INNOVATION

Innovation keeps us moving forward. It progresses the economy, transportation, communication, health care, environmental practices, and education (Badran, pp. 573-574). Innovation is about renewing or making changes, it is about adding something new to an existing product, process, or theory. (Badran, p. 574), and finding solutions to problems with the outcome of improving quality of life (CBC, 2016). The process of innovation involves less risk and commitment than true creativity, as it is more about improving upon a current practice, than inventing something new. Jacobovitz states “innovation is fostered by information gathered from new connections, from insights gained by journeys to other disciplines or places, from active collegial networks and fluid, open boundaries (p. 396).

Gupta uses the examples of video game consoles to describe this process, Atari was the creative invention, Nintendo, Sega, Playstation etc. have been the innovations building upon an existing product. In my own context, my program recently adopted a creative new evaluation scheme developed by a research group in clinical competence evaluation, we quickly determined this was the right method for our evaluation, however innovation was required to alter the concept to better work in our individual setting. We didn’t invent the evaluation scheme, but we did alter and add to it to promote student success and learning from the process. Costelo further affirms this by bringing up the Latin root “innovare” which literally means “into new”, doing something differently, and also distinguishes the importance of rewarding this process, demonstrating the ongoing nature of innovation (p.64).

Badran, I. i. (2007). Enhancing creativity and innovation in engineering education. *European Journal Of Engineering Education*, *32*(5), 573-585. doi:10.1080/03043790701433061

Costello, T., & Prohaska, B. (2013). Innovation. *IT Professional, 15*(3), 64-64. doi:10.1109/MITP.2013.42

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Jacobovitz, S. (2015). Innovation. *Journal of the American College of Cardiology, 65*(4), 396-397. doi:10.1016/j.jacc.2014.12.005

Mid-week podcast: Canada's "massive confusion" over innovation(2016) CBC Radio, retrieved from: http://www.cbc.ca/radio/thehouse/mid-week-podcast-canada-s-massive-confusion-over-innovation-1.3635004

CREATIVITY

Creativity is the engine of scientific discovery, and the driving force of positive change (Mueller, Melwani, and Goncalo, p. 13). It is often seen as a risky activity, which is full of uncertainty, which is an aversive state, thus promoting a negative bias (p.13). Creativity involves originality and flexibility, which is necessary to cope with advances and changes in thought and technology, and is the development of novel ideas that are useful or influential (Runco, p. 658). Runco discusses certain traits and influences associated with creativity, such as personality, freedom, autonomy, time, and perhaps most importantly the atmosphere of failure not being fatal (pp. 662-669).

Badran supports this definition, simply stating creativity is making something new, departing from norms, making unusual associations, and unexpected solutions (p. 575). It is discussed that creativity requires tolerating a degree of risk and acceptance of possible failure (p.576). If we are to encourage creativity in the classroom, then we must acknowledge the risk students are taking, and alter our approach to appreciate this (Runco, p.658). Traditional assignments do not tolerate true creativity, it is my interpretation that evaluation should perhaps be based on the students’ process, as opposed to final outcome, and that sufficient time must be given as creativity does take more time than simply following a prepared formula. This makes me think of the classic Edison lightbulb quote:



Badran, I. i. (2007). Enhancing creativity and innovation in engineering education. *European Journal Of Engineering Education*, *32*(5), 573-585. doi:10.1080/03043790701433061

Mueller, J., Melwani, S., & Goncalo, J. (2012). The bias against creativity: Why people desire but reject creative ideas. *Psychological Science, 23*(1), 13-17. doi:10.1177/0956797611421018

Runco, M.A. (2004). Creativity. Annual Review of Psychology, 55, 657–687. doi: 10.1146/annurev.psych.55.090902.141502

TEACHING

By the strict dictionary definition, teaching is to “Impart knowledge to or instruct (someone) as to how to do something” (OxfordDictionaries.com, 2017). To take this further, Martin defines it as “…the imparting of cultural wealth, and goes beyond the school to include home and community” (p. 8). Spiro discusses the profession of teaching as one that is ill-structured, where no single set of rules apply to every situation (p.108), a description that does well to demonstrate the art of teaching, and demonstrates that skilled teachers are able to adapt to the learners’ needs, providing motivation, relevance, guidance, and support.

UW Stout supports this definition by stating “Faculty participates in the teaching-learning process in these ways: instruction, evaluation, student-academic advisement, academic program planning, and curriculum development” (uwstout.edu, 2017). Teaching can be both formal and informal, and personally I would define my role as a teacher as someone that guides students to acquire the skills and knowledge within a given field of expertise, drawing from personal practice and theoretical knowledge. I debated adding terminology around self-teaching, but concluded that one may self-learn something, but from the definitions and sources from which I’ve crafted this definition, one doesn’t “self-teach”, but may learn on their own without being taught.

Benware, C. A., & Deci, E. L. (1984). Quality of learning with an active versus passive motivational set. *American Educational Research Journal, 21*(4), 755-765

Martin, J.R. (1996). There’s too much to teach: Cultural wealth in an age of scarcity. Educational Researcher, 25(2), 4–16.

Spiro, R. J., & DeSchryver, M. (2009). Constructivism: When It’s the Wrong Idea and When It’s the Only Idea. (Eds.) Signmund Tobias & Thomas M. Duffy Constructivist Instruction: Success or Failure. New York: Routledge. (Chapter  p. 106-123)

Wassermann, S. (2015). What is teaching? inside the black box of what teachers do. *Childhood Education, 91*(2), 83-89.

<https://en.oxforddictionaries.com/definition/teach>

<https://www.uwstout.edu/parq/upload/85-40.pdf>

LEARNING

Learning is the process whereby knowledge is created through the transformation of experience, be it via direct instruction, or through interaction/stimulation with their environment (Hanson, pp. 24-25). Learning is an active process and increases positive self-related affects (Benware, p. 756). Learning can depend upon a variety of factors, and is not just an outcome, but a process, which includes various strategies and self-regulation, motivation, goal orientation, and interest (Schunk and Zimmerman, pp. 2-13).

Within my own context, I would suggest learning is the desired outcome of teaching. In my experience one of the best motivators to promote a deeper student interest and motivation in their learning is relevance, if you can illustrate the connection between classroom material and practical application, you’ve created an environment for both teaching and learning. I removed my earlier component of learning pertaining to long-term and lasting knowledge, as I agree that something may be learned, such as a second language, utilized in an authentic environment, however then over time lost (though perhaps easier re-learned than the initially).

Benware, C. A., & Deci, E. L. (1984). Quality of learning with an active versus passive motivational set. *American Educational Research Journal, 21*(4), 755-765

Hanson, R. (2000). The Role of Experience in Learning. *Journal of Technology*, 11 (2).

Schunk, D.H. & Zimmerman, B.J., (2012). Motivation and Self-Regulated Learning. Routledge Publishing, New York, NY.

http://study.com/academy/lesson/what-is-learning-understanding-effective-classroom-strategies.html