TEACHING EFFECTIVENESS FRAMEWORK

INSTRUCTIONAL STRATEGIES DOMAIN

Instructional Strategies that are most effective provide an active and engaging experience for learners. Instructors who use a variety of evidence-based teaching strategies create an environment for increased student engagement and critical thinking.

Choose from these evidence-based teaching practices to engage students in their learning.

Active Learning

- Use a variety of teaching methods and modalities (verbal, interactive, Socratic, etc.) that align with learning objectives
- Use Think Pair Share to engage students, break up lecture, or check for student understanding
- Incorporate Classroom Assessment Techniques for individual processing, partner processing, or small group activities in a variety of teaching modalities
- Engage students in Community Engaged Learning that meets academic and community needs
- Support deep understanding of concepts with peer-to-peer instruction
- Use discussion protocols for an equitable discussion experience
- Grab students' attention during the first five minutes of class; finish strong in the last five minutes
- Support content retention and critical thinking with Writing Across the Curriculum activities
- Promote deep learning and problem solving with case studies: (science case studies)
- Host online discussions in the Canvas LMS
- Use instructional strategies that have a proven effect size on student learning:
  - Use the Jigsaw Method for peer learning
  - Give students the opportunity to be the expert with Reciprocal Teaching
  - Reverse the traditional order of teaching with Inductive Teaching
  - Provide graphic organizers to students to support student understanding
  - Provide support, clarity, and structure to students by scaffolding learning and assignments
  - Prime students for learning by activating prior knowledge
  - Help students organize knowledge with Concept Mapping, (student directions)
  - Add structure to Collaborative Learning for successful groupwork
  - Enhance critical thinking with Problem Solving Teaching or Problem-based Learning

Learning Technology

- Use accessible slide presentations, documents, videos, and other course materials
- Provide students with the ATRC Quick Start Guides to share the free assistive technology tools available at CSU
- Intentionally choose learning technologies that enhance student engagement. Popular apps include: Padlet, Kahoot, Jamboard, Flippity, Quizlet, Edpuzzle, Flipgrid, iClickers
- Ensure your Canvas classroom materials are accessible:
  - Run the UDOIT for Canvas tool to check your course for accessibility compliance
  - Share ReadSpeaker for Canvas tool with students
- Use Canvas, Echo360, or Microsoft Teams to record videos; limit instructional videos to less than 15 minutes
- Work with Classroom Support Services to learn how to use classroom technology as well as report classroom technology problems

Science of Learning

- Intentionally embed Science of Learning practices into your instruction
- Align questions with the level of thinking you want from students
- Guide students in the three phases of learning (surface, deep, and transfer) to retain, understand, and then apply knowledge to a new context
- Design classes so that students engage in Predicting, Interleaving, Connecting, Practicing
- Avoid cognitive overload for students and allow time for metacognition
- Incorporate elaboration, spacing, and frequent quizzing/testing

This icon indicates inclusive teaching practices that are fundamental to being an inclusive instructor.

See TILT's Recommended Process for Annual Review of Teaching to learn more about how to utilize this resource

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TEACHING EFFECTIVENESS FRAMEWORK

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LEVELED CRITERIA & SELF-ASSESSMENT RUBRIC

Use this rubric to reflect on your current instructional practices, set a teaching goal, and monitor growth. TILT recommends revisiting this throughout the year to continue to reflect and adjust as you work towards your goal. TILT does not recommend using this as an observation tool or for direct evaluation. See TILT's Recommended Process for Annual Review of Teaching to learn more about how to utilize this resource.

INSTRUCTIONAL STRATEGIES DOMAIN

Instructional Strategies that are most effective provide an active and engaging experience for learners. Instructors who use a variety of evidence-based teaching strategies create an environment for increased student engagement and critical thinking.

Evidence	Advanced	Proficient	Developing	Emerging
Active Learning • Variety of instructional strategies • Frequency of opportunities for participation	The instructor uses a variety of instructional strategies during all class sessions to increase student engagement, critical thinking, understanding, and connections to learning objectives.	The instructor uses a variety of instructional strategies during many class sessions to increase student engagement, critical thinking, understanding, and connections to learning objectives.	The instructor uses a few instructional strategies during some class sessions to increase student engagement, critical thinking, understanding, and connections to learning objectives.	The instructor uses one or two instructional strategies during some class sessions to increase student engagement, critical thinking, understanding, and connections to learning objectives.
Learning Technology • Presentation slides • Canvas content • Learning apps • Adherence to assistive technology resource guidelines	All technology and visual presentations are used intentionally, align with course outcomes, and adhere to assistive technology resource guidelines. Instructor provides rationale and support for all technology use during class.	Most technology and visual presentations are used intentionally, align with course outcomes, and adhere to assistive technology resource guidelines. Instructor provides support for most technology use during class.	Some technology and visual presentations are used intentionally, align with course outcomes, and adhere to assistive technology resource guidelines. Instructor provides support for technology use during class if students ask.	Technology and visual presentations are used but do not yet align with course outcomes or adhere to assistive technology resource guidelines. Instructor may provide support for technology use during office hours.
Science of Learning • Course structure • Structure of assignments and class activities	The instructor designs the entire course with the science of learning in mind with an emphasis on practice, metacognition, and learning for transfer. During class, students practice the level of thinking needed to complete tasks, assignments, or assessments.	The instructor makes many curricular and instructional decisions with the science of learning in mind. Students are aware of the level of thinking needed to complete tasks, assignments, or assessments.	The instructor makes a few instructional and curricular decisions that align with the science of learning.	Course design and instructional practices do not yet align with the science of learning.

References

Active Learning: A Practical Guide for College Faculty, Magna Publications 2017

Ambrose, S.A., Brides, M.W., Lovett, M.C., DiPietro, M., & Norman, M.K. (2010). How learning works: Seven research-based principles for smart teaching. San Francisco: Jossey-Bass.

Anderson, T. (1997). Integrating Lectures and Electronic Course Materials. *Innovations in Education and Training International*, *34*(1), 24–31. https://doi.org/10.1080/1355800970340105

Atkinson, R. K., Derry, S. J., Renkl, A., & Wortham, D. (2000). Learning from Examples: Instructional Principles from the Worked Examples Research. *Review of Educational Research*, *70*(2), 181–214. https://doi.org/10.3102/00346543070002181

Benefits, Definitions, and Underpinnings – LSE Resources. (n.d.). Retrieved July 18, 2023, from https://lse.ascb.org/evidence-based-teaching-guides/group-work/benefits-definitions-and-underpinnings/

Caldwell, J. E. (2007). Clickers in the Large Classroom: Current Research and Best-Practice Tips. *CBE— Life Sciences Education*, *6*(1), 9–20. https://doi.org/10.1187/cbe.06-12-0205

Contact Support. (n.d.). Masterplan.highered.colorado.gov. Retrieved July 18, 2023, from http://masterplan.highered.colorado.gov/wp-content/uploads/2020/09/CDHE-Creating-a-Positive-Classroom-Climate.pdf%20(pp.%2010-11)

Crouch, C., Fagen, A. P., Callan, J. P., & Mazur, E. (2004). Classroom demonstrations: Learning tools or entertainment? *American Journal of Physics*, *72*(6), 835–838. https://doi.org/10.1119/1.1707018

Fountain S. B., Doyle K. E. (2012) Learning by chunking. In Seel N.M. (eds) Encyclopedia of the Sciences of Learning.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H.,& Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. Proceedings of the National Academy of Sciences, 111(23), 8410–8415. https://doi.org/10.1073/pnas.1319030111

Haak, D. C., HilleRisLambers, J., Pitre, E., & Freeman, S. (2011). Increased Structure and Active Learning Reduce the Achievement Gap in Introductory Biology. Science, 332(6034), 1213–1216. https://doi.org/10.1126/science.1204820

Horsley, M., Knight, B., & Huntly, H. (2010). The role of textbooks and other teaching and learning resources in higher education in Australia: change and continuity in supporting learning. *IARTEM E-Journal*, *3*(2), 43–61. https://doi.org/10.21344/iartem.v3i2.787

Howard, Jay R., and Weimer, Maryellen. 2015. Discussion in the College Classroom: Getting Your Students Engaged and Participating in Person and Online. San Francisco: Jossey-Bass.

Knight, J. K., & Wood, W. B. (2005). Teaching More by Lecturing Less. *Cell Biology Education*, *4*(4), 298–310. https://doi.org/10.1187/05-06-0082

Lang, J. (2016). Small teaching: Everyday lessons from the science of learning. Hoboken, NJ: Wiley.

Mahdi, O. R., Nassar, I. A., & Almuslamani, H. A. (2020). *The role of using case studies method in improving students' critical thinking skills in higher education*. International Journal of Higher Education. https://www.sciedu.ca/journal/index.php/ijhe/article/view/16580

Maxwell, J., & Stang, J. (2015). *Making the most of demonstrations, videos, animations, or simulations in lectures and laboratories*. https://cwsei.ubc.ca/sites/default/files/cwsei/resources/instructor/Demo_WorkshopSummary_CWSEI-EOY2015_2page.pdf

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References (continued)

National Research Council. (2000). How people learn: Brain, mind, experience, and school. Expanded edition. Washington, D.C.: National Academies Press. https://doi.org/10.17226/9853.

Nilson, L. (2014). Creating Self-Regulated Learning. Sterling, VA: Stylus.

Porter, L., Bailey Lee, C., & Simon, B. (2013, March). Halving fail rates using peer instruction: a study of four computer science courses. In *Proceeding of the 44th ACM technical symposium on Computer science education* (pp. 177-182).

Prince, M. (2004). Does Active Learning Work? A Review of the Research. Journal of Engineering Education, 93(3), 223–231.https://doi.org/10.1002/j.2168-9830.2004.tb00809.x

Quaye, S., & Harper, S. (2015). Student Engagement in Higher Education (2nd ed.). New York, NY: Routledge.

Rhodes, M.G., Cleary, A.M.,& Delosh, E.L. (2019). A guide to effective studying and learning: Practical strategies from the science of learning. Oxford, 2019.

Rivas SF, Saiz C, Ossa C. Metacognitive Strategies and Development of Critical Thinking in Higher Education. Front Psychol. 2022 Jun 15;13:913219. doi: 10.3389/fpsyg.2022.913219. PMID: 35783800; PMCID: PMC9242397.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9242397/

Rowe, M (1986), Wait Time: Slowing Down May Be a Way of Speeding Up!, Journal of Teacher Education.

Tanner, K. D. (2013). Structure Matters: Twenty-One Teaching Strategies to Promote Student Engagement and Cultivate Classroom Equity. CBE-Life Sciences Education, 12(3), 322–331. https://doi.org/10.1187/cbe.13-06-0115

To, J., Panadero, E., & Carless, D. (2021). A systematic review of the educational uses and effects of exemplars. *Assessment & Evaluation in Higher Education*, 1–16. https://doi.org/10.1080/02602938.2021.2011134

Woosley, S. A. (2003). How important are the first few weeks of college? The long-term effects of initial college experiences. College Student Journal, 37(2), 201-207.

Cohen, Z. (2018, July 17). Small changes, large rewards: How individualized emails increase classroom performance The evoLLLution. Retrieved from: "https://evolution.com/attracting-students/retention/small-changes-large-rewards-how-individualized-emails-increase-classroom-performance/

Darby, F. (2019). Small Teaching Online. San Francisco, CA: Jossey-Bass.

Miller, M. D. (2014). Minds online: Teaching effectively with technology. Cambridge, MA: Harvard University Press.

Wehby, J. H., & Lane, K. L. (2009). Proactive instructional strategies for classroom management. In A. Akin-Little, S. G. Little, M. A. Bray, & T. J. Kehle (Eds.), Behavioral interventions in schools: Evidence-based positive strategies (pp. 141–156). American Psychological Association. https://doi.org/10.1037/11886-009

Wetzels, S. A. J., Kester, L., & van Merriënboer, J. J. G. (2011). Adapting prior knowledge activation: Mobilisation, perspective taking, and learners' prior knowledge. *Computers in Human Behavior*, *27*(1), 16–21. https://doi.org/10.1016/j.chb.2010.05.004

Yakovleva, N. O., & Yakovlev, E. V. (2014). Interactive teaching methods in contemporary higher education. *Pacific Science Review*, *16*(2), 75–80. https://doi.org/10.1016/j.pscr.2014.08.016

https://www.qualitymatters.org/qa-resources/resource-center/articles-resources/research-video-length