APPLICATION OF THE FLIPPING CONCEPT IN EDUCATIONAL PLANNING

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ABSTRACT

The purpose of this paper is to recognize the special features of the flipped classroom and to explore the aspects of opportunities that the flipping concept can be applied to educational planning. The essential elements of the flipping concept are identified. A brief review of the key studies on flipped classrooms at both the college and high school levels was presented. Analysis is made on the basic flipping concept as it applies to educational planning meetings. Then, the flipping concept is incorporated with the stages of the Planning, Programming, Budgeting and Evaluation System (PPBES) to perceive how the flipping concept can help with strengthening the efficiency and effectiveness of the planning system. The authors conclude by confirming the key elements of the flipping concept, "increased interaction" and "practical application," as clear benefits to the educational planning process.

INTRODUCTION

For years, innovative classroom instructional strategies have been created to facilitate effective teaching and learning. These instructional strategies are theoretically based and have been put to practice to test the results of their application. Consequently, the findings of the resulting effectiveness are usually confusing and indicate that certain instructional strategies work better in certain environments than others. However, despite conflicting results of experimentation, educators continue their tireless effort in generating new ideas to enrich the classroom teaching and learning. Flipping is one of the innovative concepts that has been put to classroom use to revolutionize the traditional teaching and learning setting.

Educational researchers have lost no time in pursuing studies on the outcomes of flipping concept application in the classrooms. The authors of this paper have perceived that flipping offers great opportunities for educational planning to strengthen its traditional planning process and further elaborate its significance in achieving greater planning efficiency and effectiveness. The purpose of this article is to explore the basic elements of the flipping classroom concept to determine how best it could fit in for educational planning use. The planning model of Planning, Programming, Budgeting and Evaluation System (PPBES) (Guthrie, Hart, Ray, Candoli, & Hack, 2008; Wood, 1986) is employed as a planning example to examine how the flipping concept could help improve the planning system.

MAJOR ELEMENTS OF FLIPPING AS AN INSTRUCTIONAL STRATEGY

The flipped classroom concept calls for knowledge transfer to be completed through technology of informational transmission before the class starts. It creates a kind of blended learning that delivers instructional content, often online, outside of the classroom. It takes the traditional classroom activities to homes (Fickes, 2014). Students in flipped classrooms watch online lectures, collaborate in online discussions, or conduct research at home while leaving much of the classroom time for conceptual discussion under teachers' direction (Alvarez, 2011). Knowledge reception and discussion are offered with the teachers and classmates during the class time (Bergmann & Sams, 2012b;

Zhang, Wang, & Zhang, 2012). The benefits of this revolutionary reverse of learning activities are increased interaction and applied learning (Brame, 2013). More time will become available for class learning activities to be completed in class through interaction (Zhang et al., 2012).

In analyzing the context of flipping as a classroom instructional strategy, the authors have found that, for a long time, educators have tried to resolve teaching and learning problems from top to bottom. However, the flipping concept suggests that the window is open to alternative perspective of understanding the same teaching and learning problems from bottom to top. This revolutionary idea has stimulated the keen interest of many educators who have been anxious to try it in their classrooms. The major elements of flipping as an instructional strategy can be elaborated in the following:

1. Class Preparation: Students have been traditionally encouraged to read certain chapters from the text at home to prepare for class the next day. However, not that many students actually follow this boring reading activity to prepare for class. In the flipping strategy, students at home are asked to look up recommended websites to look for materials to read to prepare for class. Bonus points are awarded to students who go beyond the recommended list of websites to look for related class materials (Bergmann & Sams, 2012). This electronic search for materials helps promote interest and greater active motivation for learning.
2. Home Learning: After searching for electronic online information, students at home are usually assigned with follow-up exercises for self-learning based on the online information they have reviewed (Alvarez, 2011). They are usually required to participate in their online course forum by posting their reactions to the designated reading materials. Some excises even require the students to reflect upon their daily life happenings based on what they have just learned. This sharing activity has been very successful in helping students understand the background of the learning materials through interpersonal perspectives.
3. Use of Technology: Many students have been very skillful in the use of computer for games, shopping, and personal communications. When students are assigned with website materials to explore, they would like to voluntarily pursue with fun. These online assignments at home not only help them broaden their sphere of searches for academic resources, but also sharpen their technology skills for learning purposes (Topp, 2011).
4. Interaction: During the actual class in school, much of the instructional time is used in focusing on activities that will generate interaction among teachers and students. While students are allowed time for sharing their thoughts on online forums at home, they are strongly encouraged to take advantage of the face-to-face episodes in class to discuss issues with their teachers and classmates. This is actually the greatest benefit of the flipping strategy that most of the class time is devoted to teacher-student and student-student interactions (Lo, 2017; Tucker, 2012). Students are provided with ample opportunities for not only learning from their teachers but also learning among themselves. As Alsagoff (2012) stated, the biggest challenge for flipped teaching was not how to make videos and effective online activities, but how to create inspiring, face-to-face classroom learning.
5. Practical Application: Much of the time in a flipped classroom is spent under the guidance of teachers in provoking student interest in applying what they learn in class to live situations. This is to implant in the minds of the students that what they learn in class has a practical application in daily experiences. Emphasizing the connection between class

learning and its practical use in life has helped solve many puzzles about learning purposes and stimulate student motivation for learning (Ryback & Sanders, 1980).

6. Learning Hierarchy: Bloom's taxonomy of learning (Kibler, Cegala, Miles & Barker, 1974) consists of six levels of learning: knowledge, comprehension, application, analysis, synthesis, and evaluation. Teachers using the flipping strategy will bring the students required learning level from basic knowledge to application. In some classes, students may also be challenged by being invited to explore higher learning levels of analysis, synthesis, and evaluation.

FLIPPED CLASSROOM: A BRIEF REVIEW OF KEY LITERATURE

In recent years, the flipping concept of teaching and learning strategy has called the attention of many educators and researchers. Many schools in recent years have invested in teaching toward the Flipped Classroom reform (Dunn, 2012). A survey of 500 flipped classroom teachers was conducted by an educational consulting company indicating that sixty-seven percent of the students in the flipped classrooms had improved their test scores, eighty percent had improved their learning attitude, eighty-eight percent had improved their job satisfaction. The survey also disclosed that ninety-nine percent of the teachers indicated that they would continue with the Flipped Classroom model (Dunn, 2012).

Quite a few interesting studies have been performed at higher education and the high school levels to investigate how the flipping strategy works if it does work. In the interest of time and the publication length of this article, the authors could only select some representative studies about flipping classroom for the readers' reference as follows:

Flipped Classroom in Higher Education

In delivering their two college economics courses, Lage, Platt and Treglia (2000) examined the effect of flipping strategy that applied in class teaching and learning. In their study, much of the information in class lectures was inverted into electronic versions for student use before and after class. As a result of the study, Lage, Platt and Treglia claimed that this inverted approach of teaching and learning met the needs of students with a wide variety of learning styles. Consequently, much of the face-to-face class time could be used to challenge the students to a higher level of learning.

Kaw and Hess (2007) conducted a study in their college engineering class covering a STEM topic. The study was designed to compare the effectiveness of four instructional modalities: (1) traditional class lecture, (2) web-enhanced class lecture, (3) web-based self-study, and (4) web-based self-study and class discussion (flipped model). Data about student perception and academic performance were collected for statistical analysis among the four instructional modalities. Result of the analysis indicated higher academic performance and more positive student perception toward the web-enhanced class lecture as a method of instruction.

Strayer (2007) compared the flipped classroom and the traditional lecture/homework structure in two different college statistics classes. In the flipped classroom, an intelligent tutoring system (ITS) was used to deliver the course lectures. Students reviewed their lectures before coming to class and completed active learning projects in the classroom. In the traditional classroom, students attended class with face-to-face lectures and then practiced with the course concepts by completing their assignments at home. The College and University Classroom Environment Inventory (CUCEI) was used to measure student learning environment preferences and their learning environment

experiences. Field notes, classroom transcripts, student interviews, student focus groups, researcher journal entries, and student reflections also provided data for the research. Results of data analysis showed that students in flipped classrooms were not satisfied with how the classroom setting oriented them to their learning experiences.

An examination of the effectiveness of using the flipping concept in college English reading class was conducted by Mo and Mao (2017). Four aspects of the flipped classroom were studied: video collections, power-points, student discussion and teacher/student online interaction. Results of data analysis showed that certain aspects of the flipped classroom were more beneficial to students than others. Over 90% of the participating students recognized that flipped classroom was acceptable as an alternate of the traditional classroom. Most of the students (70%) accepted the video information of learning as a significant resource for the English reading course.

Luttenberger, Macher, Maidl, Rominger, Aydin and Paechter (2018) studied the different patterns of university students' integration of lecture podcasts, learning materials and lecture attendance in a psychology class. The professors' lectures were video recorded and were kept available for student access throughout the semester. A survey was conducted to examine the ways students used the lecture podcasts. Findings of the study indicated that approximately 68% of the students preferred watching videos as learning activities to attending class. The other 32% of the students either rarely watched or somewhat used the videos as an approach for learning. Additionally, it was found that students who watched and re-watched the videos more than their fellow participants performed better academically.

Flipped Classrooms in High Schools

Jonathan Bergmann and Aaron Sams, two high school chemistry teachers in Colorado, began to try out the concept of flipped teaching at the high school level. They videotaped their lectures and posted them online for students who, for one reason or another, could not come to class (Bergmann & Sams, 2009). Then, they began to realize that some students could simply watch the videos and learn without having to come to class. They also noted that if students could preview the videos before attending their class, then, their time in class could be used more freely for many other hand-on activities. In view of the many diverse teaching and learning styles in these days, they asserted that there were many ways to flip classroom activities to suit the needs of particular groups of students. They then continued to collaborate in developing the Flipped-Mastery model as a practical instructional approach.

Tina Rosenberg, a New York Times writer, reported that all the classrooms in Clintondale High School, Michigan, were flipped (Rosenberg, 2013). The school principal and the teachers supported the flipping idea by developing plans for all the discipline areas. They practiced it in two social studies classes with identical teaching materials and exercises, one flipped and one traditional. It was found that, after an instructional period of twenty weeks, students in the flipped classroom were academically performing better than students in the traditional classroom. Improvement was observed in student achievement in the flipped classroom whereas students in the traditional classroom showed no improvement. When the flipped model was implemented in the 9th grade in the following year, the student passing rates of English, math, science, and social studies significantly increased.

Stacy Roshan (2017), a math teacher, started using the flipping strategy in her calculus class with success. She was able to make best use of her class time to empower student learning. She then continued to try her approach the following year with her algebra class. She ran into some difficulties

with the family issues. She admitted making a big mistake by failing to thoroughly explain to the parents how this flipping model works to help their children learn. She learned that without having parents on board to support, she had to struggle to gain the trust of the students. Since then, she created a *Welcome to the Flipped Classroom* video to share with parents at the beginning of the school year.

Tommy Peterson (2017) reported on teachers using flipped classroom technology to make the most of the student-teacher time in high schools. He claimed that teachers needed to be "super-prepared" in flipped classes to make students the experts on their own learning**.** Teachers could serve as coaches with technology application. Peterson summarized the advantages of flipped classrooms in high schools as: (1) using technology to provide timely support; (2) helping students learn at their own pace and (3) creating more engaging classroom time for students.

Schultz, Duffield, Rasmussen and Wageman (2014) investigated the effects of the flipped classroom on academic performance and student perceptions of high school advanced placement chemistry students. A control group and treatment group design was used. Descriptive statistics and independent *t* tests were used to analyze data generated from the same assessment instrument. Result of the analysis indicated that students in flipped classrooms performed higher on average than students in the traditional classrooms. Additionally, most students in flipped classrooms had a more positive perception about the flipped classroom approach to chemistry teaching and learning.

Hunley (2016) evaluated teacher and student perceptions of high school flipped science classrooms. The study employed a qualitative phenomenological design to observe three high school science teachers from Georgia, North Carolina, and Tennessee. Online surveys, direct observation, interviews, and focus groups helped to collect needed data for analysis. Findings of the study showed that teachers were in favor of flipped classroom teaching and agreed that it was beneficial in developing teacher-student relationship. Student perceptions generally indicated that flipped classroom teaching and learning prepared them for college and future career.

Studies on the effectiveness of flipped classrooms have been performed at both the college and high school levels. Findings of these studies have not been consistent. Many variables involving teachers, students, subject areas, and approaches are involved in assessing the effectiveness of flipped classrooms. Future studies need to be more carefully designed with serious consideration of these related variables to generate more significant solid findings.

FLIPPING AS APPLIED TO EDUCATIONAL PLANNING MEETINGS

The common participatory approach to educational planning is modelled in somewhat similar ways like classroom flipping. The flipped classroom calls for students to review learning materials and provide feedback online before coming to class. In the planning process, much of the work in meeting preparation can be done before the actual meeting to achieve better efficiency and effectiveness during the meeting. Like a flipped classroom, a flipped planning approach could involve the delivery of the meeting materials together with the meeting agenda to all the participating members a few days before the meeting. The participants will have sufficient time to carefully review the materials before the meeting. The chair can also encourage the participants to electronically share their initial thoughts of the issues with other members before the meeting. This preview of meeting information is particularly helpful in checking if any needed information is missing, or other additional helpful information could be included.

For effective planning meeting to take place, all planning team members need to be prepared for discussion during the planning meeting after having a chance to preview all the meeting materials. If all planning team members are well prepared to come to the planning meeting, the meeting time can be more efficiently used like the time use in flipped classrooms. Instead of having to go over the basic information, more time in the meeting can be devoted to discussion, interaction, exploring the pros and cons of options, and finally come to a wise decision to take advantage of the best options.

In applying the flipping concept in planning meetings, educational planners can take advantage of the special features of the flipping concept to increase the opportunities of conducting planning meetings with success. First is the best use of meeting time for interaction among the meeting participants. After an in-depth exchange of ideas, participants then have a better understanding of the choices they could make and the resulting consequences of their votes. Second is exploration of planning measures of practical application to the real-world situations. The flipping approach to planning allows plenty of time for planners to investigate different alternatives through scenarios before deciding on the best option to take.

USING FLIPPING CONCEPT IN AN EDUCATIONAL PLANNING MODEL

A commonly used participatory approach to educational planning can be modelled in somewhat similar ways like classroom flipping. The Planning, Programming, Budgeting and Evaluation System (PPBES) (Guthrie, Hart, Ray, Candoli, & Hack, 2008; Wood, 1986) can serve as an excellent example of applying the flipping concept in educational planning. *Planning* focuses on goal setting; *Programming* lays out the possible options to achieve the goal; *Budgeting* develops a high level, an average level, and a low-level budget to meet the basic needs; and *Evaluation* examines possible inputs, outcomes, and process in completing the task.

The work of the *Planning* component starts with recognizing the significance of the proposed activity leading to the emerging focus. Then, the goals of the activity need to be clearly identified with the development of supporting objectives (Lewis, 1982). In this case, the preparation element of flipping serves to facilitate the provision of all the necessary information to the planners for review. In understanding the significance of the activity, the planners could easily come to an agreement in establishing goals and objectives of the activity. Like the flipping classroom process, the use of technology will facilitate the sharing of information and interaction among stakeholders.

In the *Programmin*g phase of planning, planners explore all the possible alternative actions that lead to goals and objectives achievement. The evaluation of the pros and the cons of each of the alternatives will be made. Like in the *Planning* process, significant amount of related information will be retrieved through the assistance of technology for review of the planners. The flipping approach encourages in-depth discussion and interaction among members of the planning team before final decision on an implementation plan to attain the goals and objectives. The application element of flipping reminds planners the practicality consideration in deciding on the implementation plan.

In *Budgeting* for the planning activity, in addition to previewing all the related financial information, the planners can thoroughly apply the practical application of the flipping concept. First, the possible sources of funding need to be identified through the review of literature. Assessment is made to examine the funding criteria the proposed activity could meet and the probability that the proposed activity could be funded. Additionally, the practical approach of the flipping concept offers the consideration of developing high, medium, and low levels of funding to meet the activity needs. It also points at the equity and contingency issues of budget development.

In the *Evaluation* component of the planning model, planners will develop evaluation procedures to examine the efficiency (process) and the effectiveness (result) of the activity implementation. The focus of *Evaluation* is to collect relevant data to confirm that the goals and objectives of the activity are met through the execution of the implementation plan. Based on the outcome of the evaluation, recommendations can be made to improve the activity planning. The flipping concept suggests to planners that the data collected for planning evaluation need to be valid and reliable for the evaluation to be meaningful. The use of updated technology could facilitate a sophisticated data analysis particularly dealing with large quantity of data. Like the flipping process, interaction among activity planners will help develop a broader perspective of interpretation of findings.

Overall, the Planning, Programming, Budgeting and Evaluation System (PPBES) as a model of planning has been tremendously improved by adaptation of the flipping concept. While the use of flipping strategy brings student learning hierarchy from basic knowledge level to application level, flipping strategy in educational planning has certainly help planners to extend their planning horizon from the application level all the way up to the analysis, the synthesis, and the evaluation levels.

AUTHORS' RECOMMENDATIONS

In addition to associating the flipping concept to the educational planning approach, the authors of this paper highly recommend the following educational planning activities as a reflection of the flipping concept application.

(1) More data need to be prepared for planning discussion, particularly materials representing viewpoints from different perspectives. This will allow planning team members to be exposed to some out-of-the-box ideas and be more prepared for the planning meeting. This is a reflection of the Applied Learning element of the flipping concept.

(2) More alternative actions need to be explored and thoroughly discussed before decision making. Scenarios can be developed for planning team members to understand more of the consequences of their actions. Case studies with assumptions fully display the practical utilization of the flipping strategy.

(3) Increased interaction of the flipping approach is needed among planning team members in any format so they can understand one another better from different perspectives. Sufficient time should be reserved for thorough discussion before voting for action. It is a good practice to create an online forum to encourage planners to post their initial feedback online before the planning meeting.

CONCLUSION

Many similarities exist between the flipping concept applied to classroom teaching and the flipping concept as applied to educational planning. Perhaps, the field of educational planning has been flipped to certain extent right from the beginning. However, an in-depth study of the essence of the flipping concept can further solidify and enrich the planning approach we educational planners have been employing. The benefits of the flipping approach in educational planning are clear. The key elements of the flipping concept, "Increased interaction" and "practical application," keep ringing in our ears.

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