

Chapter 27

Instructors as End-User Developers: Technology Usage Opportunities in the Inverted Classroom

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ABSTRACT

This chapter seeks to elaborate on two points. First, the authors would like to focus on the inverted (flipped) classroom, by providing a detailed understanding of it, as well as, current practices. Second, the authors want to propose that instructors become end-user developers, in other words, becoming content creators and designers of their technology usage in the inverted classroom. For instance, several issues arise when using this teaching approach, such as resources, costs, time constraints, and the process of learning new technology. The authors believe that allowing instructors to harness technical ability is beneficial and critical to their success in implementing the inverted classroom.

INTRODUCTION

The ever-evolving realm of technology and education continues to move at a rapid pace. Presently, technology plays a tremendous role in our classrooms. Alternative approaches to teaching and learning are being prescribed to meet the needs of students and new technologies. Instructors are

beginning to understand that perhaps traditional approaches are not as successful as they once were. Instructors want to create engaging and interactive learning environments that will succeed in catering to students' needs while being accessible and intuitive to arrange.

The inverted (flipped) classroom is a pedagogical approach that transforms the structure

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of a classroom (Lage & Platt, 2000). In the past decade, this approach has become extremely popular in classrooms, and is part of a shift in our educational model. From k-12 through higher education, instructors are using this approach to enhance students' classroom experiences and harness their own creative abilities (Bishop & Verleger, 2013). There are different variations of the approach being used depending on the instructor's course content and needs.

It is common knowledge that when an instructor teaches a course for the first time, they tend to struggle, either with students, teaching the content, acquiring the materials they need, or simply adjusting to their environment. This is ultimately heightened when one also tries to implement a new teaching approach, like the inverted classroom because technology is such an integral part of it. Other factors may arise that can hinder the success of the inverted classroom, like the availability of resources, costs of tools, time constraints and the learning curve associated with using new technology (Pena & Rosson, 2014). Some instructors have interest in incorporating the inverted classroom into their courses but refuse to learn new tools to do so.

The aforementioned problems make using the inverted classroom, at times, difficult to deploy. As instructors spend more time creating, organizing, displaying content, and finding the appropriate technologies to help them achieve this, they detract from student time (Bishop & Verleger, 2013). Currently, instructors are using as many as eight different pieces of technology to support their inverted classroom, which may partly involve learning a new tool (Pena & Rosson, 2014). The authors believe that preparing for an inverted structured course should be efficient and effective. In spite of these issues, the authors propose a solution to this problem, by encouraging instructors to become end-user developers. For example, instructors do not have to be professional software developers to build or contribute to software artifacts (Burnett & Scaffidi, 2013).

Instructors do not *only* have to be responsible for instructional design, they should also have a heavier hand in the technologies they choose to create or repurpose for their classroom. They should exercise creativity in combining existing tools together to support their course tasks. Even if they must learn a new tool, they should have, if not internal, external resources to help them accomplish this.

In this chapter the authors aim to

1. Elaborate on the inverted classroom as a phenomenon by discussing its foundations, origins and definitions,
2. Discuss current technological practices in the inverted classroom and issues associated with it,
3. Explain end-user development and how these activities can provide a solution to the problem of technological efficiency in the inverted classroom.

The authors want to improve *effective teaching* in the inverted classroom through refining technology usage and preparation practices. Thus, the authors view this chapter as an important contribution to education and technology, as this idea may provide alternative methods for other hybrid learning environments.

BACKGROUND

The Inverted Classroom

There are several definitions of the inverted classroom; the simplest definition describes the approach as a reversal of traditional lecture activities (Lage & Platt, 2000). For instance, where homework usually occurs outside of the classroom, this activity is performed within the classroom, while lectures usually occur in the classroom are shifted outside of the classroom (Lage & Platt, 2000). Bishop and Verleger (2013)

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