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Desperately Seeking Scaffolds

by Greg Sherman, Ph.D.

Editor's note: By way of introducing Dr. Greg Sherman as part of the VSTE Journal editorial committee, the article he wrote for the November issue of the VSTE Edge appears here.

Most people need some measure of help acquiring new skills, knowledge, or attitudes, especially when the learning environment is defined by information and experiences that are relatively new and/or unknown. Tutoring, mentoring, and apprenticeships represent some of the more common ways in which individualized help is provided to learners. Indeed, the amount and type of support offered within a learning environment probably constitutes the biggest indicator of potential learner success. Excellent teachers provide many different types and amount of support (or "scaffolds") for individual learners who are immersed in instructional tasks that require a certain degree of individualized guidance.

But providing support for individual learners as they negotiate complex learning environments is not always easy for teachers. With limited resources and large class sizes, teachers must often rely on existing support structures to help learners succeed in the classroom. These resources might include tutors (classroom aids, parents, or advanced students who already possess the skills to be learned), book resources (if they are well designed), and the clear presentation of examples, non-examples, and other lecture-type information designed to facilitate the learning of specific skills.

Today, teachers might also use available technology such as networked computers to help provide support for individual learners. But teachers may under-utilize technology as an instructional support mechanism if it represents something that learners must also be supported in using! However, by closely examining a variety ways in which technology can help support learners, professional educators might be encouraged to learn more about the different ways they can improve the effectiveness of their instruction. The suggestions below present some specific ways in which technology (specifically, computer-based and video resources) can be used to scaffold students throughout a learning experience. These support mechanisms are categorized by type of scaffold.

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Scaffolds, continued

Procedural
Procedural scaffolds provide guidance on how to utilize instructional resources and tools.

- “How-To” sheets created with a word processing program
- Computer-based tutorials, video-delivered directions
- Maps, overviews and diagrams obtained from the Internet

Process
Process scaffolds help learners figure out where they are within an instructional experience. They also help learners figure out what they need to do to get where they want to go within an instructional experience.

- "Big Picture" developed using concept-mapping software
- History of user path throughout program or website
- Clear menu structures and site maps help learners organize web-based information

Conceptual
Conceptual scaffolds provide guidance over what the learners should consider or reflect upon throughout the learning experience.

- Visual advance organizers presented using PowerPointCourse concept maps and "Big Pictures" created using concept mapping software [i.e. Inspiration]
- Moderated chat and bulletin board discussions about specific topics

Metacognitive: Planning
Metacognitive scaffolds represent mechanisms for learners to receive guidance on how to best think about problem(s) under study. Planning scaffolds allow students to set goals and objectives, chart benchmarks and deadlines for projects, create concept maps, etc.

- Concept maps
- Organizational schemes supported with computer-based file management [i.e. “Activities & Materials” folder, “In-Progress” folder and “Completed” folder]

Metacognitive: Regulating
Regulating scaffolds help students monitor their progress and receive feedback on

Scaffolds, continued

their performance

- Peer feedback via web-based discussion groups
- Video-delivered modeling for comparisons
- Computer-based quizzes
- Interactive practice exercises

Metacognitive: Evaluating
Evaluating scaffolds allow students to critique one another's work, exchange documents to-from the instructor for revising, etc.

- Rubrics and checklists created using word-processing software
- E-mail with attached documents

Strategic
Strategic scaffolds help learners figure out various approaches to solving problems.

- Moderated chat and bulletin board discussions about specific topics

Interpersonal
Interpersonal scaffolds provide guidance for facilitating constructive collaboration and interpersonal interactions.

- Modeling/examples provided via video examples
- Interaction checklists developed for debriefing interpersonal interactions following group activities
- Charts displaying specific role assignments
- Mediated discussion and chat environments in which roles are assigned to members of online groups

Including adequate support mechanisms within any given learning experience is essential for those teachers designing instruction that addressed individual learner needs. Taking advantage of available technology resources in the design and implementation of learner support mechanisms is one way teachers can continually improve their effectiveness. Additionally, teachers examining existing lesson ideas presented in textbooks or lesson archives should carefully consider what types of scaffolds will need to be available to individual learners in order for them to successfully negotiate the entire learning experience. Hopefully, the information presented above, as well as the linked articles (see “Resource URLs” at the end of the article), can be useful tools in this effort.

Scaffolds, continued

Article Resource Links

Lessons in Effective Teaching (Virginia Tech)
http://www.edtech.vt.edu/edtech/id/interface/help.html

Schools, Skills and Scaffolding on the Web (San Diego State University)
http://edweb.sdsu.edu/people/bdodge/scaffolding.html

Open Learning Environments (Indiana University)
http://www.indiana.edu/~idtheory/chapter_6_summary.html

Webquest for Comprehension Development (University of Virginia)
http://curry.edschool.virginia.edu/go/edis771/webquest2000/student/ssusandigiac/scaffold.htm

Design Principles for the use of Scaffolds (Berkeley)
http://www.kie.berkeley.edu/transitions/scaffold_principles.html

About the Author

Dr. Greg Sherman is an assistant professor at Radford University. Besides having taught for nearly 10 years (science education), Sherman has many years' experience in working with educators at all levels to better integrate technology. He is the managing editor of the VSTE Edge and serves as an editor-at-large for the VSTE Journal. He can be reached at: gsherman2@radford.edu