Work 2B: Learning Module Design

Publisher: EPSY 408 SP20 EdD
Start: Feb 12, 2020
Due: Mar 15, 2020

Project Overview

Produced with Scholar

Flipped Learning: Inside the 21st Century Classroom

A Learning Practice Case Study

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Apr 17, 2020 at 3:04 PM

Abstract

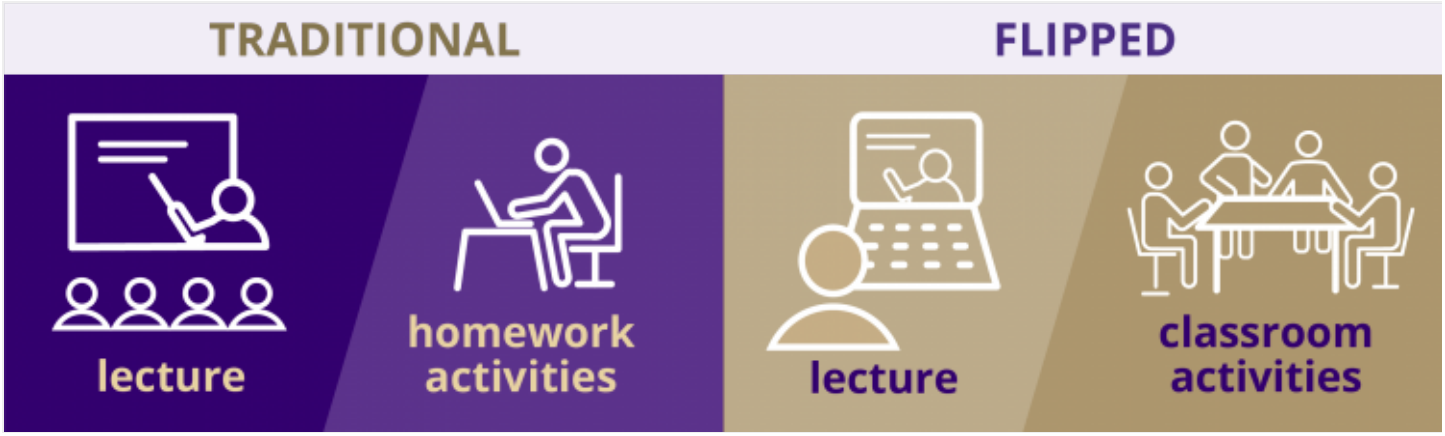
Interaction is a key component in obtaining and retaining information. Interactions lead to active participation in the classroom, thus developing critical thinking skills. Learning practices have evolved over the years, but one characteristic remains the same- Interaction leads to active learning. Active learning is a non-traditional approach as it relies on the student being an active participant in learning, not a passive participant. Gone are the days of lecture, memorization, and reciting. These lessons have been replaced with flipped learning, which includes activities centered around a pre-assignment (completed at home), followed by writing, discussing, problem-solving, reflecting, and experimenting amongst peers and teachers. Although not a new learning practice, the use of flipped learning has increased tremendously.

What is Flipped Learning?

Flipped learning is a learning practice that reverses the traditional learning environment. In the traditional learning environment, teaching is teacher-led. It is accomplished by lecture, memorization, and reciting. Flipped learning is the reverse as it is student-led.

Flipped learning is defined as,

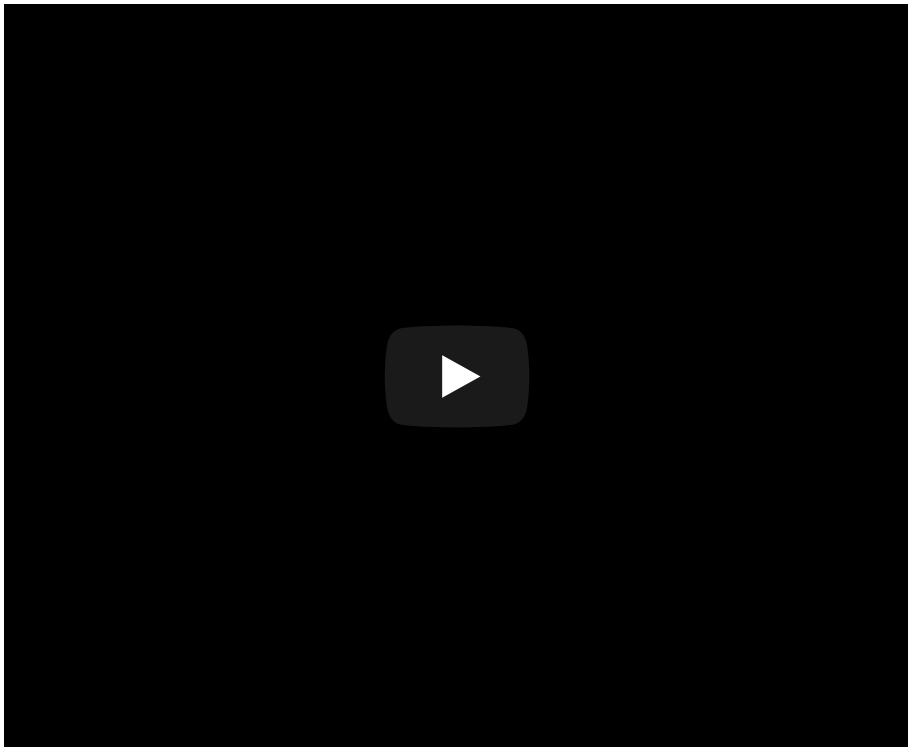
“a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter" (Ober, 2015).



(Source: University of Washington)

As pictured in the image by the University of Washington, flipped learning reverses the environment in which learning takes place. Instead of the typical in-class lecture, the lecture is provided online. Then, activities which are usually considered homework are actually completed in class.

Although popularized in the early 2000s by chemistry teachers, Jon Bergman and Aaron Sam, and Khan Academy founder, Salman Khan, flipped learning was birthed by Harvard professor, Eric Mazur in the 1990s. Mazur developed a peer instruction model which required students to reflect and prepare before class, while class time was spent interacting with peers and instructors (Crouch and Mazur, 2001). Now, fast forward to a classroom in 2020. The image is very much the same. A flipped learning classroom has students who have received videos or other forms of learning materials to review before class. During class, students are given the opportunity to analyze and apply the knowledge they acquired. The key to a flipped environment is a hands-on, interactive classroom, which gives the student more control of their learning. One of the pioneers of flipped learning, Jon Bergman, explains its practice in the video below.



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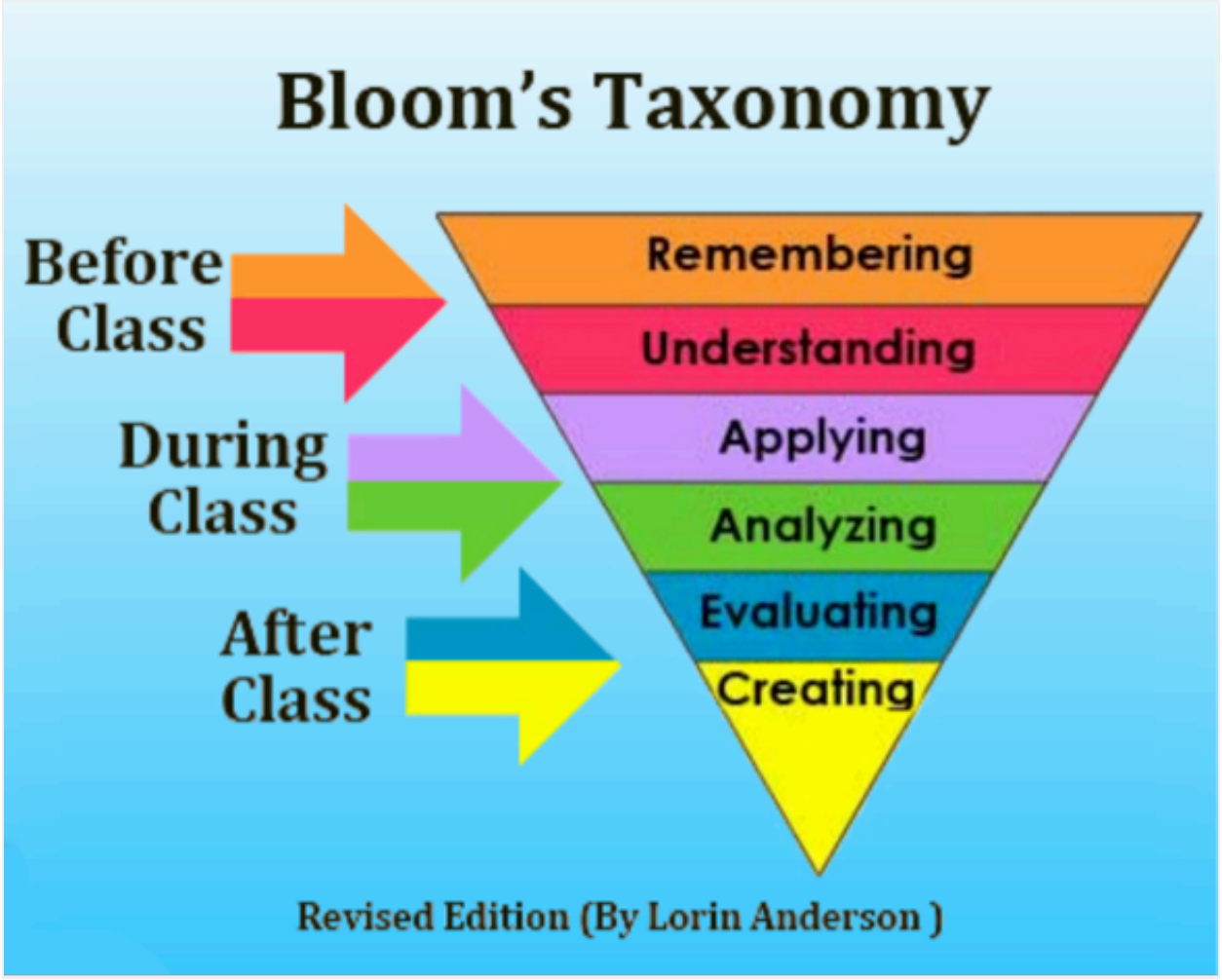
The term “flipped” focuses on changing the location of lower-level learning. Students are required to complete the lower-level cognitive work at home while completing the higher-level cognitive work in the classroom. This is the opposite of the traditional classroom. During flipped learning, those higher cognitive works are completed in the presence of peers and teachers, when it’s most needed. This learning practice is parallel to the revised Bloom’s Taxonomy below. For flipped learning, Bloom's Taxonomy is flipped so the first level is "creating" as opposed to "remembering".



(Source: Anderson, 2020)

Bergmann and Sam describe a simple “flip” as Flipped Class 101. It is direct instruction provided via video as homework. These videos can be created or curated by the teacher. According to these pioneers, the flip of the time and place that lecture and homework are delivered is the most rudimentary form of the flipped class (Bergman and Sam, 2014). Flipping these components of instruction leads to learning that is more engaging and interactive. Although the concept of flipped learning focuses on the interaction of peers and teachers, this practice will look different depending on the classroom. For example, an elementary teacher may assign a reading prior to a lesson on sequencing. During the interactive component, students can be asked to complete a variety of tasks, from worksheets, writing tasks, and even discussions among peers. For a high school classroom, a teacher may assign a video about a particular element on the periodic table. During this class’s interaction, students can perform experiments using the element they studied the previous evening. No matter the topic, the flipped instruction can be differentiated so students are able to work at their own pace. This allows for a higher order of thinking, as demonstrated in the image below.

Flipped Learning

At home

students learn

new content

at their own pace

then...

In class

teachers facilitate student-led discussions and learning activities

that allow students to develop their understanding

Flipped learning teachers...

- encourge deeper thinking
- are true facilitators of learning
- are far more than a "walking textbook"

Flipped learners...

- access higher order thinking
- engage more in the content
- enjoy the learning process
- learn more efficiently

ScienceSauceOnline.com provides free flipped learning resources

(Source: Nixon, 2018)

Nixon's image shows how students learn new content at home and at their own pace. Teachers reinforce their learning, in the classroom, with activities that promote deeper thinking. Instead of simply being taught the information, students develop an understanding of the information.

Personal Experience

Flipped learning is not a learning practice I used in brick and mortar. As a former teacher in a Title 1 school, many of my students didn't have access to technology needed for completing the "pre-work". In addition, the guidance needed to complete these tasks was often non-existent. However, flipped learning is a learning practice used at the online public school that I am currently employed, both for teachers and students. Our professional development will often consist of readings or other instructional content before we meet face-to-face where we complete the interactive component. As teachers, we are often placed in small groups, like our students, for problem solving activities where we use our pre-work to complete the task assigned. I, personally, do not use flipped learning in my classroom but there are teachers who use the practice quite often. Although the work is flipped, both are completed online. Our learning management system allows for small groups and other interactive tools that enable teachers to use this practice.

Pros and Cons of Flipped Learning

The support and opposition of flipped learning tend to focus on the same discussions, student centered learning and technology deficiencies.

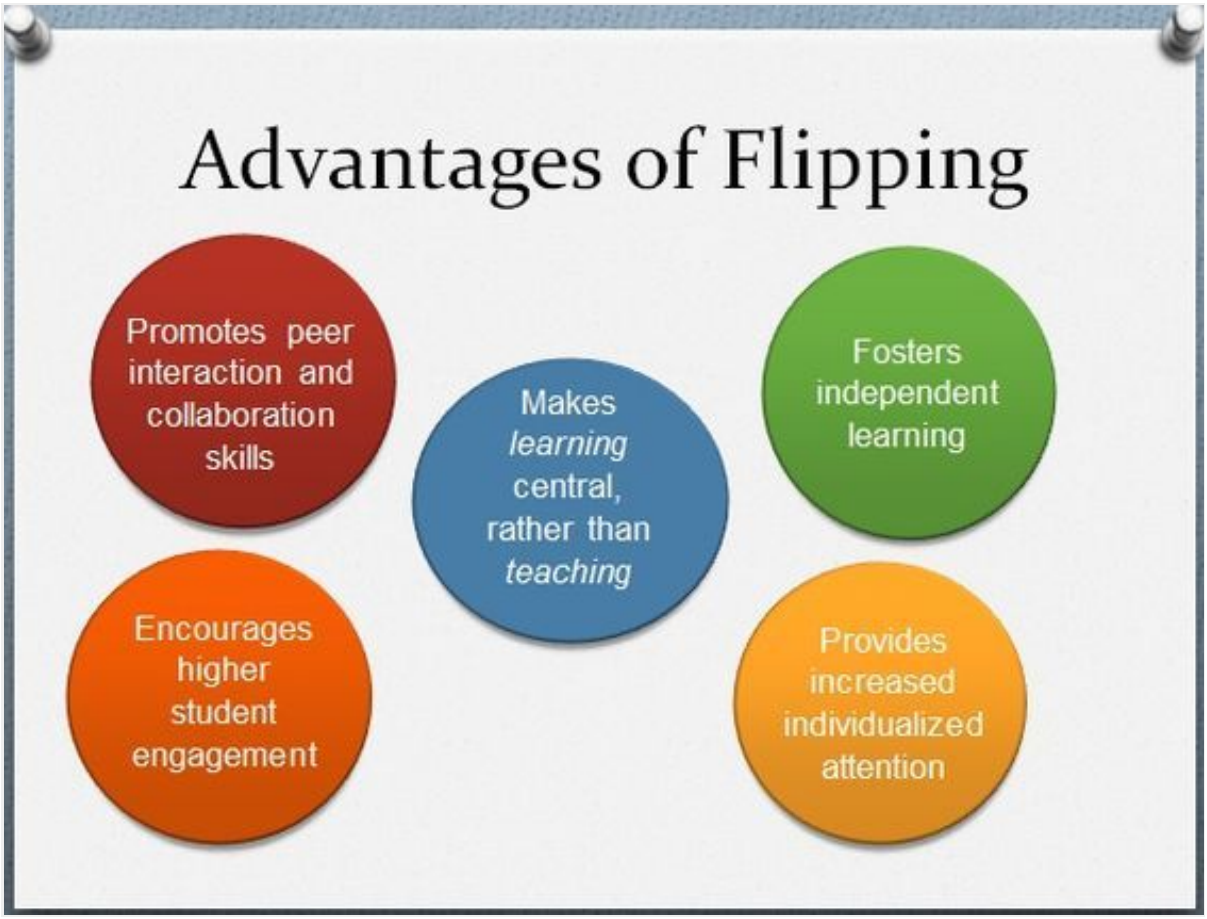
Pros of Flipped Learning

The use of a learning practice that engages students is ideal. Add to that the ability to individualize learning and the reason for the support of flipped learning becomes apparent. Teachers explain how their students are able to move at their own pace, receive support from peers and teachers (almost immediately), and how the teacher is free to address content on a one-on-one basis, if necessary (Hertz, 2015). This practice is a mixture of direct instruction and social constructivism through video content and constructing knowledge from experiences. Bergmann lists the following advantages of flipped learning:

- Students get help on difficult topics.
- The teacher-student interaction is enhanced.
- It allows for differentiation.
- It creates an atmosphere of learning.
- Students can learn at their own pace.
- It helps when the teacher or the student is absent (Bergmann and Sams, 2014).

It is a radical change in the way teachers teach and students learn but it has many advantages. Flipped learning is a practice used from elementary through higher education. Silvestri's image suggests flipped learning:

Promotes collaboration amongst peers
Encourages student engagement
Focuses on learning, not teaching
Supports independent learning
Increases individualized instruction (2013).



Source: Silvestri, 2013

The support and opposition of flipped learning tend to focus on the same discussions, student centered learning and technology deficiencies.

Cons of Flipped Learning

Although ideal for many teachers, flipped learning has its share of disadvantages. Access to technology is an issue with rural and urban students. The use of a computer and the internet outside of the classroom is a concern for many. With limited options, students may not be able to complete the “take-home” portion of the assignment, which is usually a video. Students also consider the video the less desirable portion of the assignment and teachers consider the video the least effective portion of the assignment (Kettle, 2013). With pre-assignments, students are also unable to receive an immediate response if there is a question or concern involving the video. This practice touches another issue, which is the increase in screen time for students.

The investment for teachers in creating and uploading videos is an extra load of responsibility. Teachers may not have the time or other resources to develop the materials needed for successful implementation. Flipped learning is only successful if the student and the teacher complete their obligation for the assignments. In an article published by Boise State University, the following are considered disadvantages of flipped learning:

- It can create a digital divide.
- It relies on trust.
- There is significant work on the front-end.
- It is not a test-prep form of learning.
- Time in front of screen, instead of people, increases (A Guide to Flipping the Classroom, 2015).

The Requirements for Flipped Learning

Although the terms are often interchanged, flipped learning and flipped classrooms are not synonymous. Although a teacher may consider their classroom “flipped” by requiring student to obtain knowledge beforehand, in order to be considered flipped learning, the four pillars of F.L.I.P must be followed. They are:

- *Flexible Environment: The teacher must establish a classroom conducive to interaction amongst everyone in the classroom, peers, and teachers. The teacher must also observe and provide continuous feedback to learners. Differentiation is a key component in a flipped learning environment as it provides multiple methods for students to learn content and demonstrate mastery.*
- *Learning Culture: The culture of the classroom should be student focused. Students are expected to engage in activities without the focus being on the teacher. Scaffolding is also an expectation. The material should build slowly allowing students to progress to each level once mastery has been achieved.*
- *Intentional Content: The content provided should be relevant to the skill. Popular content is short videos but can also include reading. No matter the content provided, it should of varying abilities to allow for differentiation.*
- *Professional Educator: The teacher should be available for instruction in the forms of whole group, small group, or individual. Teachers should also assess students through tests and observations and use that data for future planning. In addition, teachers should rely on peer support to increase their knowledge and understanding of a successful flipped learning environment.*

How to Implement Flipped Learning

Lo and Hew suggests the following guidelines to implementing flipped learning:

Guideline 1: Before converting to flipped learning, teachers should communicate the differences in this practice.

Guideline 2: Teachers should demonstrate how learning will take place through this practice.

Guideline 3: Teachers should use the cognitive theory of multimedia learning to guide the video by keeping the videos under 6 minutes, present in a conversational style, and using an embedded presentation.

Guideline 4: Remain consistent in the workload.

Guideline 5: Provide of method of communication outside of the classroom, such as an online discussion board.

Guideline 6: Teachers should collaborate with peers to increase their knowledge of flipped learning.

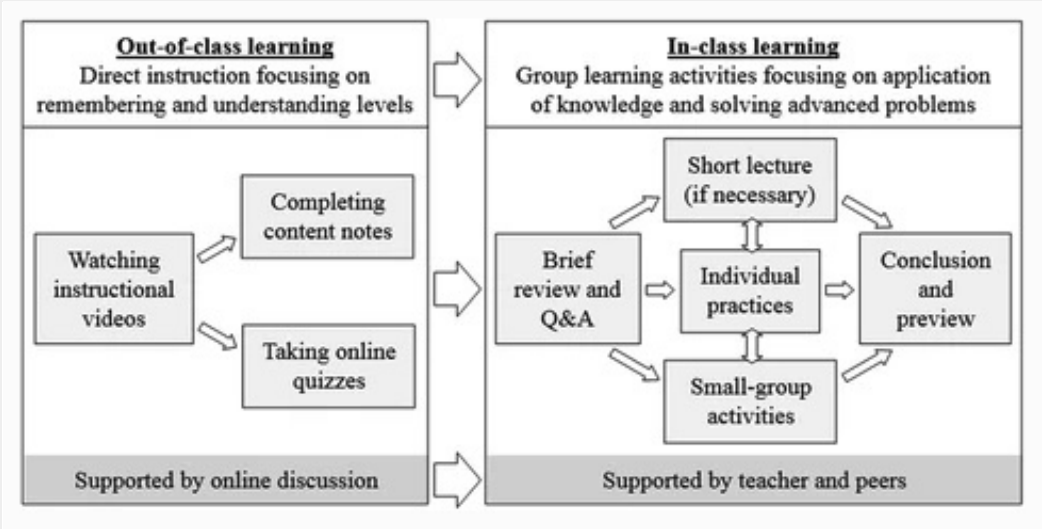
Guideline 7: Create the learning materials progressively as all learning materials may not be videos.

Guideline 8: Provide support for students who have limited technological resources.

Guideline 9: Use a learning management system to monitor and motivate students.

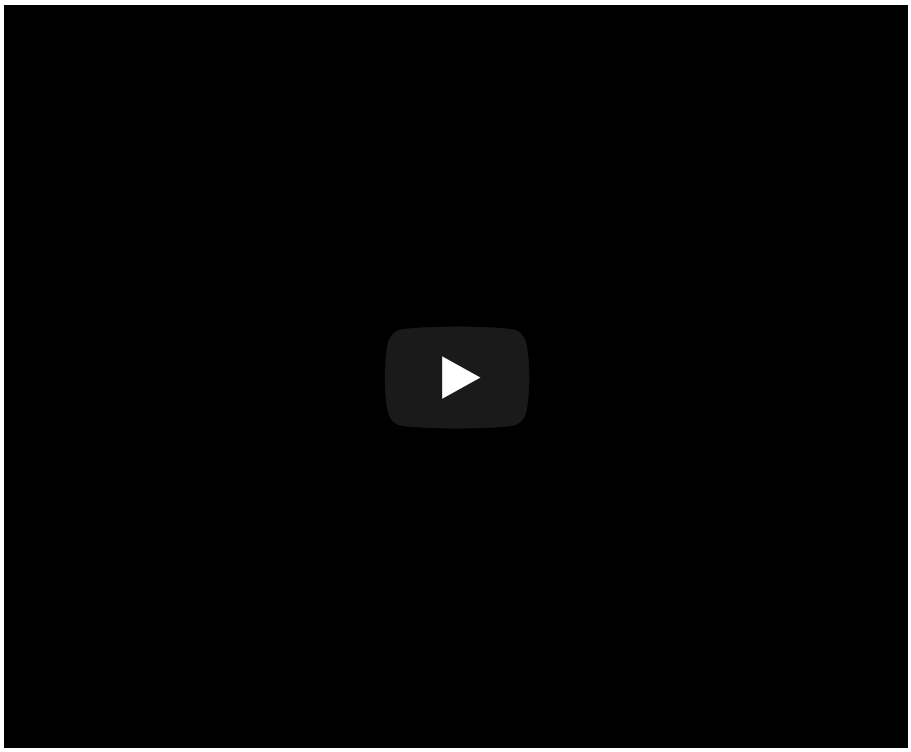
Guideline 10: Encourage support from administration and IT (Lo and Hew, 2018)

Incorporating these guidelines in the flipped learning practice will prevent some challenges, such as student disengagement and a large workload. Below is a model of Lo and Hew’s flipped learning approach.



Source: Lo and Hew, 2018

Guideline 1 and Guideline 2 are important to the students as they provide more information on how this practice differs from the traditional classroom and how learning actually takes place. This video, which could be shared with students, provides this information.



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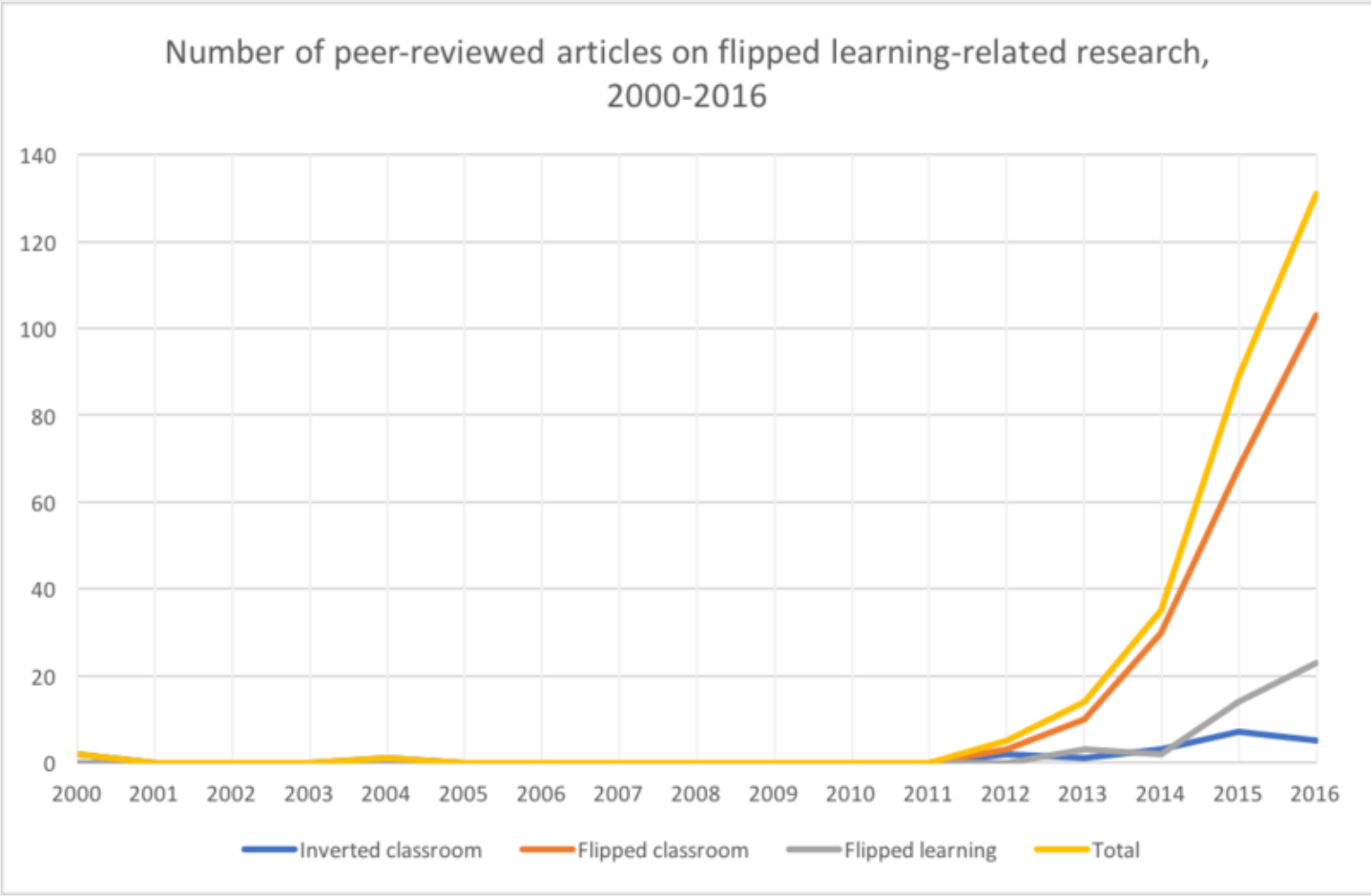
Outcomes of Flipped Learning

The research on the outcomes of flipped learning continues to increase however a significant gap still exists. Robert Talbert, a professor at Grand Valley State University, found that between 2000-2015, only 146 articles on flipped learning were retrieved during a search (2017). He used the terms “flipped learning”, “flipped classroom”, and “inverted classroom” in the database search, eliminating “peer reviewed only”. Many of the results are co-ed pieces and do not include dissertations or theses (Talbert, 2017).



(Source: Talbert, 2017)

When compared to traditional learning, flipped learning can improve student performance or at worst, do no harm (Lo and Hew, 2018). This table provides an overview of flipped learning studies completed in K-12 classrooms. In the same study, the research suggests that there was high student satisfaction. Students reported:

- The practice of watching videos beforehand prepared for class activities.
- The practice increased interactions with peers and teachers.
- The practice provided opportunities for student to apply new knowledge in solving problems (Lo and Hew, 2018).

In another study, a meta-analysis on the effects of flipping the classroom completed by Van Al et al (2019) shows:

1. There is a small effect of flipped classrooms on learning outcomes.
2. The flipped classrooms had no effect on student satisfaction.
3. The flipped classroom achieved higher learning outcomes when the face-to-face class time was not reduced.

4. The flipped classroom achieved higher learning outcomes when quizzes were added in their design.

Conclusion

As research increases, the knowledge of flipped learning will also increase. Although not a new practice, its recent resurgence has created interest from educators from kindergarten to higher education. Flipped learning reverses the traditional method of retaining knowledge and places more responsibility in the hands of the student. Creating an environment of active learning leads to the retention of knowledge, which is the founder and pioneers' goal of the learning practice. It is important for learning practices to evolve as students' educational needs and demands evolve. The purpose of flipped learning, for the student, is the application of knowledge, targeted answers, and an in-dept exploration of subjects. For teachers, the purpose is student support through practical applications, freedom to assist struggling students, and transparency for the students' guardians. Although originally thought of as a fad in the world of learning, the evidence predicts flipped learning will remain a learning practice adopted by educators across the board.

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