Chapter 4

The Flipped K–12 Classroom:
Implications for Teacher Preparation, Professional Development, and Educational Leadership

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ABSTRACT

New technologies are changing how best to support and facilitate learning in primary and secondary education. Many of these new technologies are available through the Internet, which is an important resource for learning and instruction at all levels and in nearly all contexts. Among the changes that are occurring is the possibility of integrating Internet resources into curricula, which are often linked to mandated standards in schools in the USA and other countries. Among the many possibilities of leveraging these classrooms is the concept of flipping the classroom so that primary presentations of content take place outside the classroom, with classroom activities focused on practice, interaction and feedback. To make a flipped classroom successful requires training teachers about technology integration, providing ongoing professional development, and developing supportive school and home environments with strong educational leadership. The focus of this chapter is on the needs and requirements involved in making flipped classrooms successful learning experiences for students.

INTRODUCTION

Internet-based technologies have been transforming many areas of education for the last few decades. When used as a means of achieving societal educational goals in a more effective or efficient manner, technology can have a positive effect; to that end, it is important to let goals drive technology use, rather than vice versa (Natividad, Mayes, Choi, & Spector, 2015). One proposed way to meet these goals, making use of both new technologies and the wealth of information and educational resources on the Internet,

is a teaching approach called the flipped classroom. The flipped classroom approach takes information dissemination activities normally considered the mainstay of classroom instruction, such as lecture and presentations, and uses technology (e.g., Internet-streamed video lectures) to shift them outside of the classroom. Classroom time, then, is used for practice activities and interacting with students. Essentially, traditional classwork and homework are flipped. For example, in mathematics students previously might have listed to an instructor explain concepts during class time and worked alone on solving problems at home, but using the flipped approach students can work through problems with classmates and access instructor assistance in a timely manner. Alternately, the instructor might facilitate other learning activities during the class meeting time.

When the flipped classroom approach is adopted, teachers find that their roles change along with temporal-spatial shift of information dissemination and active learning and practice activities. Within the classroom, they find that they must become more of a coach or mentor to individual learners and small groups as they engage in problem-solving and other resolution phase activities to develop and practice knowledge and skills. Outside the classroom, they need to use technology skills to adopt, adapt, or create and share relevant learning content.

This chapter focuses on three main issues related to the success of flipped classroom approaches. First, we explore teacher preparation methods for using a flipped classroom approach. Second, we address teacher knowledge and skill needs when using a flipped classroom approach. Third, the role of educational leadership, parental support, and cultural factors in supporting successful implementation of the flipped classroom approach is discussed. These three factors are critical for success. Teachers need to be sufficiently prepared and have the requisite knowledge and skills to use this approach, but they also need a supportive environment.

BACKGROUND

From a research perspective, the flipped classroom approach and its effectiveness across learning contexts is not yet fully understood (Chen, Wang, Kinshuk, & Chen, 2014). It is common for emerging technologies to suffer this dilemma, with practice outpacing systematic research (Veletsianos, 2010). Many of the existing studies of flipped classroom implementations either use a case study design or focus on student reactions rather than learning. The result is findings that are either not generalizable or do not help ascertain whether the approach is truly more effective than others in meeting educational objectives. Additionally, across studies the instructional design and implementation of flipped learning activities varies greatly (Kim, Kim, Khera, & Getman, 2014), which makes it difficult to make empirically supported proclamations about the effectiveness of the flipped approach in general. Nonetheless, the flipped classroom approach has received a great amount of attention among educational practitioners and in the educational media, in part because of early reports of learning success (e.g., Fulton, 2012; Kong, 2014). It has been recommended for use in a variety of contexts, including case-based learning (Herreid & Schiller, 2013), problem solving (McLaughlin et al., 2014), and flexible (Wanner & Palmer, 2015) and differentiated (Siegle, 2014) instruction.

Success with the flipped classroom approach, like other emerging technologies, requires the development and testing of pedagogical models as well as the guidance of long-established pedagogical theory (Anderson, 2010). As the flipped classroom approach matures, we will likely see an increase in these models, such as the i[2]Flex model (Avgerinou, Gialamas, & Tsoukia, 2014), which is used within the

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