learning Styles

Learning styles-based instruction can be appealing because it gives teachers a rationale for integrating hands-on activities with visual displays. However, instruction without learning styles does not have to be boring. Teachers can trigger students’ interest by presenting content in a surprising way. Use this strategy in small doses, as too much surprise can sometimes distract students from crucial instructional cues. Support students’ interest by carefully manipulating the learning environment. Allow gifted students to work in groups or on computers when consistent with instructional content, and tap into their passions by encouraging them to integrate their interests into the curricula. Finally, many of the metacognitive strategies previously discussed, including project-based activities and metacognitive journaling, can also trigger and support students’ interest in their own learning.

Gifted Students Deserve What Works

Designing effective instruction that meets the diverse needs of gifted students can be difficult, especially when the majority of the instructional design theories available. Turning to research evidence can help educators figure out what works and what does not, and the current evidence on learning styles suggests that this approach to instruction lacks sufficient evidential support for implementation. The real-world challenges of prescriptive instructional design gives educational and cognitive psychologists important problems to research. In turn, their findings provide educators with evidence-based suggestions for effective instructional strategies that maximize learning and provide critical guidance on identifying ineffective strategies. When the science of psychology meets the art of teaching, gifted students win.

Recommended Reading


References


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“Do students learn best when instruction is tailored to their preferred learning style?”

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