Instructional Scaffolding to Improve Learning

Similar to the scaffolding used in construction to support workers as they work on a specific task, instructional scaffolds are temporary support structures faculty put in place to assist students in accomplishing new tasks and concepts they could not typically achieve on their own. Once students are able to complete or master the task, the scaffolding is gradually removed or fades away—the responsibility of learning shifts from the instructor to the student.

When you incorporate scaffolding in the classroom, you become more of a mentor and facilitator of knowledge rather than the dominant content expert.

Why use Instructional Scaffolding?
One of the main benefits of scaffolded instruction is that it provides for a supportive learning environment. In a scaffolded learning environment, students are free to ask questions, provide feedback and support their peers in learning new material. When you incorporate scaffolding in the classroom, you become more of a mentor and facilitator of knowledge rather than the dominant content expert. This teaching style provides the incentive for students to take a more active role in their own learning. Students share the responsibility of teaching and learning through scaffolds that require them to move beyond their current skill and knowledge levels. Through this interaction, students are able to take ownership of the learning event.

The need to implement a scaffold will occur when you realize a student is not progressing on some aspect of a task or unable to understand a particular concept. Although scaffolding is often carried out between the instructor and one student, scaffolds can successfully be used for an entire class. The points below are excerpted from Ellis and Larkin (1998), as cited in Larkin and provide a simple structure of scaffolded instruction.

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First, the instructor does it.
In other words, the instructor models how to perform a new or difficult task, such as how to use a graphic organizer. For example, the instructor may project or hand out a partially completed graphic organizer and asks students to "think aloud" as he or she describes how the graphic organizer illustrates the relationships among the information contained on it.

Second, the class does it.
The instructor and students then work together to perform the task. For example, the students may suggest information to be added to the graphic organizer. As the instructor writes the suggestions on the white board, students fill in their own copies of the organizer.

More complex content might require a number of scaffolds given at different times to help students master the content.

Third, the group does it.
At this point, students work with a partner or a small cooperative group to complete the graphic organizer (i.e., either a partially completed or a blank one). More complex content might require a number of scaffolds given at different times to help students master the content.

Fourth, the individual does it.
This is the independent practice stage where individual students can demonstrate their task mastery (e.g., successfully completing a graphic organizer to demonstrate appropriate relationships among information) and receive the necessary practice to help them to perform the task automatically and quickly.

Types of Scaffolds

Alibali (2006) suggests that as students progress through a task, faculty can use a variety of scaffolds to accommodate students' different levels of knowledge. More complex content might require a number of scaffolds given at different times to help students master the content. Table 1 presents scaffolds and ways they could be used in an instructional setting.

Table 1

Scaffold	**Ways to use Scaffolds in an Instructional Setting**
Advance organizers	*Tools used to introduce new content and tasks to help students learn about the topic:* Venn diagrams to compare and contrast information; flow charts to illustrate processes; organizational charts to illustrate hierarchies; outlines that represent content; mnemonics to assist recall; statements to situate the task or content; rubrics that provide task expectations.
Cue Cards	*Prepared cards given to individual or groups of students to assist in their discussion about a particular topic or content area:* Vocabulary words to prepare for exams; content-specific stem sentences to complete; formulae to associate with a problem; concepts to define.
Concept and mind maps	*Maps that show relationships:* Partially or completed maps for students to complete; students create their own maps based on their current knowledge of the task or concept.
Examples	*Samples, specimens, illustrations, problems:* Real objects; illustrative problems used to represent something.
Explanations	*More detailed information to move students along on a task or in their thinking of a concept:* Written instructions for a task; verbal explanation of how a process works.
Handouts	*Prepared handouts* that contain task- and content-related information, but with less detail and room for student note taking.
Hints	*Suggestions and clues to move students along:* "place your foot in front of the other," "use the escape key," "find the subject of the verb," "add the water first and then the acid."
Prompts	*A physical or verbal cue to remind—to aid in recall of prior or assumed knowledge. Physical:* Body movements such as pointing, nodding the head, eye blinking, foot tapping. *Verbal:* Words, statements and questions such as "Go," "Stop," "It's right there," "Tell me now," "What toolbar menu item would you press to insert an image?", "Tell me why the character acted that way."
Question Cards	*Prepared cards with content- and task-specific questions* given to individuals or groups of students to ask each other pertinent questions about a particular topic or content area.

Question Stems	*Incomplete sentences which students complete:* Encourages deep thinking by using higher order "What if" questions.
Stories	*Stories relate complex and abstract material to situations more familiar with students:* Recite stories to inspire and motivate learners.
Visual Scaffolds	Pointing (call attention to an object); representational gestures (holding curved hands apart to illustrate roundness; moving rigid hands diagonally upward to illustrate steps or process), diagrams such as charts and graphs; methods of highlighting visual information.

Source: (Alibali, 2006)

Preparing to Use Scaffolding

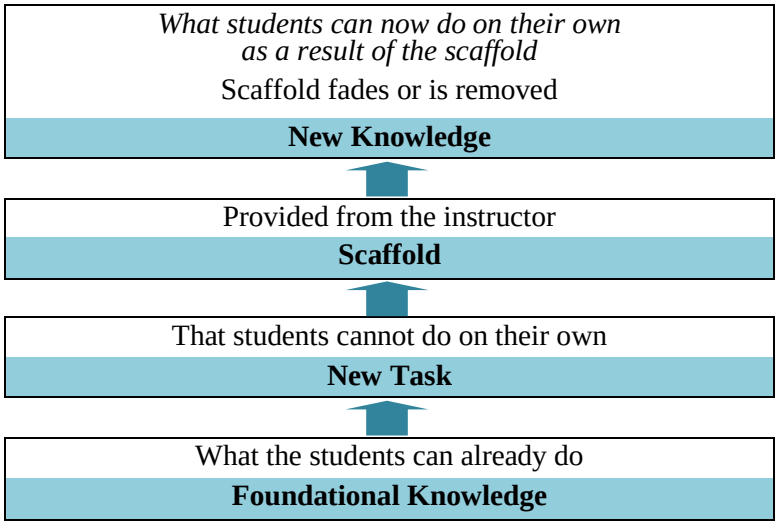
As with any teaching technique, scaffolds should complement instructional objectives. While we expect all of our students to grasp course content, each of them will not have the necessary knowledge or capability to initially perform as we have intended. Scaffolds can be used to support students when they begin to work on objectives that are more complex or difficult to complete. For example, the instructional objective may be for students to complete a major paper. Instead of assuming all students know how to begin the process, break the task into smaller, more manageable parts.

1. First, the instructor provides an outline of the components of the paper
2. Then students would prepare their outline
3. The instructor then provides a rubric of how each paper criteria will be assessed
4. Students would then work on those criteria and at the same time and self-evaluate their progress
5. The pattern would continue until the task is completed (although scaffolds might not be necessary in all parts of the task)

Plan to use scaffolds on topics that former students had difficulty with or with material that is especially difficult or abstract.

Knowing your subject well will also help you identify the need for scaffolding. Plan to use scaffolds on topics that former students had difficulty with or with material that is especially difficult or abstract. Hogan and Pressley, (1997) suggest that you practice scaffold topics and strategies they know well. In other words, begin by providing scaffolded instruction in small steps with content you are most comfortable teaching. See Table 2.

Table 2. Illustrative Model of Scaffolding



Guidelines for Implementing Scaffolding

The following points can be used as guidelines when implementing instructional scaffolding (adapted from Hogan and Pressley, 1997).

Provide encouragement and praise as well as ask questions and have students explain their progress to help them stay focused on the goal.

Help students become less dependent on instructional supports as they work on tasks and encourage them to practice the task in different contexts.

- Select suitable tasks that match curriculum goals, course learning objectives and students' needs.
- Allow students to help create instructional goals (this can increase students' motivation and their commitment to learning).
- Consider students' backgrounds and prior knowledge to assess their progress – material that is too easy will quickly bore students and reduce motivation. On the other hand, material that is too difficult can turn off students' interest levels).
- Use a variety of supports as students progress through a task (e.g., prompts, questions, hints, stories, models, visual scaffolding "including pointing, representational gestures, diagrams, and other methods of highlighting visual information" (Alibali, M, 2006).
- Provide encouragement and praise as well as ask questions and have students explain their progress to help them stay focused on the goal.
- Monitor student progress through feedback (in addition to instructor feedback, have students summarize what they have accomplished so they are aware of their progress and what they have yet to complete).
- Create a welcoming, safe, and supportive learning environment that encourages students to take risks and try alternatives (everyone should feel comfortable expressing their thoughts without fear of negative responses).
- Help students become less dependent on instructional supports as they work on tasks and encourage them to practice the task in different contexts.

Scaffolds can be "recycled" for other learning situations.

Benefits of Instructional Scaffolding

- Challenges students through deep learning and discovery
- Engages students in meaningful and dynamic discussions in small and large classes
- Motivates learners to become better students (learning how to learn)
- Increases the likelihood for students to meet instructional objectives
- Provides individualized instruction (especially in smaller classrooms)
- Affords the opportunity for peer-teaching and learning
- Scaffolds can be "recycled" for other learning situations
- Provides a welcoming and caring learning environment

Challenges of Instructional Scaffolding

- Planning for and implementing scaffolds is time consuming and demanding.
- Selecting appropriate scaffolds that match the diverse learning and communication styles of students.
- Knowing when to remove the scaffold so the student does not rely on the support.
- Not knowing the students well enough (their cognitive and affective abilities) to provide appropriate scaffolds.

Summary

Instructional scaffolds promote learning through dialogue, feedback and shared responsibility. Through the supportive and challenging learning experiences gained from carefully planned scaffolded learning, instructors can help students become lifelong, independent learners.

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