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Online Flipped Learning-Teaching in Action

Prisana Mutchima*

Faculty of Humanities and Social Sciences, Suan Dusit University, Bangkok, 10300 Thailand

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Abstract

The coronavirus crisis has caused the teaching style to shift from traditional teaching to online teaching, which has many obstacles and limitations. Most of the problems that occurred were the students' lack of concentration in studying, not attending classes, and no Q&A during online learning. Therefore, the integration of flipped classroom concept in online learning - teaching is believed to add to the value of online learning during times of disruption to traditional teaching. Learners will learn by themselves through video or other materials outside of the classroom and participate in co-learning activities in the normal classrooms. The roles of teachers and learners in the online flipped classroom must change. Teachers who maintain a course for this approach need to prepare materials, online tools and learning resources before teaching. In-class, they summarize the content, answer questions, and organize activities. After-class, they must check assignments and evaluate the results after practicing the activities. For learners, they must be active, responsible, and actively participate in discussions and activities during online learning hours. Importantly, they should prepare communication tools, read textbooks, and watch videos before coming to class. This approach reduced time spent studying theory and increased time spent doing activities. As a result, online learning is more efficient.

Introduction

Online learning allows teachers and students to teach and learn anywhere and at any time. It also allows them to communicate and exchange opinion, but students need to be responsible with their own study because teacher can't take care of them closely like when they study in a classroom and are face to face. The popular applications for online learning are Zoom, Microsoft Teams, Google Classroom, Google Meeting, Cisco WebEx Meeting, Facebook and Line (Siritarungsri, 2020;

Phonpakdee, 2020). However, in online teaching, if the teacher communicates without any interaction from students, it will cause student to lose their interest and think that learning is not fun and is boring causing them to think there is something more interesting to do. That is why teachers must change the way of teaching from giving lectures in the classroom to creating or recommending instructional media for students to study at home and change from activity in classroom to activity based on what students studied from home to

* Corresponding Author
e-mail: prisana_mut@dusit

improve their skill, train them to cope with problems and promote interaction in the classroom. Flipped Classroom is the learning innovation that is in accordance with learning skills for students in the 21st century. It is the form of learning that allows students to study by themselves through video and participate in the activity that improves the understanding of the normal classroom. Flipped classroom is one type of blended learning that is the blending of online learning and face to face learning which are used to offer students comprehensive learning and better understanding (Reidsema, Hadgraft, & Kavanagh, 2017). Even though the students are not quite satisfied with the usual online learning, online learning blended with flipped classroom will improve learning, create interest, and course evaluation of students (Tang et al., 2020).

Flipped classroom has a similar form to online learning because the media for students to study before doing activity in classroom are presented in online platforms such as YouTube, LMS or other social media. Students will study through the internet and the classroom will turn into area for activity and doing work sheets. Teachers arrange the knowledge exchange and create the learning plan that involves the Flipped classroom concept. A well thought out learning management plan will help teachers give lessons systematically according to the plan until the exchange of knowledge occurs in students. The development of learning management plans must consist of 5 components which are the objective of learning, content, activity, measurement and evaluation (Boonyok, 2018).

This article aims to illustrate the benefits of learning management plans using the reverse classroom concept for online teaching and to present the roles of teachers and students in online learning with flipped classroom techniques. This approach reduced time spent studying theory and increased time spent doing activities. As a result, online learning is more efficient.

Flipped classroom model

The flipped classroom was initially created by Jonathan Bergmann and Aaron Sams in 2007. Bergmann and Sams are chemistry teachers from Woodland Park, Colorado, USA. They were inspired by the do-it-yourself video production tools. They debated if it was possible to engage all students to learn content when learners are asked to view videos of lectures prior to coming to class and then spending the time in class discussing assignments, rather than receiving a in class lecture. Then,

Bergmann and Sams provided pre-recordings of all their chemistry lectures from 2007 to 2008 and assigning videos of lectures and note taking as homework. So, they could motivate learners in problem-solving and laboratory experiments during class time. It meant that they were flipping the classroom (Bergmann & Sams, 2012). The flipped classroom approach has been regarded as a successful form of blended learning in many subject disciplines (Zainuddin et al., 2019).

The flipped classroom is usually described as events that have traditionally taken place inside the classroom and are now taking place outside the classroom and vice versa (Unal & Unal, 2017). However, merely a re-ordering of the teaching and learning activities is insufficient to represent the practice of this instructional approach. Researchers thus attempt to formulate a definition of the flipped classroom approach as a technology-supported pedagogy that consists of two components: (1) direct computer-based individual instruction outside the classroom through video lectures and (2) interactive group learning activities inside the classroom (Unal & Unal, 2017).

The flipped classroom is a form of teaching and learning that has been used in teaching development for solving different problems in the era of various sources and ICT technology. It is focusing on creating knowledge of the learners according to skills, knowledge, and ability of each learner. This approach gives learners freedom in terms of ideas and styles of searching knowledge from sources outside of the classroom by problem-solving skill, supporting analytical and creative thinking, and bringing students' interaction. This style focuses on student centered which is appropriate with the changes especially in current education trends (Suanse & Yuenyong, 2019).

In the flipped classroom model, the delivery of content is usually obtained through online videos prepared by teachers or a third party. Learners watch the assigned short instructional videos by themselves before class which is effective in the learning process beginning prior the class. This can play a positive role in reorienting students' attention to learning (Abuhmaid & Mohammad, 2020).

The flipped classroom model includes different pre-class, in-class, and after-class learning activities depending on the teacher and learning outcomes (Table 1) (Unal & Unal, 2017).

Table 1 Subject area and grade levels

Class Activities	Main Activities	Additional Activities
Pre-Class Activities	- Watching instructional videos - Competing online exercises (taking notes/quizzes)	- Reading text materials (textbook/teacher notes) - Completing online discussions
In-Class Activities	- Brief content review /short lecture or question/answers - Group activities (work-sheets/projects)	- Individual practices (worksheets) - Student presentations - Quizzes
After-Class Activities		- Completing self-evaluation or reflection

Advantages of the flipped classroom

Akçayır and Akçayır (2018) recently reviewed 71 articles related to the advantages of the flipped classroom, the results are shown in Table 2.

Table 2 Advantages of the Flipped Classroom

Inductive categories	Sub-categories	%
Learner Outcomes	Improves learning performance	52.11
	Satisfaction	18.31
	Engagement	14.08
	Motivation	9.86
	Increases knowledge	9.86
	Improves critical thinking skills	8.45
	Feeling more confident	7.04
	Promotes creativity	2.82
	Focus on Problem solving skills	1.41
	Better retention	1.41
	Improves application skills	1.41
	Improves ICT skills	1.41
Pedagogical Contributions	Flexible learning	22.54
	Enables individualized learning	11.27
	Enhances enjoyment	11.27
	Better preparation before class	8.45
	Fosters autonomy	8.45
	Offers collaboration opportunities	5.63
	Enables more feedback	5.63
	Fosters higher self-efficacy	2.82
	Provides peer-based learning	2.82
	Increases study effort	2.82
	Supports interest in the course	2.82
	Improves attendance	1.41
Time Efficiency	Suitable for large group teaching	1.41
	Decreases withdrawals	1.41
Dispositions	More efficient class time	12.68
	More time for practice	7.04
Interaction	Positive feedback from students	18.31
	Positive perceptions (students)	14.08
	Positive attitudes	8.45
	Positive perceptions (teachers)	2.82
Other	Interaction (Students-Instructor)	9.86
	Interaction (General)	5.63
	Interaction (Students-Students)	4.23
Other	Less anxiety	4.23
	Cost effective	2.82
	Students adapt quickly	1.41

Online learning and teaching

In the context of higher education, the priority objective of the educational community is oriented toward training for the development of competencies for the 21st century society. With the unexpected arrival of the COVID-19 crisis and its inevitable consequences, the priority of educational systems has been manifested in the use of ICT as the only resource to teach online synchronously or asynchronously (Karalis and Raikou, 2020; Viner et al., 2020). Home learning and technology are causing different reactions among the education sector during the COVID-19 situation. If the digital age had already significantly accelerated educational and work contexts, the COVID 19 situation of online teaching-learning processes has achieved a significant role (Zhang, Wang, Yang, & Wang, 2020).

The challenges posed by the COVID-19 crisis introduced everyone to a new world of online learning and teaching. Instructors indulged students in online teaching via few platforms such as ZOOM, Google Hangouts, Skype, Cisco WebEx, and Microsoft Teams. Moreover, to conduct smooth teaching-learning programs, a list of online etiquettes was shared with learners and appropriate instructions for attending classes were given to them (Saxena, 2020).

Online learning

Online learning is an educational process which takes place over the Internet as a form of distance education. Distance education became ubiquitous as a result of the COVID-19 crisis during 2020. Because of the situation, online teaching and learning had an essential role in early childhood education programs, even though debates continue on whether or not it is beneficial for young children to be exposed extensively to Information and Communication Technology (ICT). This descriptive study demonstrates how a preservice teacher education course in early childhood education was redesigned to provide learners and teachers with opportunities to learn and teach online (Kim, 2020).

Dhawan (2020) offers the SWOC Analysis for online learning in times of crisis that is presented in Fig. 1.

The strength of the online learning modes is student centered and offers a great deal of flexibility in terms of time and location. There are plenty of online tools available which is important for an effective and efficient learning environment. This can help in creating a collaborative and interactive learning environment where students can give their immediate feedback, ask queries, and learn the topics interestingly.

STRENGTHS	WEAKNESS
<ul style="list-style-type: none"> • Time & location flexibility • Availability of courses & content • Immediate feedback 	<ul style="list-style-type: none"> • Technical difficulties • Learner's capability & confidence • Time management • Distractions, frustration & confusion
OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> • Innovation & digital development • Designing flexible programs • Strengthen skills: problem solving, critical thinking, & adaptability • An innovative pedagogical approach 	<ul style="list-style-type: none"> • Attracting and engaging learners • ICT infrastructure • Quality of education • Technology cost

Figure 1 The SWOC Analysis for Online Learning

Online learning has certain weaknesses in the form that it can hamper the communication between the learner and the teacher, that is, direct communication and human touch are lost. Users can face many technical difficulties that hinder and slow-down the teaching–learning process. Time and location flexibility are fragile and create problems. Student's nonseriousness behavior in terms of time and flexibility can cause a lot of problems. Not every learner is the same, they vary in skill level and confidence level. Some learners feel uncomfortable while studying online, making it even more frustrating and confusing.

Online learning generally has a lot of opportunities available. During the COVID-19 crisis online learning has increased as most academic institutions have switched to this model. This is the time when there is a lot of scope in bringing out surprising innovations and digital developments. Teachers can practice technology and can design various flexible programs for students' better understanding. It will enhance problem-solving skills, critical thinking abilities, and adaptability among the students. Teachers can develop innovative pedagogical approaches during this panicky situation, now also termed as Panicgogy.

Online learning faces many challenges ranging from learner problems, teacher problems, and content issues. It is a challenge for institutions to engage learners and encourage them to participate in the teaching–learning process. It is a challenge for teachers to move from offline mode to online mode, changing their teaching methodologies, and managing their time. It is challenging to develop content which not only covers the curriculum but also engages the learners. The

quality of education is a real challenge. One should not merely focus on the pros attached to the adoption of online learning during the crises but should also take into account the developing and enhancing the quality of virtual courses delivered in such emergencies. In online teaching, large investments are required for developing learning resources. Therefore, an effective and efficient educational system needs to be developed to impart education via online learning.

Online teaching

Online teaching offers exciting opportunities to expand the learning environment for diverse learner populations. As the demand for online teaching increases, college professors may be asked to consider teaching their classes' online. Online teaching shares much with face-to-face teaching, but it also has a unique set of skills and requirements. Both approaches are similar in content, except in pace and delivery. Rather than developing the courses from scratch, a company has emerged to take care of the courses. Professors just need to use Course Management System (CMS) software to prepare and deliver their courses. Using the software allows teachers to get it right from the beginning (Sadiku, Adebo, & Musa, 2018).

Online teaching skills and competencies should be determined in order to help design professional development programs for online teachers. These skills and competencies are classified into six categories: (a) teaching skills, (b) content skills, (c) design skills, (d) technological skills, (e) management and institutional skills, and (f) social and communication skills (Albrahim, 2020).

Teaching skills:

- Learning theories, such as learning styles, the learner-centered approach, and collaborative learning.
- Designing and implementing appropriate instructional strategies, classroom assessment and learner engagement techniques.
- Organizing and facilitating learners' participation and providing guidance and support as needed:
- Motivating learners
- Promoting group interaction, collaboration, and teamwork

Content skills:

- Learning goals and objectives that coincide with learners' levels and characteristics.
- Developing a course outline, content, resources learning and assessment activities.
- Selecting appropriate and varied learning

resources.

- Linking the subject and content with scientific, social, cultural, and any other relevant phenomena.

Design skills:

- Understanding and applying instructional design principles, models, and theories.

- Organizing and presenting the learning materials in different formats.

- To design learning activities and select appropriate tools and techniques to present.

- To develop, design new courses and assess the course design quality by using quality assurance tools and instruments, such as the Quality Matters Rubric.

Technological skills:

- Accessing various technological resources and tools, such as LMSs, video, software and applications.

- Understanding the learning and teaching capabilities and limitations of these tools.

- Understanding the e-content creation process such as e-books and instructional videos.

- Pay attention to the latest updates and improvements in educational technology and software.

Management and institutional skills:

- Being able to clarify the roles and expectations of teachers and learners.

- Managing the course time and applying time-saving techniques.

- Demonstrating leadership, management, mentoring, and coaching skills.

- Tracking course and learners' progress on a regular basis.

- Establishing, declaring rules and regulations for participation, submission of assignments and timeliness.

- Conducting research on classroom teaching, interpreting and integrating research findings.

- Understanding and demonstrating commitment to institutional policies.

- Complying with legal, ethical, and copyright issues and standards.

Social and communication skills:

- Using sufficient and understandable language.

- Respecting and considering cultural differences.

- Clearly requesting information and asking questions.

- Emphasizing the important points using font colors and effects.

- Ensuring the quality and accuracy of written messages, detecting typographical and grammatical errors.

- Using different communication methods to ensure accessibility among teachers and learners, and the learners with their peers.

- Maintaining warm, friendly and care when communicating online.

- Offering advice and suggestions and clarifying doubts.

Key restrictions, limitations, or considerations (McIntyre & Mirriahi, 2022)

1. Access to technology: In some instance, learners and teachers may be limited in their regular access to reliable or appropriate technology. Several people may be sharing a computer or mobile device within one household or may rely on using computers on campus or in a public place. Learners or teachers may also only have limited access to required software.

2. Access to the Internet: Not all learners and teachers have regular or reliable access to the Internet. In many cases Internet access may be limited to speed, which can restrict their ability to access or engage with data.

3. Ability to use technology: Some technologies and tools require training. In some cases, learners or teachers may not be available.

4. Information overload: The abundance of information available online can make it difficult for teachers and students to differentiate between what is relevant or important.

Online learning - Teaching with flipped classroom

The combination of flipped classroom and online learning - teaching can realize the whole learning and teaching process of flipped classroom with the help of each interactive platform. It is different from the traditional flipped classroom, so teachers are facing new challenges. During the implementation of online learning and teaching in flipped classroom, teachers should pay attention to the teaching design of online classroom and the operation of learning community, evaluate the learning effect fairly and summarize the teaching effect in time (Yang, 2020). The roles of teachers and learners in online learning with flipped classroom techniques must change. Learners must be active, responsible, and actively participate in discussions and activities during online learning hours. Teachers who maintain a course for this approach need to reconsider fundamental issues related to what they teach, how they teach and how they assess learning, and how learners are best encouraged to learn. Learning outcomes, activities, assignments, and

methods of providing content are all modified to respond to a new teaching (Nat, 2015).

Table 3 Roles of teachers and learners in traditional classroom, flipped classroom, online classroom, and online flipped classroom

Classroom	Pre-Class	In-Class	After-Class
Traditional Classroom	Teachers prepare textbook, presentation and assignment. Learners read textbook or watch video before coming to class.	Teachers lecture and organize activities in class. Learners listen to lectures and take notes.	Teachers check assignments and evaluate the results after practicing the activities. Learners complete assignments.
Flipped Classroom	Teachers prepare textbook, presentation, video and assignment. Learners read textbook or watch video before coming to class.	Teachers answer questions and organize activities in class. Learners participate in discussions and activities.	Teachers check assignments or projects and evaluate the results after practicing the activities.
Online Classroom	Teachers prepare textbook, presentation, assignment, LMS and communication tools. Learners prepare communication tools.	Teachers lecture and organize activities in online class. Learners listen to lectures, participate in discussions and do activities/ assignments.	Teachers check assignments and evaluate the results after practicing the activities. Learners complete assignments.
Online Flipped Classroom	Teachers prepare textbook, presentation, video, assignment, LMS, communication tools and learning resources. Learners prepare communication tools, read textbook or watch video before coming to class.	Teachers summarize the content, answer questions and organize activities in online class. Learners listen to summary content, participate in discussions and complete activities/ assignments.	Teachers check assignments and evaluate the results after practicing the activities.

The roles of teachers and learners in the online flipped classroom must change. Teachers who maintain a course for this approach need to prepare materials, online tools and learning resources before teaching. In-class, they summarize the content, answer questions, and organize activities. After-class, they must check assignments and evaluate the results after practicing the activities. For learners, they must be active, responsible, and actively participate in discussions and activities during online learning hours. Importantly, they should prepare communication tools, read textbook, or watch video before coming to class.

The benefits of the online flipped learning-teaching are reduced study time and increased learning time in education. For society, it trains learners to be responsible and interact with others responsibly online.

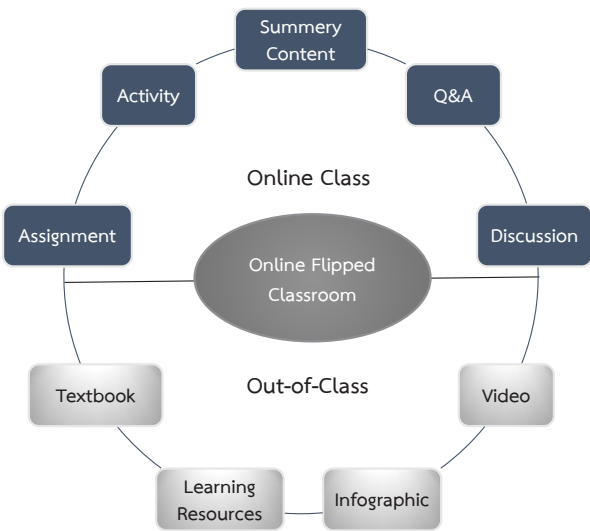


Figure 2 Online Flipped Classroom Chart

Conclusion

Online teaching without interaction with students causes student to feel bored, and decreases the incentive to learn. That is why teachers must change the way of teaching from giving lectures in the classroom to creating or recommending instructional media for student to study at home and change from activity in classroom to activity based on what students studied from home to improve their skill, train them to cope with problem and promote interaction in the classroom. Flipped Classroom is a learning innovation that is in accordance with learning skills for students in the 21st century. It is the form of learning that allows students to study by themselves through video and participate in the activity that improves the understanding in the normal classroom. Even though the students are not quite satisfied with the usual online learning, online learning blended with flipped classroom will improve learning, increase interest, and course evaluation of students (Tang et al., 2020). Teachers will provide additional knowledge that will increase student’s quality of learning and learning achievement will increase with assessments achieving a higher level. Importantly, learners must be active, responsible, and actively participate in discussions and activities during online learning hours.

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