

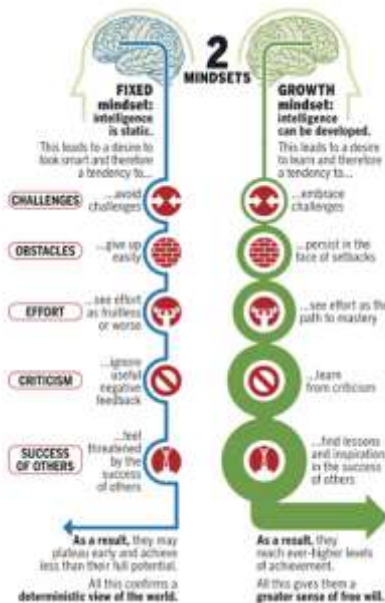
Perspectives Week: Thursday (5/17/18)
New Science of Learning
Faculty and Life Coach Ideas Shared During Session



CTL New Science of Learning Website: <https://www.maryville.edu/academicaaffairs/center-teaching-learning/perspectives-week/new-science-of-learning/>

The link to the website above provides **evidence-based** suggestions for **teaching and learning strategies** to apply the science of learning to 1) course design, 2) course assignments, 3) course facilitation, and 4) assessment/feedback. It also includes a section on creating an institutional learning culture.

Growth Mindset: Faculty and Life Coach Ideas



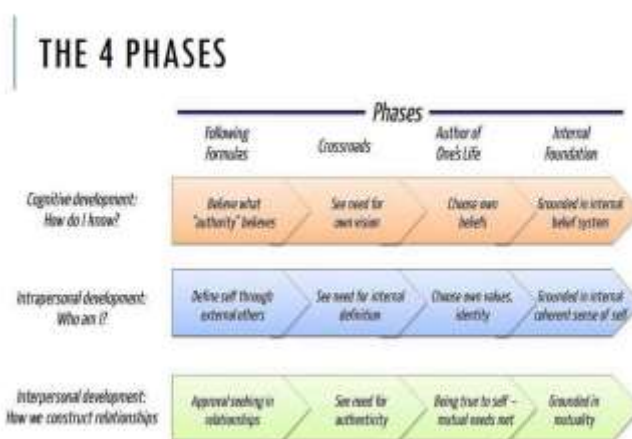
Characteristics of a Fixed Mindset	Characteristics of a Growth Mindset
<ul style="list-style-type: none"> • Believes intelligence and talent are fixed • Believes effort is fruitless • Believes failures define who they are • Hides flaws • Avoids challenges • Ignores feedback • Views feedback as personal criticism 	<ul style="list-style-type: none"> • Believes intelligence and talents can be developed • Believes effort is the path to mastery • Believes mistakes are part of learning • Views failure as an opportunity • Believes failures are temporary • Embraces challenges • Welcomes feedback

How can we create conditions for students' willingness to take academic risks, experiment, and use failure as an opportunity for learning?

- Kelly Lave shared the idea of "test wrappers" as a strategy to foster students' reflection and learning from mistakes. Students answer reflection questions after tests (could set up on Canvas) to reflect on how students felt about their performance, what they might do differently for the next test, and what resources they need to support them.

- Sandy Ross re-framed the language on the syllabus from an expectation that students must “pass the lab to pass the class” to an expectation to “to successfully complete the lab.”
- Discuss with students how learning occurs through reflection and use real-world examples.
- Set up several low-stakes assessments to develop students’ efficacy and mastery of concepts before the first exam.
- Discuss with students how difficult topics require time and patience to master; prioritize learning goals (to improve and master competence) and success can be found.
- Create an environment for **“fearless learning”** where mistakes are celebrated as a natural part of the learning process with new or difficult concepts. Include this language in the syllabus and explain why you have created certain assignments so that students can make mistakes on “low stakes” in-class assignments with minimal points associated when wrestling with difficult material.
- When a student fails on an assignment and comments they just don’t have writing ability (or math or science ability) and says, “I can’t do that,” encourage them to add the word yet at the end: **“I can’t do that yet.”** This reframes the assumption that intelligence can’t be developed, and simply requires deliberate, intentional practice.
- **Frame goals** for assignments to focus students’ attention on *improving* and *mastering* their knowledge, rather than *proving* how smart they are (or avoiding negative judgments about their inability).
- Offer conferences in first couple of weeks of class before exam 1 to jointly discuss expectations and questions.

Self-Authorship: Faculty and Life Coach Ideas

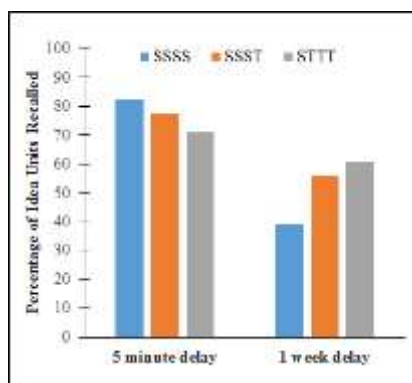


How can we facilitate self-regulated learning and students’ transition toward self-authorship?

- Sandy Ross has students engage in think>pair> share to discuss ideas, vote on answers. If there is a controversy, they must convince each other and grapple with ideas in different ways.
- Give students the responsibility to lead discussions with questions.
- Ask exploratory and open-ended questions of students to encourage reflection.
- Set expectations with students about what support means.
- Place the emphasis on creating a plan to solve problems, rather than giving students the “right” answer.
- Have drafts or outlines of papers peer-reviewed; stress the value of their feedback.
- Use student-professor co-created rubrics and co-create meaningful assignments.
- Reword the instructional methods section of the syllabus to articulate how activities and assignments build on a learning partnership.
- Set self-authorship expectations in BSN, MSN, DNP orientation and then reinforce in every syllabus.
- In the instructional methods section of the syllabus, discuss shared learning and the rationale for using it (why you are using it and how it will impact learning).
- Create authentic learning assignments in courses.
- Give students product choice, creative experiences, and self-evaluation.

- If you will use student-led discussions as the norm in a course, have a student-led discussion on day 1 to model how that process will work and explain the rationale for it (how it will impact learning).
- Ask students to reflect on statements in the syllabus to better understand what they think those statements mean – and then revise.
- Reframe advising meetings as an opportunity to support and challenge students' development toward self-authorship.
- In every class, emphasize co-creation as an objective to foster the transition toward self-authorship.
- During coaching conversations, help students analyze their problem-solving skills (there is a tension between being responsive and student-centered and helping them transition toward self-authorship).
- Life coaches encourage students to take responsibility for their learning by meeting with their professor (and let students know they are interested in helping them and are not scary).
- Be explicit in the syllabus and on the first day of class about what you will be doing and why you will be doing it. For example, let students know that you will be using discovery-oriented learning (which fosters independent thinking and authorship) rather than passive strategies (such as primarily lecturing). If you are transparent with your rationale and up front about expectations, they are less likely to think “the teacher doesn't know how to teach – why don't they just lecture and get to the content,” and understand how the learning method will improve their learning by the end of the course.

Retrieval Practice: Faculty and Life Coach Ideas



How can we encourage students to apply retrieval practice strategies for optimal learning?

- Konrad Dias shared the idea that he has students practice a concept in increasingly complex ways throughout the course (being able to interpret graphs) to reinforce the process of learning.
- Pradip Ghosh uses the 3 practices of 1) read, 2) write, and 3) retrieve to help students with deep processing of concepts. He also has students do a skit to present topics in neurophysiology course.
- Joanne Kern uses animated video for key points and rehearsal practice.
- Eliza Prager uses team-based learning with retrieval practice with individual prep and low stakes activities to help alleviate anxiety.
- Carol Berger has students practice and rehearse concepts in small groups with real patient cases in which they think about symptoms and then present health promotion to class after they have been told the immunizations to look up.
- Ann Fick uses Kahoot, Family Fued, and Trivia to test students at beginning and end of class to make retrieval practice engaging.
- Bob Bertolino uses Jeopardy game for practice and prep in his courses.
- Gail Pitroff teaches foundation courses that require extensive writing rather than tests, and so she designs assignments with the application of writing principles so that rehearsal is possible.
- Life coaches encourage students to engage in peer group discussions for study strategies and connect struggling students with peer tutors.
- Have active lab with motor learning activities versus lecture (flipped classroom) for deeper processing of retrieval practice.
- Weekly learning objectives with check your understanding modules.

- Give rationale for advanced assessment (MSN) with written assignment and video clinical situation with a written assignment for deep processing of learning.
- We brainstorm study strategies and ideas together as a class, and I talk about how useful those ideas will be.
- On the first day of class, share the rationale that “doing the work” before-hand will help students get more out of class time.
- Be up front with students about your expectations that they read before class, and let them know that they may be called on or that they may work in pairs (a form of retrieval practice).
- Be explicit in the syllabus (and in class) about **why** you embedded retrieval practice opportunities into the course. When students know these assignments are there **for them**, as evidence-based mechanisms to assist their learning, and they know **why they work**, they are more likely to use them.



We thank you for sharing your ideas during the session! Our hope is that all 3 concepts (**retrieval practice, growth mindset, and self-authorship**) that we highlighted in the session will benefit our students' learning. If students only know evidence-based study strategies, but don't believe that ability can be developed (fixed mindset), then they are more likely to give up and not persevere when they face academic difficulty. If they believe that ability can be developed (growth mindset), but they don't use evidence-based study strategies, then they are likely to work hard and persevere (because they believe ability can be developed) but may apply effort on the **wrong** things.

And if they unquestioningly accept experts' knowledge claims and depend on experts for the “right” answers (external formulas versus self-authorship), then they are more likely to learn rote. When they face complex situations (such as in advanced courses or ambiguous problems in their professional careers), a growth mindset and effective study strategies alone will not be sufficient to enable them to make good professional judgments and think critically.

All three are important to students' development and success, and any one in isolation is less likely to have the impact that all three may have in relationship. The CTL website link to the New Science of Learning webpage provides additional tools and resources about these concepts and others related to the science of learning. We enjoyed the conversation with you!