

What Are Graphic Organizers?

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Graphic organizers (GOs) are visual devices that employ lines, circles, and boxes to depict four common ways to organize information: hierarchic, cause/effect, compare/contrast, and cyclic or linear sequences. These images serve as visual cues designed to facilitate communication and/or understanding of information by showing how essential information about a topic is organized (See Figure 1). Some GOs also include semantic cues for thinking about the content in various ways (i.e., “What kind of work was performed?”) and/or engaging in specific ways of thinking about a topic (i.e., “What is important to understand about this?”) (See Figure 2). GOs can effectively facilitate learning for most students in writing, reading comprehension, and content-area subjects across a wide range of ages, grades, and learning abilities. Teachers can use GOs in activating bodies of knowledge, during lessons as organizers, or as a method of review.

For Whom Are Graphic Organizers Intended?

With the exception of students with profound cognitive disabilities, GOs can be effective with all students under the following conditions:

1. The complexity of the GO figure is developmentally appropriate for intended students’ background knowledge and experience with GOs.
2. The level of scaffolded assistance associated with using the GO matches the students’ zone of proximal development.
3. The complexity and density of the information to be communicated on the GO is appropriate in relation to students’ background knowledge of the information or closely related topics.
4. The size of the space for which information is to be noted by students on the GO is sufficient, given students’ scripting ability.
5. Students’ reading and scripting skills are sufficiently developed so that they can independently read what they noted on the GO at a later time.

Indentured Servants

Slaves

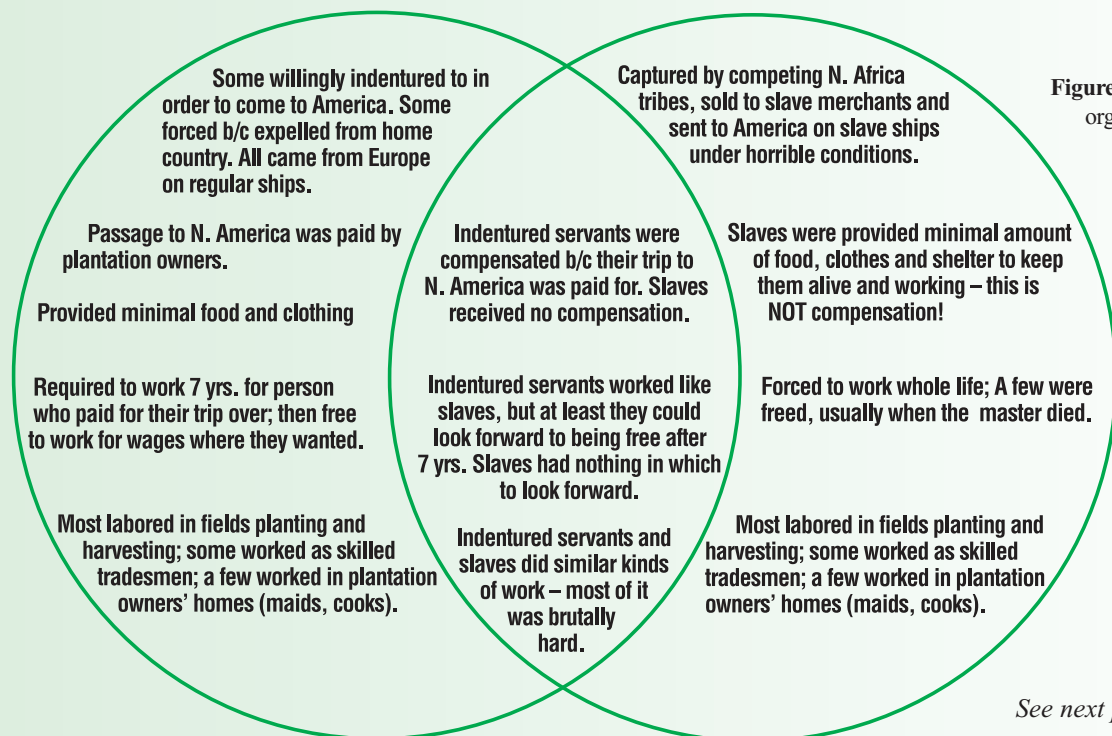
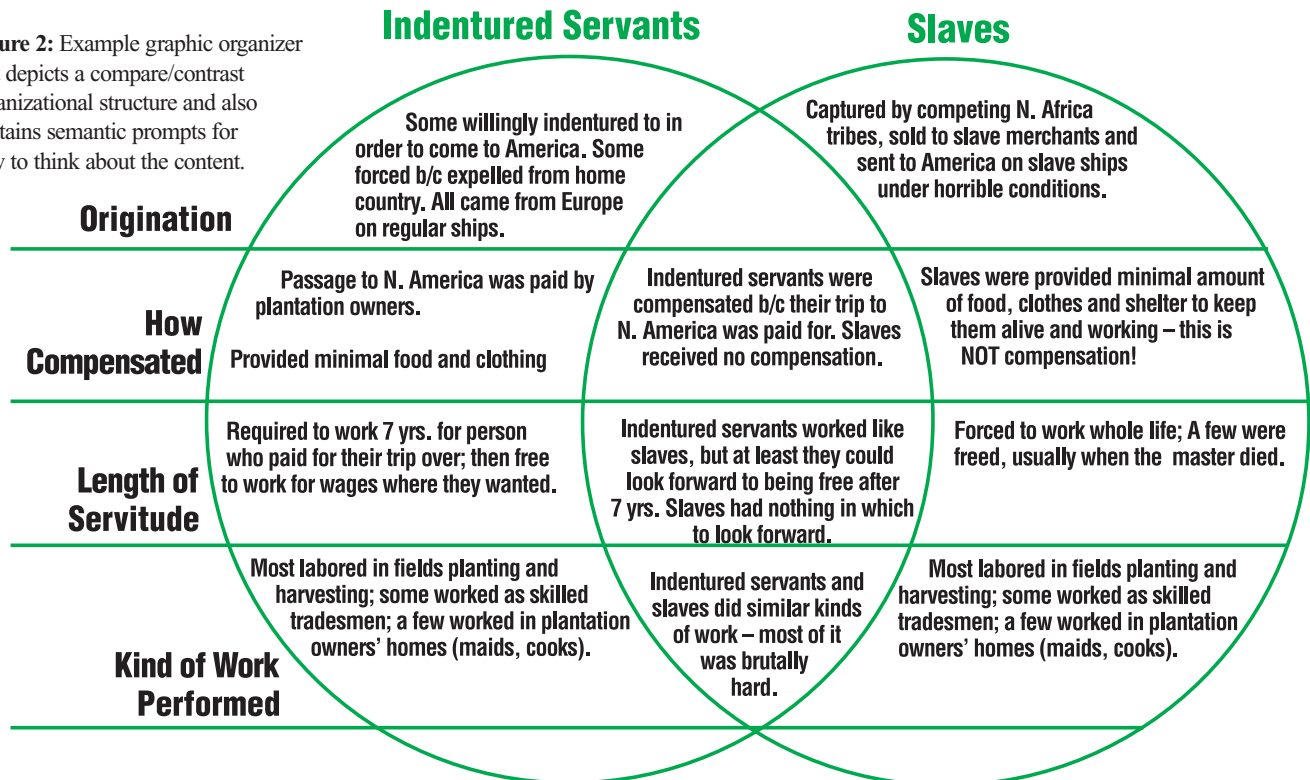


Figure 1: Example graphic organizer that depicts a compare/contrast organizational structure.

See next page for Figure 2.

Figure 2: Example graphic organizer that depicts a compare/contrast organizational structure and also contains semantic prompts for how to think about the content.



So what? What is important to understand about this?

Life was brutal for both indentured servants and slaves, but at least indentured servants had some hope that their future would be better. In both cases, plantation owners were willing to treat human beings very badly in order to make their own lives more comfortable.

While GOs should always be among accommodation options, consistent and effective use as part of the normal instruction can significantly reduce the need for accommodations in the first place. Thus, GOs might better be viewed as a preventive measure than as a responsive (to the disability) measure.

Since graphic organizers are visual devices, a common misperception is that they are unlikely to work with auditory learners and should be used only for visual learners. In reality, the complexity of the to-be-learned information, the learner's innate memory capability, the extent and quality of elaboration the learner applies when processing the information, and the existing background knowledge of the learner dictates the subsequent success in learning far more than one's perceptual preferences. Likewise, teachers' knowledge, ability to facilitate student elaboration and ensure engagement of all students, pedagogical skills associated with using graphic organizers in the classroom, and the opportunity to employ them in a quality manner play a highly significant role in the relative impact of GOs on student learning.

How Do They Work?

GOs work best when instruction is informed, explicit, intentional, and scaffolded.

In **informed** instruction the teacher provides a rationale for using a GO, explains what the GO is designed to do, and

informs students about different ways and the different contexts in which it can be used to increase success.

When instruction is explicit, the teacher overtly tells and shows students how the GO is used. Once students have developed a basic proficiency with a GO, instruction can gradually switch to more implicit forms whereby the teacher creates opportunities for students to adapt or create their own versions of GOs

Intentional instruction informs students that they are expected to develop skill and demonstrate competency using the GO.

Scaffolded GO instruction occurs in two primary ways. Scaffolded assistance is the mediation or coaching students are provided as they learn how to independently use the GO tool. **Scaffolded GO complexity** is a process whereby a relatively simple version of a GO is introduced to students, and then, as students develop familiarity and skill using it, increasingly more complex versions of the same GO are introduced into lessons and mastered.

How Practical Is Graphic Organizer Instruction?

Appropriately used, GO instruction can significantly reduce the amount of time required to attain instructional objectives for both typical learners and those with cognitive

disabilities. The practicality of using GOs is primarily a function of (a) teachers' knowledge of the subject being taught and knowledge and skills of GO pedagogy and (b) opportunity to employ GO pedagogy in an effective manner.

How Effective Is It?

There have been many studies on students with and without learning disabilities from all grade levels and a variety of subjects concerning the use of graphic organizers. There is ample research that documents a solid scientific basis for improving reading comprehension, increasing process writing skills, increasing thinking skills, and increasing learning of content-area subjects. Research to date supports the use of GOs with students with learning disabilities in a variety of contexts:

Reading comprehension. GOs improve reading comprehension by emphasizing text structures such as story maps (e.g., Boyle, 2000; Burns et al., 2004), and improves different aspects of comprehension, such as literal and relational comprehension, recall, and vocabulary learning (e.g., DiCecco & Gleason, 2002; Swanson et al., 1987). GOs paired with strategy instruction can be more effective than traditional basal instruction (e.g., Bos & Anders, 1990; Darch & Gersten, 1986), and can be used effectively as advance organizers prior to reading (e.g., Simmons et al., 1988).

Written comprehension. GOs used as planning tools containing prompts for goal setting, brainstorming, and organization of ideas can improve writing performance (e.g., Baker et al., 2003; Troia & Graham, 2002). GOs can also improve writing performance when used to depict text structures (i.e., hierarchic, compare/contrast, cause/effect, sequence) and prompts to plan, organize, write, edit and revise written products (Englert et al., 1991). GOs can also improve adolescents' self-perception of themselves as empowered writers (Hallenbeck, 2002), and coupled with strategy instruction, can improve writing fluency (Graham et al., 1995; Montague & Leavell, 1994).

Content learning. GOs can help elementary and secondary students learn significantly more social studies and science concepts and facts (e.g., Darch & Carnine, 1986; Snead & Snead, 2004), as well as content area vocabulary (e.g., Bos et al., 1989; Robinson & Katayama, 1998). GOs also increase understanding of the relationship between ideas (e.g., DiCecco & Gleason, 2002; McCoy & Ketterlin-Geller, 2004) and increase transfer of problem-solving ability (e.g., Lenz et al., 1994).

What Questions Remain?

Although ample research has demonstrated the positive impact of graphic organizers on relatively short-term academic measures, the long-term effects on students' strategic learning behaviors, information processing skills, and higher-order learning skills are not known.

To date, studies have investigated the impact of graphic organizers within specific domains of learning (e.g., used for

reading comprehension, composition writing, content learning). Little is known about the impact of these tools when they are thoroughly integrated horizontally across the curriculum (e.g., used for reading comprehension, composition writing, and content learning) and vertically (i.e., across grade levels).

Many students with language-based learning disabilities manifest difficulty processing semantic information. The design of some GOs is language-free whereas others incorporate semantic prompts designed to help students focus on essential understandings about a topic. We need to know more about the relative power that different kinds of semantic prompts play in promoting effective learning for students with language difficulties.

How Do I Learn More?

The following sources provide more in-depth discussion of GOs and their use:

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- Clarke, J. and Martell, K. (1994). Sequencing graphic organizers to guide historical research. *Social Studies*, 85(2), 70-76.
- Darch, C., & Carnine, D. (1986). Teaching content area materials to learning disabled students. *Exceptional Children*, 54, 240-246.
- DiCecco, V. M., & Gleason, M. M. (2002). Using graphic organizers to attain relational knowledge from expository text. *Journal of Learning Disabilities*, 34(4), 306-321.
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- Hyerle, D. (1995). Thinking maps: Seeing is understanding. *Teaching Exceptional Children*, 54, 85-89.
- Kim, A., Vaughn, S., Wanzek, J., & Wei, S. (2004). Graphic organizers and their effect on the reading comprehension of students with LD: A synthesis of research. *Journal of Learning Disabilities*, 37(2), 105-118.

Print Resources

- Bromley, K., Irwin-Devitis, L., Hires, D. (1999). *Graphic organizers (Grades K-8)*. New York, NY: Scholastic, Inc.
- Ellis, E. (2004). *200 Makes sense literacy think-sheets*. Lillian, AL: GraphicOrganizers.com

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Software Resources

- Makes Sense Strategies provides an extensive collection of interactive graphic organizers via word processing designed for K-12 developmentally appropriate instruction in vocabulary, reading, writing, and content-area learning. These GOs are pre-formatted and incorporate semantic prompts for different topics' essential understandings, critical thinking, and information processing. The software includes an extensive collection of Power Point presentations that address various GO instructional techniques.
- Sneed, D., & Sneed, W. L. (2004). Concept mapping and science achievement of middle grade students. *Journal of Research in Childhood Education*, 18(4), 306-320.
- Swanson, H. L., Kozleski, E., & Stegink, P. (1987). Disabled readers' processing of prose: Do any processes change because of intervention? *Psychology in the Schools*, 24(4), 378-384.
- Troia, G. A., and Graham, S. (2002). The effectiveness of a highly explicit, teacher-directed strategy instruction routine. *Journal of Learning Disabilities*, 35(4), 290-305.

Other Literature Sited:

- Hallenbeck, M. J. (2002). Taking charge: Adolescents with learning disabilities assume responsibility for their own writing. *Learning Disabilities Quarterly*, 25, 227-246.
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- Idol, L. & Croll, V. J. (1987). Story-mapping training as a means of improving reading comprehension. *Learning Disability Quarterly*, 10, 214-229.
- Lenz, B. K., Bulgren, J. A., Schumaker, J. B., Deshler, D. D., & Boudah, D.A. (1994). *The unit organizer routine*. Lawrence, KS: Edge Enterprises, Inc.
- Mastropieri, M. A.; Scruggs, T. E., & Graetz, J. E. (2003). Reading comprehension instruction for secondary students: Challenges for students and teachers. *Learning Disability Quarterly*, 26(2), 103-117.
- McCoy, J. D., & Ketterlin-Geller, L. R. (2004). Rethinking instructional delivery for diverse student populations: Serving all learners with concept-based instruction. *Interventions in School and Clinic*, 40(2), 88-95.
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This Alerts issue was written by Edwin S. Ellis and Pamela W. Howard and in collaboration with the DLD/DR Current Practice Alerts Editorial Committee. Edwin S. Ellis is a Professor of Special Education at the University of Alabama and has done extensive writing and research in the area of strategy interventions, including graphic organizers, for students with learning disabilities. Pamela W. Howard is currently a doctoral candidate in Special Education at the University of Alabama and has an expansive background as a teacher of students with learning disabilities and as a director of a learning resource center.

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