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Mentors: Supporting Learning and Assessing Understanding

Scaffolding learning

The term "scaffolding" was developed as a metaphor to describe the type of assistance offered by a teacher or peer to support learning. In the process of scaffolding, the teacher or mentor helps the mentee master a task or concept that they are initially unable to grasp independently. The mentor offers assistance with only those skills that are beyond the mentee's capability. Of great importance is allowing the mentee to complete as much of the task as possible, unassisted. The mentor only attempts to help the student with tasks that are just beyond her/his current capability. Errors are expected, but, with mentor feedback and prompting, the mentee is able to achieve the task or goal.

When the mentee takes responsibility for or masters the task, the mentor then begins the process of "fading", or the gradual removal of the scaffolding, which allows the student to work independently.

Strategies for Scaffolding Learning:

Many different facilitative tools can be utilized in scaffolding student learning. Among them are:

- Breaking the task into smaller more, manageable parts
- Using "think alouds", or verbalizing thinking processes when completing a task
- Employing cooperative learning, which promotes teamwork and dialogue among peers
- Giving concrete prompts, questioning, coaching
- Modeling
- Activating background knowledge, giving tips, strategies, cues and procedures

Important: Mentors have to be mindful to keep your mentee in pursuit of the task while minimizing their stress level. Skills or tasks too far out of reach can lead your mentee to feel frustrated, and tasks that are too simple can cause much the same effect.

Assessing Students' Thinking Processes:

Assessing understanding during the learning process is called formative assessment, and serves two primary functions:

1. It exposes misconceptions or misapplications at an early stage, while knowledge, skills, and attitudes are still being formed, and allows for re-instruction or direction change
2. It requires mentees to think about what they are doing. Doing so helps your mentee "keep their eyes on the prize", engages them in critical thinking, and helps shift information from short term memory to long term memory, thus advancing the learning process in and of itself.

As your mentee advances, so should their ability to think about their own learning, to self-monitor and self-regulate. Your mentoring should scaffold this process, providing more structure and modeling at the beginning of the relationship or project and increasingly less as the mentee grows in autonomy. Many times we assume our mentees understood our meaning, but how can we be sure?

Strategies for Assessing Understanding

1. Take a minute to consider any assumptions you have made about what your mentee knows or does not know.
2. At key moments in the research process, ask your mentee to explain in their own words what the results are and how they got there.
3. Ask your mentee to explain something to another person in your lab group.
4. Ask your mentee to organize information with a flowchart, diagram, or concept map.
5. Ask questions that foster meta-cognition, such as:
 - How did you come to that conclusion? What evidence supports it?
 - What experience or literature made you choose that course of action?
 - Can you illustrate your thinking process on this project?