Teaching Excellence and Innovation in Pedagogy

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New Faculty Orientation 2024

USC University of Southern California

USC Viterbi School of Engineering

Viterbi School Definition of Teaching Excellence (1)

Teaching excellence is demonstrated through instructional practice which...

- *Clearly articulates challenging, academically rigorous, and attainable expectations and learning outcomes.*
- *Treats students professionally, respectfully, and with integrity.*
- *Creates an inclusive environment where all students are welcome to engage with course instructors (including TAs) and their peers.*
- *Provides instruction in the classroom characterized by*
  - *Content and materials that are clear, organized, and relevant to modern practice.*
  - *Teaching activities that model and foster critical, analytical, and creative thinking along with real-world problem-solving skills.*

Viterbi School Definition of Teaching Excellence (2)

Teaching excellence is demonstrated through instructional practice which...

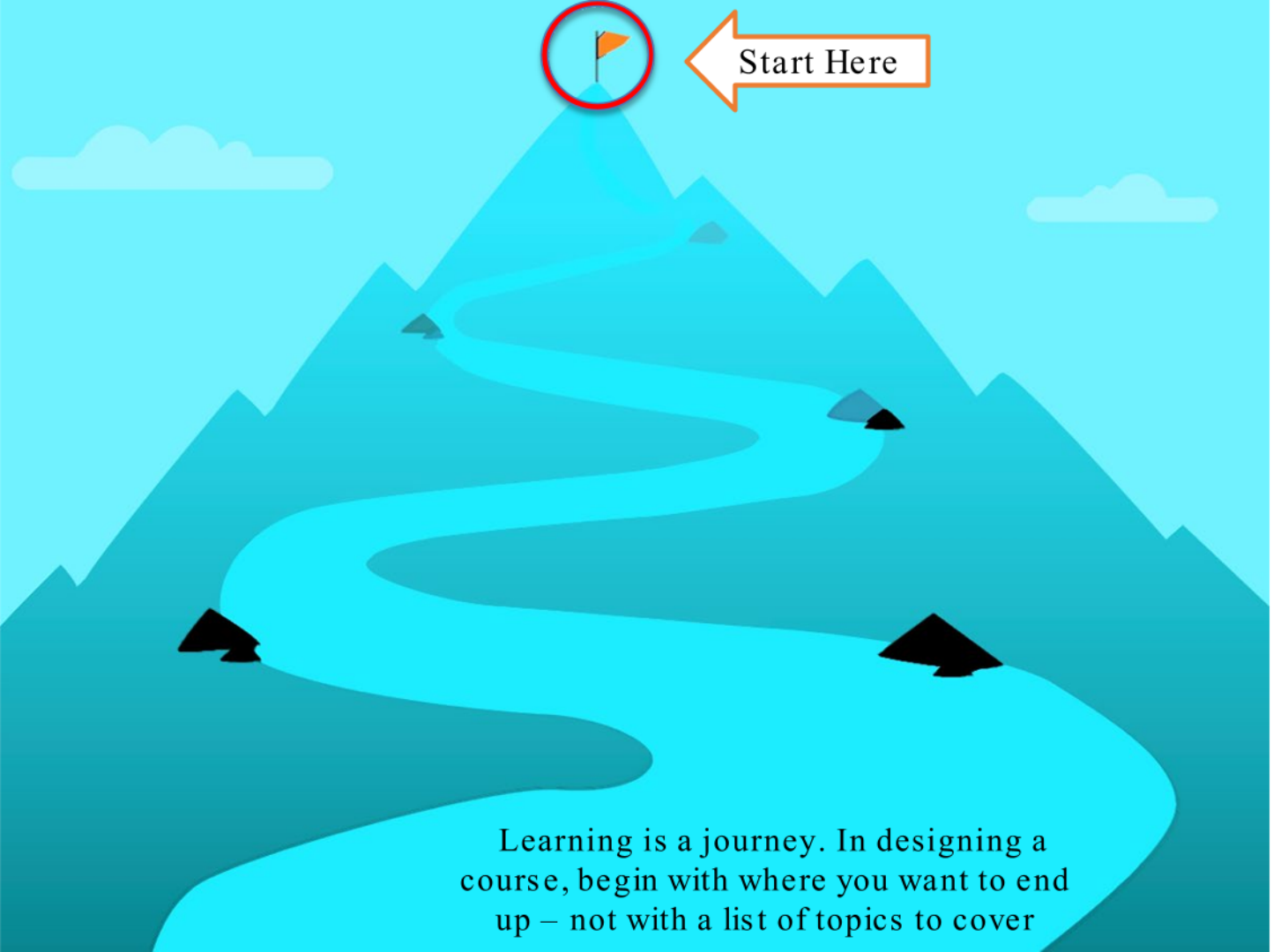
- *Employs student assessments that are aligned with course content and learning outcomes, and provides feedback to students that encourages their academic growth.*
- *Fosters a mindset where growth is always possible, and ability is not fixed.*
- *Utilizes, as applicable, innovative methods and technology to improve teaching, learning, mentoring and assessment.*
- *Utilizes student and peer feedback as well as scholarly practices to improve and refine content, teaching style, mentoring, and assessments.*

Thoughts As You Start Your Teaching Journey

Acknowledgements

The next several slides were created by Lessa Grunenfelder, Associate Professor of Engineering Practice [CHE and MASC], who was unable to attend this year.

Many thanks to her for allowing us to utilize them.



Establish the learning goals. What should students know, understand, and be able to do by the end of the course/class session?

- What are big ideas and important understandings students should retain? These choices are the "enduring understandings."
- What knowledge and skills should students master? What is "important to know and do."?
- What should students hear, read, view, explore, or otherwise encounter? This knowledge is "worth being familiar with."

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Determine how students' mastery of the knowledge and skills will be demonstrated.

- What will be acceptable evidence that students are making progress toward the learning goals of the course?
- How will the students AND instructor know if students are "getting it?"
- Assessment is part of the learning process and should occur throughout the sequence, not just at the end.

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3. Finally, How will we get there?

Start planning how to teach the content.

- What instructional strategies and learning activities would be most appropriate?
- What are the best exercises, problems or questions for developing your students' ability to meet the specified learning goals?
- How can students apply their learning?
- Devise active and collaborative exercises that encourage students to grapple with new concepts in order to "own" them.

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Backwards Design

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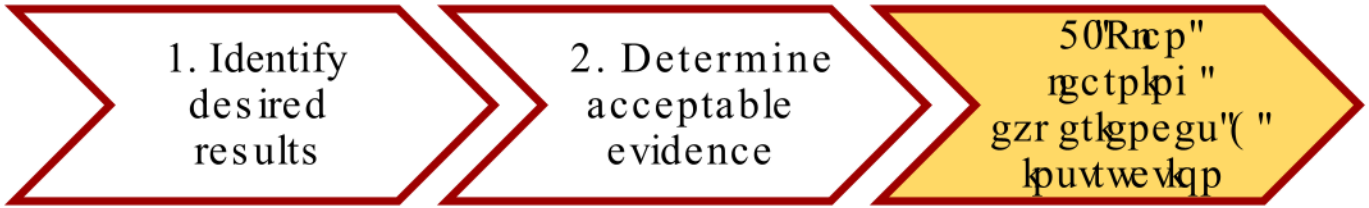
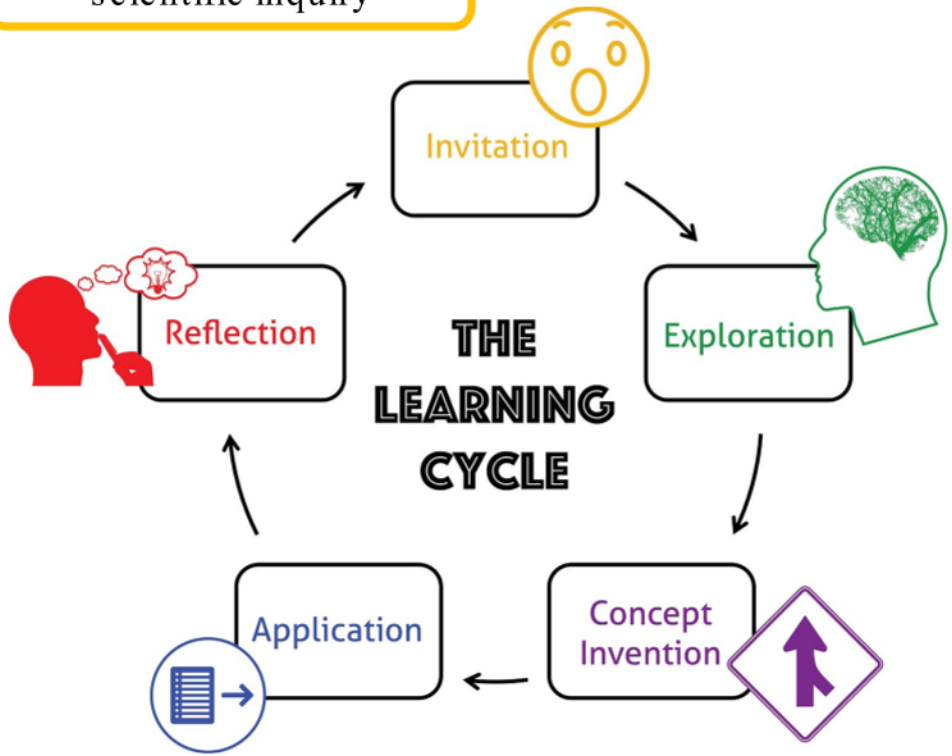


The Learning Cycle

Sequence matters – model scientific inquiry



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Another Version: The 5 Es

- Hook & Explore before emphasizing language
- All the phases do not need to occur in one lesson
- Tasks throughout the phases for learners to:
  - retrieve & connect to prior knowledge,
  - articulate & explain their understanding, &
  - find how it is relevant and meaningful to them.

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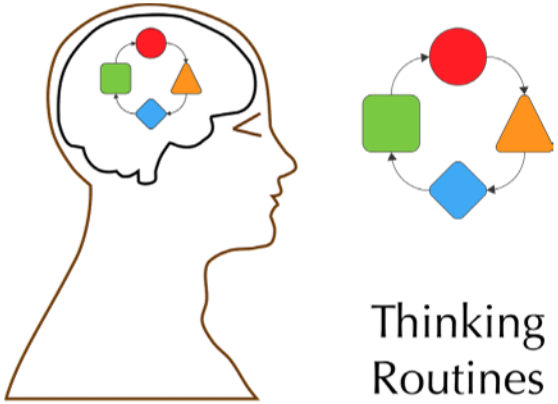
Some Techniques to Consider



Thinking Routines

Making thinking visible:

- Makes explicit the act of thinking, and allows learners &educators a window into learners' understanding.
- Reduces the cognitive load.
- Emphasizes learner's own ideas as the starting point for learning, and a continued process of making & revising connections between prior and new information.

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Resources

Center for Excellence in Teaching (CET)

- CET provides support and training to enhance teaching and learning across the entire university
- Institutes - Semester long cohorts
  - Faculty Teaching Institute - Entry point designed for junior faculty interested in establishing a strong foundation in teaching pedagogy.
  - Advanced Teaching Institutes - Topical institutes that run periodically
  - Faculty Fellows Teaching Institute - Supports development of teaching leaders within the university
- Resources
  - Syllabus Template
  - Faculty Decision Guide
  - Assignment Description Template
  - Teaching Observation Checklist - Useful for self-reflection as well

Viterbi Resources

EFC (Engineering Faculty Council) Instructional Committee

- Membership is open to interested individuals

Viterbi Advanced Teaching Institute

- Tasked with providing relevant training and communities of practice related to teaching and learning

Engineering Education and Pedagogical Initiatives

- Dr. Gigi Ragusa

External Resources

- ASEE - American Society of Engineering Education
- NETI - National Effective Teaching Institute
  - National sequence of workshops (Basic, advanced, etc.) held annually
- Professional Societies Education-Focused Groups
  - ASME, IEEE, ACM (SIGCSE)

STEM Faculty Teaching Learning Program (FTLP)

- Year-long cohort of Viterbi and Dornsife STEM educators to reflect upon their teaching practice and collaboratively develop and experiment with new teaching approaches and habits
- Contact: Lessa Grunenfelder
  - grunenfe@usc.edu

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Other Initiatives

- **Process-Oriented Guided-Inquiry Learning** (POGIL) is a group-learning instructional practice that helps students discover information and construct knowledge rather than simply having it be presented to them
  - More details here.
- Contact: Kendra Walthers (ITP)
  - (kwalther@usc.edu)

- **Flipped Classroom**: Where as traditional courses often "deliver" content in the classroom and leave students to apply it outside of the classroom, flipped classroom approaches present content asynchronously and reserve time in the classroom for activities that help students apply that content with guidance and mentoring from the instructor.
  - More details here.
- Contact: Krishna Nayak or Mark Redekopp (ECE)
  - (knayak@usc.edu or redekopp@usc.edu)

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