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Critical Review of Empirical Studies on the Flipped Classroom in English Education in Korea*

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Flipped classroom is an innovative instructional approach to enhance interactive and participatory learning through inverting lectures and learning activities. With growing interests in the flipped approach, research and educational practices are increasing across school ages and teaching subjects in Korea. Thus, it is beneficial to review up-to-date findings of research on the flipped classroom in English education to provide implications for further studies and practices. This study examines empirical studies published in peer-reviewed journals for reliable and valid research data. To search qualified studies, the research accessed the research database, RISS, and used the 'Snowball' approach for additional search. After review of all accessible studies on the flipped classroom in English education in Korea, nine empirical studies were identified for this study. The collected studies were analyzed in terms of three types of data: instructional designs and learning activities, the quantitative data on the effects of the flipped classroom, and qualitative comments of students. The analysis of the data yielded major types of learning activities, problems of the studies with reporting and interpreting quantitative data, and students' perceptions towards the flipped classroom. Discussions and suggestions were presented for future studies and instructional applications.

[flipped classroom/flipped learning/English education/review study]

I. INTRODUCTION

In student-centered and communicative language classrooms, there are frequent interactions between students and teachers and active participation of students unlike in

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traditional classrooms, where teaching is largely dependent on lectures, and students listen to teachers passively. The needs for the interactive and student-centered learning have grown since the constructivist approach was introduced in 1970s. According the constructivists, learning occurs most effectively when a learner engages in her/his own learning processes while a teacher assists or facilitates the learning. In addition, the communicative language teaching approach has also advocated interactive and authentic learning environment where learners experience and use target languages in authentic contexts. The approach emphasizes the communication competence including linguistic knowledge, socio-contextual knowledge, and communication strategies (Brown, 2007). In the context, English classrooms are expected to offer more chances for interactions and student participation, adopting the communicative approach (M. Kim, 2012).

While there have been various theoretical and methodological approaches to foster active learning in English classrooms, information and communication technologies provide useful tools to enhance collaborative and meaningful learning (Howland, Jonassen, & Marra, 2012). E. Nam's (2014) study shows the recent increase of research that examines educational uses of the new technologies, the Internet and communication technologies. One of the highly technology-enhanced instructional models is the "flipped classroom," which was popularized by Bergmann and Sams (2012). Benefited by the advance of multimedia and the Internet technologies, the flipped classroom introduces motivating and student-centered classes as it combines out-of-class lectures and in-class learning activities (Lage, Platt, & Treglia, 2000).

In the flipped classroom, in-class lectures and after-class learning assignments are arranged into before- and in-class for participatory and engaging learning activities (Lage et al., 2000). With the wide spread popularity, the inverted instruction is rapidly expanding in the secondary and tertiary education, and research has increased rapidly in recent years (Rossi, 2014). Results of the research support the positive aspects of the flipped classroom in various educational settings (Day & Foley, 2006; Tune, Sturek, & Basile, 2013). Although the research on the flipped classroom has converged on anecdotal reports, lacking rigorous analytic approaches (Butt, 2014), meaningful findings are being accumulated providing empirical evidences.

In Korea, the instructional model of the flipped classroom has been fervently welcomed by educators since a broadcasting company aired cases of the flipped classroom in an elementary and a middle school in 2014. After the program was broadcasted, the flipped classroom has been adopted in K-12 schools and the related studies have begun to be published in Korea (K. C. Hong, 2016). In spite of relatively short history of research and application, a considerable number of case reports and research papers on the flipped classroom have been published across school ages and

learning subjects in Korea even though their results are sometimes contradicting to each other (K. C. Hong, 2016).

Although the flipped classroom in English education in Korea is not researched enough to yield agreed conclusion on the instructional model, parsimonious review of up-to-date research findings is timely adequate in that the adaptation of and research on the English flipped classroom are expected to increase rapidly, and the review may suggest useful implications for further studies and practices. Thus, this study reviews the flipped classroom research on teaching English in Korea to extract the useful guidance for researchers and educators who are interested in the flipped learning. The research inquiry aims to answer the following research questions.

1) What are learning activities and instructional designs of the flipped classroom?
2) Is the flipped learning model effective to teach English?
3) What are students' perceptions of the flipped classroom in English classes?

II. FLIPPED CLASSROOM

The flipped classroom is a technology-enhanced learning which combines online out-of-class lessons and offline in-class learning activities (Strayer, 2012). The term, "flipped classroom," was originated by the arrangement of learning activities. The concept of inversion of class activities has led to various titles for the approach, such as "inverted," (Lage et al., 2000) "classroom flipped," (Baker, 2000) and "reversed" classrooms. Unlike the traditional class, where a teacher gives lectures in class and assigns homework after the class, the flipped classroom provides lesson lectures before class to secure time for interactive learning activities in class (Lage et al., 2000). Therefore, the in-class and out-of-class learning activities are "flipped."

Since the initial studies were started in science, statistics, and medical learning areas, research on the flipped classroom has expanded the areas across school ages and academic subjects. While language learning is one of the least explored territories in flipped learning research, research interest is growing in English teaching and learning in ESL and EFL settings. In Korea, the flipped classroom has been paid attention since a broadcasting station televised a flipped classroom and its effects in 2014 (K. C. Hong, 2016), and related research has begun to produce meaningful findings from the implementation of the approach in Korean schools.

While the terminology of the flipped classroom is quite brand-new, the approach resembles previous learning approaches or teaching practices. For instance, the combination of online and offline learning, the flipped classroom is a type of blended learning. In addition, to make students prepared for class previous is not new. Usually,

students in humanities and social sciences have reading assignments before class (Berrett, 2012).

However, the flipped classroom has distinguishing properties from the antecessors. First, the flipped classroom is heavily dependent on technology, especially the technology for networking and multimedia producing. The Internet and video production technology have enabled easy creation and distribution of multimedia products, which, in turn, have helped teachers to design and operate the flipped classroom handily. It is evidenced by the concurrence of spreading of the flipped model and founding of YouTube and MOOC (Massive Open Online Courseware) sites. Thus, the rise of the flipped classroom is closely connected with the advent of the technologies. In addition, the dispositions of learning materials and activities are more systematic than the blended form of learning (Forsey, Low, & Glance, 2013). The before-class lectures usually deal with delivery of knowledge, and in-class activities focus to internalize the knowledge through interactive tasks, such as problem solving, discussion, role play, simulations, and task-based activities (Zhang, 2015). With the features, the flipped classroom presents an innovative learning environment.

Due to the systematic design of learning in the flipped classroom, the organization of learning activities is critical for effective flipped learning. In general, the pre-delivered lectures are to contain declarative knowledge that can be lectured, and in-class activities need to engage students in interactive, collaborative, and communicative learning, such as discussion, problem solving, role play, and task-based-learning (Lage et al., 2000). In English education, Basal (2015) suggests to provide authentic language materials before class in forms of videos and arrange classroom activities for more interactive learning in class. On the other hand, Zhang (2015, p. 177) asserts that the teacher instructions need to be placed before class for “knowledge pass,” and collaborative learning activities are designed during in-class time for “knowledge internalization.” J. Kim (2006) proposes to utilize English not only as a medium for knowledge exchange but as a tool for thinking. Her suggestions present guides for the design of learning activities. However, there has not been systematic examination of learning activities in the flipped classroom in English education in Korea.

The effects of the flipped classroom have been examined on several aspects, but the results are often contradicting. For instance, McLaughlin and his colleagues’ (2014) and Bishop and Verleger’s (2013) studies assert positive effects on students’ perceptions, attitude, and attendance. However, other studies report students’ dissatisfaction (Missildine, Fountain, Summers, & Gosselin, 2013), and burdensome videos (Smith, 2013). The studies on academic achievement are also not agreeable to each other. Tune, Strurek, and Basile (2013) show higher academic performance of graduate students in the flipped classroom. Alvarez’s (2012) study with high school students shows

significant improvement of the flipped group in math, science, and social studies. Day and Foley's (2006) study suggests superior achievement of the flipped group in college. On the contrary, Findlay-Thomson and Mombourquette (2014) do not find differences in academic achievement between groups.

Studies in Korea present similar inconsistent results on the effects of the flipped classroom. Some studies argue that the flipped classroom is effective to improve academic achievement and students' attitude and motivation (J. Lee, Y. Kim, & Y. Kim, 2014; H. S. Lee, S. C. Kang, & C. S. Kim, 2015; M. K. Lee, 2014). However, E. Kim and S. Lee (2015) find negative effects of flipped learning. In conclusion, the studies on the flipped classroom in abroad and Korea are not congruent to each other, and further investigation is requested.

In spite of uncertain effects of the flipped classroom, the new approach is popular in schools and academic field in English education. In Park and Cha's (2015) survey study, 42% of teachers of secondary schools who participated in the study select English as a good subject for flipping. It implies that teachers have positive attitude to flip English classroom. However, students' belief in education is sometimes different from teachers'. Thus, the analysis of students' perceptions of the flipped classroom may present meaningful tips for teachers to design the flipped instruction in their English classes.

III. METHODS

1. Selection of Target Studies

For critical analysis of reliable and valid data in the flipped English classrooms, this study targets on empirical studies published in peer-reviewed journals in Korea. To search research studies, the researcher accessed research database, RISS. Using several keywords, such as "flipped classroom," "inverted classroom," "English learning," in various combinations, the relevant studies were explored. In addition, the "snowball" method was used for further empirical studies from the selected research articles. Then extensive review excluded the studies that pertain to (a) dissertations and conference proceedings, which are not published in journals; (b) research reports and articles in magazines, which are not peer-reviewed; (c) curriculum design, reviews, opinion papers, and survey research on teachers' perception, which do not present empirical data. As a result, nine studies were finalized for analysis for this study. The brief information of the studies is summarized in Table 1, which includes information of author(s), educational levels, intervention periods, the number of participants, and types of research.

TABLE 1

Basic Descriptions of Selected Studies

No.	Author(s)	School Year	Period	No. of Participants	Research Type	Remarks
1	Y. E. Seo & G. Seong (2015)	Middle School	4 weeks	120	Mixed	
2	N. Kang (2015)	College	16 weeks	66	Mixed	
3	H. Lee (2015)	College	15 weeks	39	Mixed	
4	J. Lim (2015)	College	15 weeks	20	Experimental	
5	Y. S. Kim (2015)	College	16 days	64	Experimental	Summer course
6	J. Moon et al. (2016)	Middle School	8 weeks	80	Experimental	
7	M. Kim & C. Shin (2016)	Middle School	4 weeks	103	Experimental	
8	N. Kang & M. Ahn (2015)	College	8 weeks	17	Mixed	
9	S. Lee (2015)	College	4 weeks	10	Experimental	Study group

Six out of nine selected studies target college English classes, and the others had middle school students for research. The duration of intervention varies from four weeks to sixteen weeks except Y. S. Kim's (2015) study which lasts 16 days in summer intensive course, which is equivalent to a semester-long instruction. Based on categories by Creswell (2008, p.60), the studies are classified into experimental studies which examine the impact of intervention and mixed research that combines quantitative and qualitative approaches for the inquiry of research questions.

2. Data Analysis

The analysis of the studies is conducted to address research questions to investigate instructional designs including learning activities in the flipped classroom, to verify the effects of flipped classrooms supported by quantitative results, and to interpret the qualitative data to understand students' perceptions of the flipped classroom. In terms of instruction design, learning activities are grouped into before- and in-class activities because the flipped classroom is basically based on systematic combination of before- and in-class learning. In addition, the language focuses of instruction and learning platform where online before-class learning materials are uploaded are analyzed. The quantitative results are critically reviewed considering research design and reported

information to confirm their claims favoring the flipped classroom. The results are also to bring up issues to be addressed in the future research. Last, qualitative data, such as students' comments, are analyzed. The analysis and synthesis of qualitative data lead to sorting of positive and negative aspects of the flipped classroom, which will be useful for teachers who plan to adopt the flipped model.

IV. RESULTS

For each research question, summary of the selected studies is presented followed by analysis and interpretation.

1. What Are Learning Activities and Instructional Designs of the Flipped Classroom?

The design of the flipped classroom is unique in that the lectures are pre-delivered through online and face-to-face class is freed up for interactive and participatory learning activities (Forsey et al., 2013). Thus, the analysis of learning activities classifies them into before- and in-class activities. The delivery system and language focuses are examined to understand what contents are covered and how they are delivered. The brief summary of the analysis is shown in Table 2.

1) Before Class Activities

The most common form of pre-delivered online lectures is video; six studies employed videos created by instructors. The other three studies (J. Lee, 2015; S. Lee, 2015; J. Lim, 2015) utilize existing videos. While adopting existing videos is an option to alleviate the burden of teachers and to ensure the video quality, the instructors prefer creating their own lessons. The contents of videos are mostly lectures on grammar and explanations of expressions, which deal with explicit knowledge of language. Only N. Kang (2015) and N. Kang and M. Ahn (2015) provide YouTube videos for authentic English use. To assist students' before-class tasks, supportive activities, such as quizzes, summary or reflection notes, and sentence writing, are added.

2) In-class Activities

Diverse learning activities are employed: checkup quizzes, role plays, problem solving, discussions, and other task-based activities. Although in-class activities vary across the

studies, they are commonly participatory, interactive, and collaborative in nature. Thus, the in-class time focuses on utilizing pre-delivered knowledge in various language situations. To ensure students' sincere review of online lessons, checkup quizzes are conducted in the beginning of in-class time. However, the studies do not report additional activities to follow-up students' understanding of online contents except the Q & A activity. In other words, the checkup quizzes are used to encourage students to preview online lessons faithfully, but additional instructional supports for low-achievers in the quizzes are not devised systematically in most studies. Exceptionally, N. Kang and M. Ahn (2015) introduce mini-lectures, which can provide supports for students to understand learning contents.

TABLE 2

Instructional Design and Learning Activities in the Flipped Classroom

No.	Author(s)	Learning Platform	Before-class	In-class	Language Focuses
1	Y. E. Seo & G. Seong (2015)	Website (Online Café)	- Lecture videos, - Summary note, - Sentence writing, - Quiz	- Checkup quiz, - Reflection report, - Problem solving, - Mission list	Reading, Writing, Grammar
2	N. Kang (2015)	LMS* (Blackboard)	- Lecture videos, - YouTube videos, - Quiz	- Checkup quiz	Grammar, Vocabulary
3	H. Lee (2015)	Website	- Lecture videos, - Reflection notes	- Checkup quiz, - Role play, - Problem solving	ESP 4 skills
4	J. Lim (2015)	Online Learning System	- Lecture videos	- Process writing practices	Writing
5	Y. S. Kim (2015)	LMS	- Lectures videos	- Not Specified	Not Specified
6	J. Moon et al. (2016)	Website	- Lecture videos, - Reference materials, - Quizzes, - Summary Note	- Role play, Brainstorming, Simulation, Project, Interview, Discussion,	Listening and Speaking
7	M. Kim & C. Shin (2016)	Website (Online Café)	- Lecture videos	- Group work, - Game, - Discussion, - Problem solving	General English skills

8	N. Kang & M. Ahn (2015)	LMS (Blackboard)	- Lecture videos, - Videos on authentic English use	- Checkup quiz, - Mini-lectures, - Pattern-drill, - Tasks, - Review	General English skills
9	S. Lee (2015)	Not Specified	- Lecture videos, - Quiz	- Checkup group work, - Problem solving, - Reflection Notes	Grammar

*LMS: Learning Management System

3) Delivery System and Language Focuses

For delivery and management of online learning, LMS (Learning Management System) and online café sites are used. Although LMS is recommended for systematic management of online learning (Zhang, 2015), the internet sites, such as online café or homepages, are an option, especially in middle schools, which are not equipped with LMS.

In terms of language focuses, studies target various linguistic aspects from grammar and vocabulary to the four skills of a language: speaking, listening, reading, and writing. It suggests the potential of the flipped classroom in various language aspects of English education.

2. Is the Flipped Learning Model Effective to Teach English?

Most studies report positive effects in academic achievement and students' perception as shown in Table 3. The results are critically analyzed in terms of research design, statistical significance, and the preciseness and completeness of reporting.

TABLE 3

Quantitative Results of the Flipped Classroom

Author(s)	Dependent Variables	Instruments	Results
Y. E. Seo & G. Seong (2015)	Academic achievement,	Achievement test (pre & post),	**Better perform** in the post-achievement test than the control group
	Attitude & Response	Survey (pre & post) Interview (post)	**Positive increase** in student perception of learning hours, interests, self-directed learning, interactions, and problem solving skills

N. Kang (2015)	English Proficiency	Proficiency test (pre & post),	**Significant improvement** of English proficiency between pre- and post-tests. No significant difference between flipped and regular classrooms
	Student Perception	Survey (pre & post), Interview (post)	**Increased positive responses** on satisfaction, helpfulness, in-class activities & teacher's role,
H. Lee (2015)	English Proficiency	Proficiency test (pre- & Post)	**Improvement** of proficiency test **scores** between pre- and post-test
	Affective aspects	Survey(post)	**Moderate high** satisfaction with videos, flipped methods, and helpfulness.
J. Lim (2015)	English Writing Proficiency	Mock TOEFL writing test (pre & post)	**Significantly better performance** in essay writing than the control group
Y. S. Kim (2015)	Academic achievement	Achievement test (pre & post)	**Significantly more increase** between pre- and post-tests than the control group
	Affective Experience	Survey (pre & post)	**More increase** of positive affective experiences than the control group
	Satisfaction	Survey (post)	**Significantly higher** satisfaction than the control group
J. Moon et al. (2016)	Academic achievement (listening & speaking)	Achievement test (pre & post)	**Significantly better performance** in listening and speaking than the control group
	Efficacy in Listening and Speaking	Efficacy Questionnaire (pre & post)	**Significantly higher** efficacy in listening than the control group
M. Kim & C. Shin (2016)	Academic achievement	Achievement test (pre & post)	No difference with the control group in academic achievement.
	Affective aspects	Survey(pre & post)	**Increased positive response** in interests, objective, and achievement.
N. Kang & M. Ahn (2015)	English Proficiency in grammar & vocabulary	Proficiency test for grammar & vocabulary (pre & post)	**Significant improvement** of grammar knowledge between pre- and post-tests
	Student Attitude and Behaviors	Student Log Survey (post)	**Positive responses** on the flipped classroom, in-class activities, and the instructor role, preferring the flipped classroom to the traditional one
	Student perception	Interview (post)	

S. Lee (2015)	Failure tolerance	Failure Tolerance Scale (pre & post)	**Significant improvement** of the level of failure tolerance between pre- and post-tests
	Preference	Survey (post)	**Preference** of the flipped classroom to the traditional class

All studies except M. Kim & C. Shin's (2016) and N. Kang's (2015) report positive effects of the flipped classroom. However, there are critical issues that make it hard to accept the results as presented.

1) Critical Flaws of Research Design

First, problems in research design weaken the claims of research in several studies. In N. Kang's (2015) study, the intervention of flipping is flawed because one of two types of videos, YouTube video, is opened to both experimental and control groups through different delivery systems and instructional approaches. Thus, the differences between the two groups are not only flipping but also differing types of delivery and instructional approaches. J. Moon and her colleagues (2016) have a similar defect of intervention. While the study limits the effects of flipping on academic achievement in listening and speaking, the intervention, pre-delivered videos, and the post-test include other language skills as well: reading, writing, and grammar knowledge. In spite of the fact that the results of intervention need to be analyzed considering all language skills covered in the intervention, the study reports partial aspects of results. In addition, some studies (N. Kang & M. Ahn, 2015; H. Lee, 2015; S. Lee, 2015) do not have a control group. The results do not support the effects the flipped model because the effects could be caused by the existence of the instruction itself regardless of the instructional design.

2) Statistical Interpretation

Another problem is related with interpretation of statistic results. Some studies overemphasize the positive aspects of results in spite of lack of statistic evidences. For instance, N. Kang (2015) asserts the positive effects of the flipped classroom to improve English proficiency between pre- and post-tests while the increase is not significantly different with the control group. In Y. S. Kim's (2015) study, the effectiveness of the flipped classroom is supported by reduced differences between experimental and control groups in the post-test. The experimental group is significantly lower in academic achievement in pre-test and mid-test, and then both groups become statistically equivalent in post-test scores. Although the results could be read as a supportive

evidence for the flipped classroom, they need to be carefully interpreted because of critical issues of non-homogeneous groups, the continued differences between groups until mid-term, and assumed difference of the degree of difficulty between tests.

3) Description of Procedures

The preciseness and completeness of reporting is another important element of research papers, which ensures replication of a study. Due to insufficient and missing information, some studies are hard to replicate, which weakens the assertions of the papers. For example, J. Lim (2015) does not inform how the control group is treated or taught and what contents are covered in pre-delivered instruction. Y. S. Kim (2015) does not provide detailed description of pre-delivered lectures and in-class activities. In case of J. Moon et al.'s (2016) study, although the pre-tests for academic achievement and English efficacy are mentioned to suggest homogeneity of the experimental and control groups, the detailed information and statistic results are missing.

4) Others

There are no specific issues with the results on students' perception and their affective responses because the parts are mostly done by surveys and simple comparison of means between pre- and post-surveys. However, the positive results need to be interpreted stingily in that most surveys are conducted only with the experimental groups and the positive effects are merely done by comparing means of pre- and post-surveys without statistical tests in many studies.

The examination of quantitative results reveals the weaknesses of selected studies in terms of research design, interpretation of results, and precise description of research. Only Y. E. Seo and G. Seong's (2015) study presents robust research design and practice.

3. What Are Students' Perceptions of the Flipped Classroom in English Classes?

Qualitative data including students' comments are analyzed to understand students' perceptions of the flipped classroom. Their comments are categorized to indicate positive and negative aspects of the flipped classroom as in Table 4. Studies that do not contain qualitative comments are excluded: Studies of J. Lim (2015), Y. S. Kim (2015), and J. Moon et al. (2016).

TABLE 4

Positive and Negative Aspects of the Flipped Classroom

Author(s)	Positive Aspects	Negative Aspects
Y. E. Seo & G. Seong (2015)	**Before-class** Videos: accessible, controllable, and repeatable, Helpful reflection report **In-class** Interesting activities, Collaborative and supportive environment, Active and interesting class time	**Before-class** Bad Internet connection, Low quality of videos, **In-class** Too busy, lack of time for collaborative activities, Disturbing class, Dominated by some students
N. Kang (2015)	**Before-class** Helpful worksheet Accessible learning materials **In-class** Interesting activities, Interactive group works, Being confident	**Before-class** Technical problems, Burdensome videos **In-class** Missing before-class is critical for in-class participation
H. Lee (2015)	**Before-class** Videos to prepare class, to help understanding contents **In-class** Engaging class, Active and flexible class, Participatory and voluntary class	**Before-class** Hard to manage self-directed study, Difficult to understand by themselves, Faithless reflection note **In-class** Disordered class, Missing videos is critical, Lowered interest in class activities due to preview
M. Kim & C. Shin (2016)	**Before-class** Repeatable videos **In-class** Interesting class activities	**Before-class** Burdensome videos, Lack of time to watch videos
N. Kang & M. Ahn (2015)	**Before-class** Repeatable videos **In-class** Interesting and engaging class, Motivating activity oriented class, More chances of practices	**Before-class** Burdensome videos, Hard to solve difficult problems **In-class** Without watching, it is hard to get involved in class
S. Lee (2015)	**In-class** Interesting and satisfactory interactions between students and with a teacher	**Before-class** Long video playing time, Boring lecture-based videos, Burdensome, Typical video lectures **In-class** Frustrating unprepared peers

Students perceive that the pre-delivered videos are helpful and useful in that they can access freely and operate to play, stop, and replay them. The control function of the video player to replay, pause, and stop enables students to learn at their own paces, which helps students understand the contents and be prepared for in-class activities. Benefited from pre-delivered videos, in-class time is allotted for interactive and collaborative learning tasks, which are highly appreciated by students as well.

On the other hand, technical problems, such as internet connection and the quality of videos, hinder learning. Some students who are not accustomed to self-directed learning feel burdensome to watch videos before class. Specifically, low-achievers confess the challenges to solve all questions by themselves as watching online videos. The most frequently mentioned problem with in-class time is the frustration of students who had not completed before-class activities. In case students miss online lessons, they cannot participate in in-class activities. In addition, S. Lee (2015) reports the complaint of students when they have peers who did not watch pre-delivered video lessons. In addition, dissatisfaction with videos is more prominent in S. Lee's (2015) study in which pre-existing online lectures on grammar are delivered. In the study, students comment that videos are long, boring, and lecture-based. Some students also negatively perceive the in-class activities as being disturbing and disordered.

V. DISCUSSIONS AND IMPLICATIONS

The analysis of the selected studies reveals the commonality of design and practices between the studies and implications for future research and educational practices. The design and learning tasks are similar to other studies of flipped learning as well as between the selected studies. As in most studies in the flipped classrooms, the selected studies employ online videos to deliver lectures before class. Checkup quizzes and interactive group activities during in-class time are also common in the flipped design. Thus, the design and learning activities are not different to the flipped classroom of other subject areas. The comments of students are congruent with qualitative results of other studies, mentioning the study load for watching videos, technical problems of Internet connection and video quality, and lengthy videos.

In terms of academic performance, the selected studies report the positive effects of the flipped classroom. However, due to critical flaws of research design, statistical interpretation, and description of procedures, the studies do not provide concrete and persuasive evidences for the effects of the flipped classroom in English classrooms.

Findings of the analysis yield instructional implications for teachers who plan to adopt the flipped model in their English classes. First, students highly appreciate this new instructional approach. Even though students' academic performance does not prove the effects of the flipped classroom, students prefer the approach to the traditional one and perceive the flipped classroom to be interesting, interactive, motivating, and participatory. It is congruent with Smith's (2013) findings that students confess the advantages of the flipped classroom even though reviewing online lectures could be a time burden.

Second, the pre-delivered videos or learning materials need to be interesting and concise, not burdensome to students. Basal (2015) suggests to limit videos to 15 minutes, embrace interactive elements in videos, and utilize LMS for systematic and integrative management. Third, teachers need to encourage students to complete before-class tasks and provide additional supports for students in case they miss the pre-delivered lessons. As in N. Kang and M. Ahn's (2015) study, teachers can provide mini-lectures after the checkup quizzes in face-to-face class or allow incomplete students to leave shortly for brief review of online lessons.

Based on the review of research design and procedures, some suggestions are presented for future research. First, the rigorous experimental study which has a control group is required to see the effects of interventions. The detailed description of research procedures, pre- and post-tests, and interventions is crucial to verify the results of the study. For better understanding of effects of pre-delivered online lectures, the types and contents of learning materials need to be compared to each other in terms of successful delivery of knowledge. For instance, independent variables may include the length of videos, the type of pre-delivered knowledge, or different types of media. In addition, research population needs to be diversified across school ages.

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Examples in: English
Applicable Language: English
Applicable Levels: Elementary, Secondary, and Tertiary

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