



Lens on Learning Theory

“What do we know about the bio-physiology of learning? We know that the brain changes structure and function in response to experience. We know that it’s all about connections and that it is not a product, but a dynamic process that occurs when new neuronal connections are made...As these pathways are used and strengthened, learning is also strengthened” (Wunderlich et. al.).



Based on research, an important aspect of instruction is **building structures or networks that support learning** in a particular discipline. Scaffolding resources are designed to provide **“intellectual support for students’ thinking** until they learn how to handle the subject matter more independently” (Indiana State University).



Scaffolding resources provide structure to help learners with the following:

1. **Organizing and processing information**
2. **Working through a thinking and/or problem-solving process**
3. **Following procedures**
4. **Completing tasks**
5. **Developing skills**

Scaffolding develops confidence with thinking and process structures. Those structures need to provide a solid framework without being a straight jacket for creativity. This is the balancing act – **Scaffolding must support, but not limit the “construction” process.**

Reflection on Practice

1. As an expert in your discipline, what **processes and frameworks** do you use for organizing, thinking about, and communicating information and ideas? How can you make those processes and frameworks **more explicit** for your learners?
2. In your course or discipline, what aspects of learning (i.e. knowledge, skills) pose **consistent difficulty** for students? What resources could provide **support and structure** in those areas?

Expanding Your Teaching Toolkit

We have identified several types of “scaffolding” resources that can support students in learning. None of them are magic bullets, however, every student benefits when the structures of a discipline are made explicit.

The Centre for Teaching and Learning has developed scaffolding resources for team learning, critical thinking, and scientific thinking skills. These can be found on our website under Curriculum → Essential Skills. <http://edu.georgianc.on.ca/teaching/curriculum/essentialskills/>

We would love to hear more about your successful scaffolding resources.

1. Frameworks

Experts use frameworks in their disciplines intuitively (i.e. Scientific Method, Problem-Solving, Design Processes, Planning Frameworks). Making frameworks explicit allows learners to spend more time working with the content. Visit the link below for a sample Problem Solving Framework.
http://edu.georgianc.on.ca/teaching/curriculum/essentialskills/Critical_Scaffold8_Problem_Solving.doc

2. Charts and Other Visual Organizers

Charts and other visual organizers (i.e. timelines, Venn diagrams, trees, flow charts, outlines, storyboards, tables, graphs, diagrams) provide clear structures for extracting, organizing, and processing information. Visit the link below for an overview of several types of visual organizers.
<http://www.muskingum.edu/~cal/database/general/organization.html#InfoOrgan>

3. Step by Step Process Guides

Breaking complex tasks into steps provides the structure many students need to get started on and complete a learning task successfully. Such guides encourage faculty to articulate how they, as experts, work through the task. Visit the link below for a guide for developing and supporting an argument
http://edu.georgianc.on.ca/teaching/curriculum/essentialskills/Critical_Scaffold11_Argument.doc

4. Tip Sheets (Step by Step Skill Guides)

As experts in our discipline we naturally do things that required many repetitions in the learning stages. Tip sheets allow learners to review and practice skills independently as many times as necessary. Visit the link below for a sample Tip Sheet on Evaluating Information Sources.
http://edu.georgianc.on.ca/teaching/curriculum/essentialskills/Critical_Scaffold9_Evaluating_Info_Sources.doc

5. Guiding Questions (i.e. Reading Guides, Lecture Guides, Video Guides)

Guiding questions help learners focus their attention and act as a filter for large amounts of information. Visit the link below for Pedagoggle on facilitating learning with effective questions.
http://edu.georgianc.on.ca/teaching/pub/pedagoggles/Questions_2_5.pdf

6. Informational Resources

We don't generally have time to teach students all the skills they need to effectively complete assignments. However, we can provide them with supporting informational resources for reference. Visit the link below for a sample informational resource on Annotating Text.

http://edu.georgianc.on.ca/teaching/curriculum/essentialskills/Critical_Scaffold6_Annotating_Text.doc

For a variety of informational resources, visit the link below

Study Guides and Strategies - <http://www.studygs.net/>

7. Self-Assessment and Peer Assessment Guides

Self or peer assessments are generally only effective when students have clear structures and guidelines that help focus their attention, and give them the language they need to give constructive feedback. Visit the link below for sample assessments related to Team Learning.

http://edu.georgianc.on.ca/teaching/curriculum/essentialskills/Team_ScaffoldD8_ProcessQuestions.doc

References and More Information

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