GREAT SCHOOLS PARTNERSHIP

Elements of Effective Instruction: Resource and Research Guide

The Elements of Effective Instruction (EEI) Resource and Research Guides are designed to allow educators to learn more about the research, strategies, and theory behind each of the five strands. These Resource Guides can be used following the EEI Self-Assessment to help individual educators or teams learn more about areas of interest.

Element 5: Complex Thinking and Transfer

Students are regularly coached and taught to engage in higher-order thinking through instructional activities and practice tasks. Curriculum, instruction, and assessments are designed to prompt complex thinking, integration of concepts and ideas, and application of learned skills to new material or novel situations.

Important Ideas

1. "Liberating education consists in acts of cognition, not transferrals of information." **—Freire, P. (2000). The Pedagogy of the Oppressed (30th ed.) (p. 79). New York, NY: Continuum.**

2. "Experimental psychologists in the last half-century have been fascinated with motivation as a prerequisite for learning. They have discovered that when we come in contact with ambiguous, complex or conflicting information, our nervous systems become aroused, amping us up and forcing us to pay attention. When we are puzzled, we find a resolution very rewarding, which sets us up for efficient learning (Berlyne, 1966; Lowenstein, 1994)." **—Ostroff, W. L. (2016). Cultivating Curiosity in K-12 Classrooms: How to Promote and Sustain Deep Learning (p. 12). Alexandria, VA: Association for Supervision and Curriculum Development.**

3. "Assess higher-order thinking during all parts of instruction and assessment, both formative and summative. You can use higher-order thinking questions in many instances--oral class discussions, quizzes, exit tickets, and other classroom strategies, and tests. You can use higher-order thinking tasks in many instances as well--classroom learning activities, performance assessments, and short- and long-term projects. The most important point here is that higher-order thinking and questions and tasks should be infused throughout instruction and assessment. Don't wait until students have memorized some facts and then ask them to reason with the facts as a second step." **—Brookhart, Susan M. (2014) How to Design Questions and Tasks to Assess Student Thinking (p. 4). Alexandria, VA: Association for Supervision and Curriculum Development.**

February 2025. This work by Great Schools Partnership is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

Brief Articles

1. **Andrus, Deborah. (2023). The Power of Reflection and Self-Assessment in Learning. Education World. Retrieved from** https://www.educationworld.com/teachers/power-reflection-and-self-assessment-student-learning**.** This article describes how self-reflection and self-assessment foster student agency and engagement**.**

2. **McDowell, M. (2021, October 6). Teaching Students to Transfer Their Learning to New Contexts. Edutopia. Retrieved from** https://www.edutopia.org/article/teaching-students-transfer-their-learning-new-contexts/**.** This article demonstrates how educators can build transfer opportunities into the beginning of their unit.

3. **McDowell, M. (2023, January 18). Facilitating Deeper Learning for Middle and High School Students. Edutopia. Retrieved from** https://www.edutopia.org/article/facilitating-deeper-learning-middle-high/**.** The author describes how teachers can foster deeper learning by providing careful feedback, assigning comparison tasks, and encouraging robust discussions.

Book Recommendations

1. **Liljedahl, P. (2020) Building Thinking Classrooms in Mathematics, Grades K-12: 14 Teaching Practices for Enhancing Learning (Corwin Mathematics Series). Thousand Oaks, CA: Corwin Publishing.** This book outlines 14 optimal practices for thinking that create conditions for deep learning in mathematics to occur**.**

2. **McDowell, M. (2017) Rigorous PBL: Three Shifts for Developing Confident and Competent Learners. Thousand Oaks, CA: Corwin Publishing.** This book provides a guide on how to design projects that move students from surface to deep and transfer learning by focusing on clarity, transfer, and culture**.**

3. **Ostroff, W. L. (2016). Cultivating Curiosity in K-12 Classrooms: How to Promote and Sustain Deep Learning. Alexandria, VA: Association for Supervision & Curriculum Development.** This book examines the role of curiosity in the classroom based on the science of learning and outlines ways to foster curiosity through the use of exploration and experimentation to create autonomous, reflective learners.

4. **Stobaugh, Rebecca. (2019). 50 Strategies to Boost Cognitive Engagement: Creating a Thinking Culture in the Classroom. Bloomington, IN: Solution Tree Press.** This book provides concrete strategies and practices teachers can incorporate into their instruction to support students with engagement.

Reports and Research

1. **Brookhart, S. M. (2016). Start with Higher-Order Thinking. Powerful Lesson Planning, 74(2), 10-15.** This article outlines three strategies for incorporating higher order thinking (Open Questions, Thinking, Not Retelling, and Student Self-Assessment) into daily lessons, including examples of each strategy in use**.**

2. **Fisher, D., Frey, N., & Hattie, J.A. (2016). Visible Learning for Literacy, Grades K-12: Implementing the Practices That Work Best to Accelerate Student Learning.** This journal article outlines research-based strategies to support literacy instruction. They outline surface, deep, and transfer learning strategies.

3. **Timmermans, A., and Rubie-Davies, C. (2018). Do teachers differ in the level of expectations or in the extent to which they differentiate in expectations? Relations between teacher-level expectations, teacher background and beliefs, and subsequent student performance. Educational Research and Evaluation, 24(3-5), 241-262.** This journal article demonstrates the correlation between teacher belief in student ability and student outcomes.

Videos

1. EL Education. Think, Talk, Write Cycles: Integrating Literacy with Worthy Texts. Retrieved from https://eleducation.org/resources/read-think-talk-write-integrating-literacy-with-worthy-texts

2. EL Education. Preparing for an Academic Conversation: Day One. Retrieved from https://eleducation.org/resources/preparing-for-an-academic-conversation-day-1-analyzing-a-scientific-document.

3. EL Education. Prioritizing Evidence to Address a Document Based Question. Retrieved from https://eleducation.org/resources/preparing-for-an-academic-conversation-day-1-analyzing-a-scientific-document

4. EL Education. Scaffolding Research-Based Writing with Sixth Graders: Part 1. Retrieved from https://eleducation.org/resources/scaffolding-research-based-writing-with-sixth-graders-part-1-making-research-based-claims.

5. EL Education. Scaffolding Research-Based Writing with Sixth Graders: Part 2. Retrieved from https://eleducation.org/resources/scaffolding-research-based-writing-with-sixth-graders-part-2-staying-on-track-and-on-target.