

Executive Summary
Graphic Organizers: A Review of Scientifically Based Research
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Kidspiration[®] and Inspiration[®] are used widely in schools across the country to accomplish curriculum goals using visual learning as implemented by the use of graphic organizers such as concept maps, idea maps, and webs.

Prepared by Institute for the Advancement of Research in Education. To provide educators with evidence of the instructional effectiveness of the use of graphic organizers, Inspiration Software[®], Inc. contracted with the Institute for the Advancement of Research in Education (IARE) at AEL to conduct a study of existing educational research. IARE is an independent research body that provides research and evaluation services to clients in the education arena. IARE draws on the expertise and credibility of its 36-year-old parent company, AEL, to deliver unbiased, customized services grounded in accepted research and evaluation standards.

Identification of 29 scientifically based research studies. IARE staff conducted an extensive search of academic databases to locate research on the instructional effectiveness of the use of graphic organizers. Using the definitions set forth by Section 9101 of the *No Child Left Behind Act (NCLB)* of 2001, IARE selected 29 scientifically based research studies that applied rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs.

Visual learning strategies improve student performance. Scientifically based research cited in the literature review demonstrates that a research base exists to support the use of graphic organizers for improving student learning and performance across grade levels, with diverse students, and in a broad range of content areas. IARE conclusions from this review include:

- **Reading comprehension.** Use of graphic organizers is effective in improving students' reading comprehension.
- **Student achievement.** Students using graphic organizers show achievement benefits across content areas and grade levels. Achievement benefits are also seen with students with learning disabilities.
- **Thinking and learning skills.** The process of developing and using a graphic organizer enhances skills such as developing and organizing ideas, seeing relationships, and categorizing concepts.
- **Retention.** Use of graphic organizers aids students in retention and recall of information.
- **Cognitive learning theory.** The use of graphic organizers supports implementation of cognitive learning theories: dual coding theory, schema theory, and cognitive load theory.

AEL
P.O. Box 1348
Charleston, WV 25325-1348
Phone: 304-347-0400
Fax: 304-347-0487
www.ael.org

Inspiration Software, Inc.
7412 SW Beaverton Hillsdale Hwy, Ste 102
Portland, OR 97225-2167 USA
Phone: 503-297-3004
Fax: 503-297-4676
www.inspiration.com