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Research Briefs: Teaching and Learning Science in the 21st Century: Challenging Critical Assumptions in Post-Secondary Science

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Research Briefs

Teaching and Learning Science in the 21st Century: Challenging Critical Assumptions in Post-Secondary Science

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Video will open in new window via YouTube.

Research Briefs -- Video Introduction

"We want to engage our students with the evidence. We want to engage our students in the social process and dynamics that really do represent science as a field. And by doing so, not only can we encourage the next generation of scientists--the next generation of science teachers--but we can set a fire in them the same way we have a fire and passion for the things we love that got us in our field," said Amanda Glaze, Ph.D.

Watch the above video for an introduction to the article, [Teaching and Learning Science in the 21st Century: Challenging Critical Assumptions in Post-Secondary Science](#).

Abstract

It is widely agreed upon that the goal of science education is building a scientifically literate society. Although there are a range of definitions for science literacy, most involve an ability to problem solve, make evidence-based decisions, and evaluate information in a manner that is logical. Unfortunately, science literacy appears to be an area where we struggle across levels of study, including with students who are majoring in the sciences in university settings. One reason for this problem is that we have opted to continue to approach teaching science in a way that fails to consider the critical assumptions that faculties in the sciences bring into the classroom. These assumptions include expectations of what students should know before entering given courses, whose responsibility it is to ensure that students entering courses understand basic scientific concepts, the roles of researchers and teachers, and approaches to teaching at the university level. Acknowledging these assumptions and the potential for action to shift our teaching and thinking about post-secondary education represents a transformative area in science literacy and preparation for the future of science as a field.

What practical tips will you gain from this article?

1. Science literacy is widely viewed as the goal of science coursework; however we struggle to engage students in meaningful ways that build this level of understanding.
2. Active learning engages students at all levels, pre-and-post secondary in scientific practices and processes and has been recommended for university-level courses as well as primary and secondary to increase scientific literacy.
3. Changing the approach to teaching science at the undergraduate level has potential to impact generations through teacher education and

preparation of future scientists.

Citation

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