How does a systems thinking approach align with current educational research and best practice? Some connections.*

- Classroom Instruction that Works, Robert Marzano (2001)
The bolded instructional strategies that are identified by Marzano’s research align well with a systems thinking approach.

Categories of Instructional Strategies That Affect Student Achievement

- Identifying similarities and differences
- Summarizing and note taking
- Reinforcing effort and providing recognition
- Homework and practice
- Nonlinguistic representations
- Cooperative learning
- Setting objectives and providing feedback
- Generating and testing hypotheses
- Questions, cues, and advance organizers

Classroom Instruction that Works: Research-based Strategies for Increasing Student Achievement

- Reading First
The bolded essential elements of reading instruction identified by Reading First are supported by a systems thinking approach. www.nationalreadingpanel.org/

Reading First
Essential Elements of Research-Based Instruction

- Phonemic Awareness
- Phonics
- Fluency
- Vocabulary
- Comprehension

Adapted from: The National Reading Panel’s report: Teaching Children to Read, (2000) and cited in the No Child Left Behind Act

©2008 Systems Thinking in Schools, Waters Foundation
**SCANS**
The United States Secretary’s Commission on Achieving Necessary Skills (SCANS) identifies key skills and capacities that can be built using a systems thinking approach.

---

**Characteristics of Today’s and Tomorrow’s Schools**

<table>
<thead>
<tr>
<th></th>
<th>Schools of Today (1991)</th>
<th>Schools of Tomorrow</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRATEGY</strong></td>
<td>• Focus on development of basic skills</td>
<td>• Focus on development of thinking skills</td>
</tr>
<tr>
<td></td>
<td>• Testing separate from teaching</td>
<td>• Assessment integral to teaching</td>
</tr>
<tr>
<td><strong>LEARNING ENVIRONMENT</strong></td>
<td>• Recitation and recall from short-term memory</td>
<td>• Students actively construct knowledge for themselves</td>
</tr>
<tr>
<td></td>
<td>• Students work as individuals</td>
<td>• Cooperative problem solving</td>
</tr>
<tr>
<td></td>
<td>• Hierarchically sequenced–basics before higher order</td>
<td>• Skills learned in context of real problems</td>
</tr>
<tr>
<td><strong>MANAGEMENT</strong></td>
<td>• Supervision by administration</td>
<td>• Learner-centered, teacher directed</td>
</tr>
<tr>
<td><strong>OUTCOME</strong></td>
<td>• Only some students learn to think</td>
<td>• All students learn to think</td>
</tr>
</tbody>
</table>

---

*The United States Secretary’s Commission on Achieving Necessary Skills (SCANS) U.S. Department of Labor, 1991
http://wdr.doleta.gov/SCANS/whatwork/whatwork.pdf*

---

**Partnership for 21st Century Skills**
The learning skills identified by this nationwide partnership stress the importance of thinking, problem-solving, innovation, creativity, communication and collaboration—all critical components of systems thinking.

[www.21stcenturyskills.org](http://www.21stcenturyskills.org)