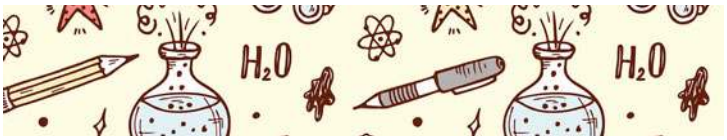
Integrating disciplines to help students succeed

eLEARNING & DISTANCE EDUCATION
University of Alaska Fairbanks
TEACHING TIP
6/12/18
BY JENNIFER MOSS



A recent trend in education, especially at the K-12 level, has been towards integration of the arts and humanities into STEM* subjects to enhance equity, engagement, critical thinking, creativity, and enrichment (STEAM*). In contrast, in higher education, our teaching practice has become increasingly subject specialized and discipline discrete in an effort to better prepare students for the workforce. However, a recent study from the National Association of Colleges and Employers found that there is currently a significant discrepancy between the perception of proficiency of employers and recent graduates in terms of basic career readiness competencies. This study focused on general skills valued by employers, such as professionalism, communication skills, critical thinking, teamwork, leadership, and digital technology. While students believe they are well prepared in these skill areas, employers did not agree (1). Yet, these types of competencies can be fostered through various levels of integrative efforts that bring the STEM disciplines together with arts and humanities.

Last month, the National Academy of Sciences released a prepublication report from their two-year extensive investigation titled *The Integration of the Humanities and Arts with Sciences, Engineering, and Medicine in Higher Education: Branches from the Same Tree* (available at http://nap.edu/24988). The authoring committee was charged with "examining evidence behind the assertion that educational programs that mutually integrate learning experiences in the humanities and arts with science, technology, engineering, math, and medicine (STEMM*) lead to improved educational and career outcomes for undergraduate and graduate students." (2). This report investigated a variety of approaches from multidisciplinary efforts, such as STEAM, to a transdisciplinary model that generates fundamentally new methods to transcend disciplinary origins with the aim of innovation and advances in knowledge.

One of the observations of this report was that the outcomes associated with integrative approaches are the same as those employers are asking for today: "written and oral communication skills, teamwork skills, ethical decision making, critical thinking, and the ability to apply knowledge in real-world settings". The strong recommendation from the report committee is that institutions find ways to develop and support efforts to connect modes of inquiry, pedagogy, and knowledge between disciplines and to facilitate a real-world experience with an aim to better prepare students for careers post-graduation. The report outlines various approaches toward integration and addresses the mitigation of potential constraints and barriers.

Interest in preserving and encouraging integrative methods is growing in higher education. At UAF, some programs that encourage interdisciplinary collaboration and focus are CITE Fellows, UAF eLearning EPIC Design Series, and other focus groups such as the Climate Collaborative. Programs that reach beyond the university, such as *Fostering STEAM*, *In a Time of Change*, and *OneTree Alaska* help connect the greater Alaska community with transdisciplinary approaches to foster scientific literacy through art integration. Faculty at UAF teaching science and technical subjects have integrated creative assessment activities into their curriculum while others in arts and humanities have integrated science and technology perspectives and activities.

Are you interested in getting together to discuss this topic? Please let us know and stay tuned— in next week's Teaching Tip we will focus on several examples of how integration has taken shape within the context of UAF courses.

REFERENCES

1. Bauer-Wolf, J. Overconfident Students, Dubious Employers. Inside Higher Ed. February 23, 2018. https://www.insidehighered.com/news/2018/02/23/study-students-believe-they-are-prepared-workplace-employers-disagree

2. National Academies of Sciences, Engineering, and Medicine. 2018. The Integration of the Humanities and Arts with Sciences, Engineering, and Medicine in Higher Education: Branches from the Same Tree. Washington, DC: The National Academies Press. doi: https://doi.org/10.17226/24988. Prepublication: http://nap.edu/24988.

*STEM - Science, Technology, Engineering and Math; STEAM - Science, Technology, Engineering, Arts/Humanities, and Math; STEMM - Science, Technology, Engineering, Math, and Medicine

Jennifer Moss is an instructional designer and adjunct faculty at UAF with over 25 years of experience in curriculum design for higher education.