

Improving E-learning with systems thinking: anecdotes and lessons learned

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SYNOPSIS

As little as 25 years ago e-learning was in its infancy (the online technological 'stone age' before Skype and Zoom and blended learning when many people were using dial-up 1200 baud modems over their telephone lines). The traditional face-to-face classrooms were real-time or synchronous while the online classrooms were non-real-time or asynchronous. When I joined University of Maryland University College (UMUC) in 1997 as an Adjunct Associate Professor and Deputy Program Director, UMUC, a pioneer in distance education, provided asynchronous online classes world-wide via the world-wide web. The first major problem I faced was how to overcome the biggest postgraduate student complaint which was the difficulty of understanding technical subjects described in the readings without a dialogue with the instructor.

Having a technological background, after some thought I decided to dissolve the problem, at least for my classes, and record the lectures I had given or would have given in the face-to-face classroom and post them into the equivalent online classroom. The goal was to share the results with my colleagues and encourage them to also record lectures. I didn't know it at the time, but a journey of 25 years of active research into ways of enhancing the learning experience by improving the teaching of systems thinking, software engineering, systems engineering and project management had just begun.

This talk tells the story of a journey down memory lane, relating the problems, solutions, results, student comments and lessons learned from innovations in both the online and face-to-face classrooms, in the online technological 'stone age' before Skype and Zoom in 1998 and 1999. The journey spanned UMUC, the University of South Australia (UniSA), Cranfield University in the UK, and the National University of Singapore with the occasional face-to-face class taught in Brunei, Israel, Japan, Taiwan and an online class in the USA. Out-of-the box concepts were adopted and exchanged between the classroom box and the conference session boxes. The focus slowly changed from lecture mode to active learning and overcame the defects in the flipped classroom by introducing knowledge readings. The current focus is on continuing education online classes in systems thinking, project management and systems engineering that blend the learning, and emulate the workplace environment of individual and teamwork. The first class has been running continuously since December 2020.

Lessons learned and anecdotes shared include:

- Students recording presentations in online classes in 1998 and 1999.
- A hybrid face-to-face class at UMUC with an instructor in Adelaide, Australia, in 2000.
- Innovative student software projects in both online and face-to-face classes.
- Comparing grades for the same course in the different delivery modes (at least for this instructor).
- How blended learning enhanced both the online and face-to-face classrooms.
- The types of technology available in the days before Skype, Zoom and other modern classroom and meeting software.

- What must have been the first real-time recorded conference presentation in 1999 when the presenter stated to speak, drank from a soft drink can and left the podium, while the presentation continued without interruption.