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Is FLIP enough? Or should we use the FLIPPED model instead?

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ABSTRACT

The flipped learning model, which “flips” traditional in-class lectures with collaborative activities, has gained many followers and converts in K-12 education. However, a review of previous studies shows that the flipped model is still underutilized and underexplored in the higher education context. Research and design models for flipped learning in higher education are also insufficient. This study attempts to fill this gap by developing a model that can provide a foundation for further research and practice for flipped learning in higher education. Building from the four pillars of F-L-I-P™ (Flexible Environments, Learning Culture, Intentional Content, and Professional Educators), the proposed research and design model named “FLIPPED” adds three extra letters—P-E-D (Progressive Activities, Engaging Experiences, and Diversified Platforms)—to the F-L-I-P™ acronym. This model was implemented in a “Holistic Flipped Classroom” environment and evaluated based on a student survey, interviews, and an analysis of computer system logs. Findings demonstrated that the proposed model was effective; students reported that they were satisfied with the course, their attendance improved, and their study efforts increased. Results also suggested that the transactional distance changed during the learning process: highly motivated students performed much better than less motivated students. However, some students retained their former passive learning habits, and this resulted in an obstruction to full adoption. Reflections on the achievements and challenges of the “FLIPPED” model have culminated in various examples, guidelines, and suggestions for practitioners as they consider their own design, implementation, and adoption.¹

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1. Introduction

The flipped classroom has become a popular new instructional model (Barseghian, 2011; Bergmann & Sams, 2012; Tucker, 2012). Unlike the traditional classroom, where instructors lecture in-class and students take notes and complete their homework at home, the flipped classroom “flips” in-class lectures with collaborative hands-on activities. In a flipped classroom model, students watch recorded video lectures at home and do their “homework” exercises in school. Flipped learning can also be referred to as “reversed instruction,” “blended learning,” or the “inverted classroom” (Bergmann & Sams, 2012). Today, as the flipped classroom is mostly practiced in K-12; many flipped learning models are being developed and debates on their pedagogical values continue (Ash, 2012). Can higher education adopt flipped learning? A comprehensive review of previous studies reveals some gaps in this area of pedagogical inquiry. These gaps include the lack of a comprehensive research model, insufficient discussion of digital learning platforms, and lack of design guidelines for course activities (Baker, 2012; Bergmann & Sams, 2012; Driscoll, 2012; Fulton, 2012; Gerstein, 2011; Herreid & Schiller, 2013; Marshall, 2013; Miller, 2012; Parry, 2012; Staker & Horn, 2012). The purpose of this research is to develop a more robust model for flipped learning in higher education. Investigation into the four pillars of the F-L-I-P™ (Flexible Environments, Learning Culture, Intentional Content and Professional Educators) schema has also revealed several inadequacies, and a revision will be needed. For example, the current F-L-I-P™ schema lacks a “learner experience” perspective, a solid definition of diverse learning platforms, and underestimates the importance of learning activities (Hamdan,

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Table 1
The classifications of blended learning models (Staker & Horn, 2012).

Rotation model	Flex model	Self-blend	Enriched-virtual
<p>Students attend a physical class and rotate between different modalities such as individual/group activity, individual tutoring, and pencil-and-paper assignments. At least one of these activities is done online. The Rotation model includes four sub-models:</p> <ol style="list-style-type: none"> 1. Station-Rotation model – Students rotate <i>as a group</i> through different activities in one classroom. 2. Lab-Rotation model – Students rotate <i>as a group</i> to a lab at a different location on campus that supports online learning. 3. Flipped-Classroom model – Students learn online at their own pace and do exercises in the physical classroom. 4. Individual-Rotation model – Students take turns rotating through different activities <i>alone</i> in the same physical classroom. 	<p>This is a model where content and instruction are delivered primarily online, and students are directed by an individually customized, fluid schedule. The “instructor-of-record” is on-site to provide face-to-face help.</p>	<p>This is a model where students are allowed to take supplementary courses online either at a brick-and-mortar school or at home. This model does not provide a “whole-school” experience.</p>	<p>This is a model in which the entire school operates almost entirely online. Students meet face-to-face with their instructor only during the first course meeting. Students do not have to attend the brick-and-mortar school daily. This model does provide a “whole school” experience.</p>

McKnight, McKnight, & Arfstrom, 2013a, 2013b). In response, an extended version of F-L-I-P™ was developed in this research, where three additional components were appended: **P**rogressive Networking Activities, **E**ngaging and Effective Learning Experiences, and **D**iversified and Seamless Learning Platforms. This extended schema was then used to build the research and design model—the “FLIPPED” model—within a new flipped classroom environment called the “Holistic Flipped Classroom.” A course on Computer Network and Internet in 2013 at a university in Taiwan was used as the research setting for validation. The semester-long study was thoroughly recorded and documented for future reference to practitioners. A combined methodology including a student survey, interviews, and system log analysis was applied to examine its effectiveness. In summary, the research questions of this study are:

1. To develop a more comprehensive flipped classroom model for implementation in higher education contexts.
2. To evaluate the effectiveness of the developed FLIPPED model.

2. Literature review

Flipped classrooms have been in existence for some time with variations in form and shape. Salman Khan brought this practice to mass attention through the Khan Academy, which has worked with Microsoft to record over 4400 instructional videos for its digital library to cover K-12 math, science, history, and other subjects. Many instructors practicing the flipped model have relied on these 10-min long videos in their classes, where students are instructed to watch course videos at home and do homework in school, all on a fixed schedule. The “Flipped-Mastery Classroom” is another dominant flipped learning model proposed by Bergmann and Sams (2012), and it was developed collaboratively with students who were unable to attend regular classes, such as students in rural areas or with busy schedules. Instead of being required to watch the same instructional video on the same night before their physical class, students accessed a library of instructional videos and did not have to follow the same topic at the same time. This model provided students with flexibility in learning, so that students could choose what they learned from a wide range of resources and learn at their own pace. Nowadays, the flipped classroom has many names and approaches. Definition and coverage also vary. Bergmann and Sams (2012) state that terms such as “blended learning,” “reverse instruction,” “inverted classroom,” and “24/7 classroom” are interchangeable, while Staker and Horn (2012) argue that the flipped classroom is a subset of blended learning, not the equivalent. Staker and Horn (2012) define blended learning with four different operational models: the “Rotation model,” “Flex model,” “Self-Blend model,” and the “Enriched-Virtual model.” According to this taxonomy, the Rotation-model takes place in a physical “Brick-and-Mortar” school while the Enriched-Virtual model happens in a “Pure-Virtual” space online, so the two models are at opposite ends of the spectrum, respectively. Under the Rotation-model, students still attend class at a brick-and-mortar school but rotate through different modalities, such as small/large group projects, pencil-and-paper assignments, and individual tutoring. The flipped classroom, which allows the student to preview instructional material online and work through the lesson at his or her own pace; is only one of the sub-models under the Rotation-model. Table 1 illustrates the four blended learning models.

Since the research on flipped learning is fairly new (Ash, 2012; Baker, 2012; Bergmann & Sams, 2012; Driscoll, 2012; Fulton, 2012; Gerstein, 2011; Herreid & Schiller, 2013; Marshall, 2013; Miller, 2012; Parry, 2012; Staker & Horn, 2012; Tucker, 2012), it is necessary to identify the exact characteristics of flipped learning in order to establish a standardized pedagogical method. Although researchers have developed many flipped models, each has a different focus. The traditional flipped classroom (Khan Academy) and the “Flipped Mastery Model” (Bergmann & Sams, 2012) stress content delivery, the “Flipped Classroom Model” (Gerstein, 2011) stress learning cycles, and Staker and Horn’s various models (2012) stress the weight of physical and virtual. Yet, all these models fail to identify how many dimensions/aspects should be considered in a flipped classroom implementation and what the relationships should be among the different dimensions. The F-L-I-P™ schema by the Flipped Learning Network and Pearson’s School Achievement Services (Hamdan et al., 2013a, 2013b) is one of the earliest attempts to fill this gap.

The four pillars of F-L-I-P™ defines the four components that support student’s engagement in flipped learning—**F**lexible Environment, **L**earning Culture, **I**ntentional Content and **P**rofessional Educators, characterized as following:

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