# Using Web-Based Flipped Learning to Develop Secondary Stage Students' EFL Reading Comprehension Skills

By

**Dr. Morsi Embarek Mohamed Gaml**

Lecturer of Applied Linguistics at Sinai Higher institute for Specific Studies, Egypt.

**Dr. Heba Elsayed Abdelsalam Elghotmy**

Assistant Professor of Curriculum and Methods of Teaching English, Faculty of Education, Menoufia University, Egypt.

## مستخلص البحث باللغة العربية

### استخدام التعلم المعكوس المستند إلى الويب لتطوير مهارات الفهم القرائي باللغة الإنجليزية لطلاب المرحلة الثانوية

**الملخص**

يهدف هذا البحث التحقق من تأثير استخدام التعلم المعكوس المستند إلى الويب على تطوير مهارات الفهم القرائي للغة الإنجليزية كلغة أجنبية بين طلاب السنة الأولى من المرحلة الثانوية. لهذا الغرض تم اختيار مجموعتين متكافئتين عشوائياً وتوزيعهما على مجموعة تجريبية ومجموعة ضابطة، ثلاثين طالباً في كل مجموعة، من معهد حمدي قنديل الثانوي الأزهري بالمنوفية، خلال الفصل الدراسي الأول ٢٠٢٢-٢٠٢٣. استخدم البحث التصميم شبه التجريبي. أعد الباحثين بعض مقاطع الفيديو القصيرة للمجموعة التجريبية، بينما تلقت المجموعة الضابطة التعليم بصورة تقليدية. أعد الباحثين قائمة بمهارات الفهم القرائي للغة الإنجليزية كلغة أجنبية واختبار قراءة اللغة الإنجليزية كلغة أجنبية. تم اختبار الطلاب في كلا المجموعتين مسبقًا باستخدام اختبار قراءة اللغة الإنجليزية كلغة أجنبية. بعد ذلك، استخدم الباحثين التعلم المعكوس المستند إلى الويب لتعليم المجموعة التجريبية، بينما استخدمت المجموعة الضابطة الطريقة التقليدية. أخيرًا، تم تطبيق نفس اختبار القراءة باللغة الإنجليزية كلغة أجنبية بعديا على كلا المجموعتين. استخدم الباحثين معيار لتصحيح اختبار القراءة. أشارت نتائج البحث إلى أن المجموعة التجريبية تفوقت على المجموعة الضابطة في الاختبار البعدي لاختبار الفهم القرائي للغة الإنجليزية كلغة أجنبية. وبالتالي، أثبت التعلم المعكوس المستند إلى الويب فعاليته في تطوير مهارات الفهم القرائي لطلاب الصف الأول الثانوي.

**الكلمات المفتاحية:** التعلم المعكوس المستند إلى الويب، مهارات الفهم القرائي.

## مستخلص البحث باللغة الإنجليزية

This research aimed to investigate the effect of using web-based flipped learning on developing EFL reading comprehension skills among 1st year secondary school students. For this purpose, two complete groups were chosen at random and assigned to an experimental group and a control one, thirty students in each group, from Hamdi Qandil Secondary Al-Azhar Institute in Menoufia, during the first term 2022-2023. The study's methodology was a quasi-experiment. For the experimental group, the researcher had created a few brief movies, while the control group received regular instruction. The researcher prepared EFL reading checklist and EFL reading test. Students in both groups were pre-tested using the EFL reading test. After that, the researcher used the web-based flipped learning for teaching the experimental group, while the control group used the traditional method. Finally, the same EFL reading a test was post-tested on both groups. The research's findings showed that in the post-test of the EFL reading comprehension test, the experimental group outperformed the control group. As a result, the web-based flipped learning approach was successful in improving the reading comprehension of first-year secondary school students.

**Keywords:** Web-based flipped learning, reading comprehension skills.

## Introduction

One of the four language skills pupils should have mastered is reading in order to comprehend and comprehend the information in the English text. With the advent of the cognitive and communicative approaches, reading comprehension is now seen as an active skill to process information in which students relate the written content to what they already know, and draw conclusions from what they read. Reading comprehension is traditionally thought of as a non-acquired passive receptive skill. Researchers and educators are therefore looking for the best methods for enhancing reading comprehension skills (Mohseni et al., 2020).

The main goal of reading is comprehension and gaining knowledge, so both teachers and students must employ efficient reading comprehension techniques to encourage critical thinking when understanding complicated texts (Alghonaim, 2020). Halim et al. (2020) claim that the problem occurs when students struggle to understand the material and are consequently unable to accurately respond to reading comprehension questions about it. They attribute this problem to their lack of critical thinking abilities and a successful learning strategy. As a result, they offered various methods and approaches to improve reading comprehension.

Due to the significance of improving reading comprehension abilities, numerous novel methods and strategies have been developed to aid students in understanding texts. The flipped learning is one of these strategies. It changes the learner's role from one of a passive to an active one in the learning process (Nursyahdiyah & Daulay , 2022). Teachers may have tutorial responsibilities rather than being obligated to offer lectures for the majority of class time. Additionally, students might play a variety of roles and participate more actively in their education. Since the advent of technology in the classroom, educators have been able to improve learning environments by extending the boundaries of the traditional classroom setting. One instructional technique that follows this technology-related learning strategy is flipped learning, which uses technological resources like recorded lessons and videos to provide students with more interesting learning opportunities (Lindeiner-Strásk, & Winchester, 2022).

Flipped learning includes changing the teacher-student interaction so that more of the students' cooperative and collaborative contributions to the teaching process are made during class time and less direct instruction from the instructor is given (Bergmann and Sams, 2014). Flipped learning is a teaching approach that deviates from conventional classroom instruction by providing educational resources

online and having students engage in group projects or possibly simple critical thinking exercises in class.

**Context of the Study:**

Several studies looked at the effects of flipped learning on students' reading comprehension and capacity to identify the main themes of texts (Arsanjani & Faghih, 2015; Irzawati & Asiah, 2013; Alshumaimeri & Almasri, 2012). Despite the fact that these studies discovered Web Quest to be successful in enhancing students' reading comprehension in an EFL environment, they neglected to thoroughly assess their participants' comprehension reading abilities, which is a crucial step in the development of reading comprehension. The purpose of this study is to ascertain how adopting web-based flipped learning has an impact on secondary school students' development of EFL reading comprehension skills.

**Statement of the problem:**

The problem of the present study lies in the poor performance of 1st year secondary school students in their EFL reading comprehension skills. Hence, the present study attempts to investigate the effect of web-based flipped learning in developing EFL reading comprehension skills of 1st year secondary school students.

**Questions of the Study:**

**The problem of this study could be stated in the following main question:**

How far is web-based flipped learning effective in developing EFL reading comprehension skills required for 1st year secondary school students?

**Hypothesis of the Study**

There is a statistically significant difference between the post-test administration mean scores of the experimental and the control groups in overall reading comprehension skills in favor of the experimental group.

**Aim of the Study:**

The current research aimed to develop EFL reading comprehension skills among first year secondary school students through web-based flipped learning.

**Delimitations of the Study:**

The present study is delimited to:

1- A group of 1st year secondary school students (N=60) from.

Hamdi Qandil Secondary Al-Azhar Institute.

2- Some EFL reading comprehension (literal comprehension skills, inferential comprehension skills, critical comprehension skills, creative comprehension skills and appreciative comprehension skills).

3- The academic year's first semester 2022-2023.

**Significance of the Study:**

The present research might help:

1. **Students** as it helps them in improving their reading comprehension skills.
2. **Teachers** as it helps them in recognizing and using web-based flipped learning in teaching and learning in general.
3. **Curriculum designers** as it directs their attention to web-based flipped learning and incorporate some of the methods, techniques and activities based on the web-based flipped learning.
4. **Researchers**- as it provides them with new avenues of web-based flipped learning research to investigate and conduct researches on this area.

**Definition of terms**

**Web-based Flipped learning**

Web-based flipped learning, according to Pang (2022), is a pedagogical strategy that alters the standard of learning in educational situations involving English as a Foreign Language (EFL). It promotes active involvement from students, supports peer and teacher help with assignments, and gives students more time to themselves in class.

The researchers of the current research defined web-based flipped learning as using social media as a combination of reversed inside and outside classroom activities. Students are responsible for the outside-classroom activities via visiting course-related websites, watching videos, reading related references etc. On the other hand, teachers have to provide an environment rich in interactive inside-classroom which support pair work, team work, hands-on activities and high-level thinking activities**.**

## Reading comprehension

Williams & Pollini (2009:332) define reading comprehension as the ability to comprehend literature, take in its meaning, and apply it to one's existing knowledge after having read it. The words that make up a phrase determine the meaning of the sentence. The researchers of the current research defined reading skill as the capacity of first-year secondary students to understand or extrapolate meaning from written content. to identify words and get their meaning through five levels: literal comprehension, inferential comprehension, critical comprehension, creative comprehension and appreciative comprehension.

## Review of Literature and Related Studies

## Reading comprehension

The cornerstone of the reading process or the main goal of the reading lesson is reading comprehension, and in order to reach this understanding, the reader must engage with the text in a way that results in the construction of meaning. As a result of this interaction, the reader begins to interpret the text they have just read in light of the type of information it contains and their cognitive background. While understanding the topic will depend on creating a thorough mental image, reading comprehension is an interactive structural mental process that the reader exercises through the content of my reading in order to extract the general meaning of the issue (Bari & Shaaban, 2010).

## Importance of Reading Comprehension

For English language learners, the ability to read is crucial. The majority of students believe that it is the most crucial ability to develop in order to succeed academically. English language learners frequently make more advancements in other areas of language acquisition after mastering reading skills. Fluent and active reading should be practised. It enables the reader to interact with the text and comprehend its meaning (Ardiansyah & Meirani, 2022).

Mahmoud (2020) asserts that reading is more necessary than ever because so much information is communicated through writing, making it essential for students to master this skill in order to excel in their chosen careers. The most essential skill a learner will ever learn is reading. According to Halim & Supramaniam (2020), "reading fosters one's capacity for creativity. In contrast to movies, where the producer, writer, and director make all the decisions, books allow students to picture in their minds what a certain character may look like or how a scenario might unfold. As a result, reading a book allows a pupil to exercise and improve their creative thinking skills.

## Reading Comprehension Skills

According to Hussein & Al-Sultani (2022), there are several skills involved in reading comprehension, including:

a) Identifying the major ideas.
b) Setting thoughts in order of their logical progression.
c) The capacity to understand instructions and maps.
d) Drawing conclusions and inferences from what he reads.
e) The capacity to evaluate and discuss what you read.
f) Understanding the writing style.
g) Identifying the traits of a readable writing.
h) The capacity to ascertain the author's goal.

## Reading comprehension sub-skills:

Some reading comprehension skills were classified by Hussein (2007) as being at the literal, inferential, and critical levels. They are as follows:

**a. Literal skills**

-Awareness of the sentence's coherence.
- Understanding information that has been formally declared.
-Skimming to get the gist of what you read quickly.
-Scanning to identify the precise information that is needed.

**b. Inferential skill**

-Identifying the main idea.
-characterizing the idea based on the evidence.
-Identifying subjects.
- Finding the topic sentence.
-Appreciating the author's style and the tone of the piece.
-Noticing contrasts and comparisons.

**c. Critical skills**

-Differentiating between facts and views.
-Coming to a conclusion and predicting results.
-Outlining the author's goal.
-Examining the information offered and expressing an opinion.

## Flipped Learning

Today's educational settings are utterly dependent on technology. According to Lindeiner-Strásk, et al. (2020), The development of technology has significantly influenced how educators instruct and how students learn. It was accepted that the teachers were open to using technology into their lessons. This openness pushes teachers to reconsider their teaching methods. In fact, they use technology in their instruction to more effectively accomplish their pedagogical objectives. The

flipped learning strategy is one of the many technologically based pedagogy methods used in English language instruction (Yulian, 2021).

According to Guo (2019), the flipped learning method is a pedagogical tactic that increases peer and teacher support for managing homework while also giving students more free time in the classroom. In a flipped classroom, students are taught the material ahead of time, and rather than spending class time on content delivery, they apply it through active learning and problem-based learning. Zainuddin (2017) claims that this method is known as flipped learning.

Pre-class self-learning was defined by Hung (2018) as integrating linguistic knowledge into the learner's private time and space through the use of videos and pertinent exercises. Additionally, he mentioned that during class, there would be pair or group exercises. Therefore, The flipped learning strategy's core components include moving content assignments outside of class and utilising class time for more advanced tasks like applying and analysing previously learned material (Yilmaz and Baydas, 2017). When the classroom is flipped and added to by Bloom's revised Taxonomy and Cognitive Apprenticeship, EFL students gain more exposure, time, and opportunity to learn both within and outside the L2 classroom. It transforms teacher-driven education into student-centered learning through the use of active learning strategies.

## The theoretical background of flipped learning

The teachers' use of flipped learning can be justified by theoretical underpinnings such constructivism and cognitive load theory (Li, 2022). According to the constructivist philosophical perspective, knowledge is formed through interpersonal interactions with consideration for the environment and society. Constructivism theory states that learning occurs when a student works with an adult or peer who is more skilled to address problems that are just beyond of her or his actual capabilities (Jantakoon and Piriyasurawong, 2018).

The following are some of the fundamental principles of constructivism: Learning is self-centered and self-directed; it is an active process as opposed to a passive one; and it is the instructor's responsibility to encourage critical reflection and make it simpler for students to apply and absorb new concepts more fully. One of the numerous student-centered teaching methods built on the constructivist theory of learning, which maintains that students actively construct knowledge based on their past knowledge, perceptions, and experience, is flipped learning (Lewis et al., 2018).

The constructivist approach in flipped learning ought to be an active practise where students are required to increase their knowledge and use cooperative and collaborative learning, be given control over the learning process, have opportunities to reflect, and, finally, gain meaningful learning experiences to improve their learning based on this specific approach (Erbil, 2020).

Flipped learning can help learners' cognitive loads to become less demanding. (For instance, Li, 2022; de Leng and Pawelka, 2021). The resources a person's working memory is using at any given time are referred to as cognitive load. According to the concept of cognitive load, an effective education should have a minimum amount of unrelated work and a maximum amount of germane work (Wang et al., 2020). Effective instruction, according to Kirschner et al. (2018), improves learning outcomes while reducing cognitive burden. By allowing students to study more about the subject before the session, flipped classroom approaches offer extra options to control cognitive load. Some of these are already taken into account by the flipped classroom strategy, while others call for specific decisions from educators when creating learning activities.

## Web-based flipped learning

Numerous researchers have become interested in social media usage in flipped classes. In general, social media are "a set of interactive technology tools meant to stimulate social networking and dialogic communication in virtual communities and networks," according to Pathiraja and Little (2015). Online discussion boards, social networking sites, business social networks, and websites that produce material, and discussion forums are only a few examples of the social media platforms discussed. Social media are "technology that allow social interaction, make collaboration possible, and permit discourse across stakeholders," according to Pang (2022). He said that in flipped classrooms, Social media sites could bridge the knowledge gap between technology and education. This review will discuss how social media platforms affect EFL students' engagement and critical thinking in flipped learning situations.

The conceptual underpinning of this review is Vygotsky's notion of mediation in online learning. This hypothesis suggests a connection between technology and mental and cognitive processes. Zidoun et al. (2019) contend that educational initiatives ought to take into account how technological advancements affect learning and what role they play. The concept of technological mediation, which borrows concepts from Vygotsky's (1986) theory of tool mediation, seeks to illuminate the various ways that technology actively co-shapes how people relate to one another and to the outside world. This perspective of technological

mediation, according to de Boer et al. (2018), emphasises "the primacy of the relatedness between emotional states of individuals, technology, and the world."

## Reading Instruction in a Flipped Classroom

In a flipped classroom, students read up on the material outside of class before coming in, and there are teaching and learning activities in class, such as finishing tasks, talking about the material, or working through problems the students don't understand. When doing tasks for class, it is expected that students would be able to directly contact a friend or the teacher when they are having problems so that the issue can be resolved right away. A learning method that combines in-classroom and extracurricular learning is called flipped learning, also known as blended learning. "What was formerly finished in class is now completed at home, and what was once completed as homework is now completed in class," according to flipped classroom (Nursyahdiyah, & Daulay, 2022).

To put it another way, In a flipped classroom, conventional learning strategies are reversed such that what is typically performed in class is completed at home and what is typically completed as homework at home is completed in class. Lessons in a flipped classroom are initially presented online as videos that students must download or make available online to study at home or outside of class (on a website, blog, or social media platforms like Facebook and YouTube). While group discussions and assignment completion are done during the class's learning period (Guo, 2019).

The flipped classroom may seem simple, but if it is not correctly run, it will lead to subpar instruction. The flipped classroom demands a lot of attention from the teacher because they must set up the activities in the classroom as well as upload the video and test to the online sites. For instance, the instructor should reflect after implementing a flipped classroom to determine whether any activities were missed. Furthermore, spontaneity needs to be avoided during in-class activities. Planning is therefore essential with the flipped classroom model (Zheng et al., 2020).

## The pedagogical idea is unaltered by the flipped classroom method.

Active engagement in educational activities has recently replaced passive listening among students during class. As stated by (Ardiansyah & Meirani , 2022). Allowing students to watch videos whenever and wherever they want, allowing them to learn at their own pace, and fostering critical thinking inside and outside of the classroom are just a few advantages of flipping the classroom. They can use a range of learning methods. With the help of this educational method,

teachers can interact with students more and get to know their emotional requirements.

Reading is essentially a perceptual and cognitive process, claim Halim and Supramaniam (2020). Prior studies on reading have centred on the reader and what takes place in that person's thoughts while reading. This demonstrates that reading is the process of using our brains to make sense of material. Additionally, reading texts involves a cognitive effort to fully comprehend the meaning that the authors wanted to express. In many contexts, reading is an essential skill, but it is especially important in the educational setting. Students now face strong expectations on their reading skills because writing is still the primary means of transmitting knowledge. They must have adequate reading skills in order to understand the text's main points. Additionally, Nursyahdiyah, & Daulay (2022) stated that reading is crucial for both broadening one's knowledge and sharpening one's thinking skills. The development of one's emotional, moral, and verbal intelligence will be supported by this ability. These procedures also have an impact on a person's future. Reading comprehension has a crucial role in how well students learn and think, which is linked to the development of their moral, emotional, and linguistic intelligence.

In EFL reading classrooms in particular, flipped learning or mixed learning is an effective teaching approach that enables students to prepare their knowledge prior to the classroom learning process during the COVID-19 outbreak. It triggered the shift away from traditional learning paradigms to online learning, where students are given access to educational materials over a "Internet" network so they can study them beforehand. Initially, each student worked by themselves at home (Yulhendri & Kurniawati, 2019). The purpose of the flipped classroom learning model is to have students complete their homework in class rather than at home and to have them complete their homework at home. Teachers can decrease the amount of direct instruction while increasing student engagement by using a "flipped classroom."

## Method

### Design of the Study

This study employed a quasi-experimental methodology in which two complete student groups were randomly divided into experimental and control groups, each with 30 participants. The experimental group trained their reading comprehension abilities through web-based flipped learning. The traditional approach was employed by the control group. Before and after the treatment, the two groups received a pre-test and an equivalent post-test.

**Participants of the Research:**

Sixty students in the first year of secondary stage participated in the research. They were enrolled in Hamdi Qandil Secondary Al-Azhar Institute in Menoufia. The participants' ages ranged between fifteen to sixteen years old.

The researchers taught both the control group and the experimental group at the same time (three months experiment). However, while the experimental group received training throughout using web-based flipped learning to develop their reading comprehension skills· , The researcher regularly instructed the control group as well.

The researchers utilised an independent samples t-test to determine the significance of the difference between the mean scores of the experimental group and the control group in order to compare the performance of the two groups (experimental and control) at the pre-test. Table (1) shows the t-values.

**Table (1): The t-Value, which denotes the difference in mean scores between the two groups (EFL Reading skills)**

| Skills | Group | N | Mean | Std. Deviation | t-value | d.f | Sig |
|---|---|---|---|---|---|---|---|
| Literal comprehension skills | Experimental | 30 | 3.37 | 1.10 | 0.759 | 58 | Not Significant |
| | Control | 30 | 3.57 | 0.94 | | | |
| Inferential comprehension skills | Experimental | 30 | 3.23 | 0.90 | .279 | 58 | Not Significant |
| | Control | 30 | 3.30 | 0.95 | | | |
| Critical comprehension skills | Experimental | 30 | 3.53 | 0.86 | .906 | 58 | Not Significant |
| | Control | 30 | 3.30 | 1.12 | | | |
| Creative comprehension skills | Experimental | 30 | 2.73 | 1.01 | 1.987 | 58 | Not Significant |
| | Control | 30 | 2.20 | 1.06 | | | |
| Appreciative comprehension skills | Experimental | 30 | 3.43 | 1.07 | 1.986 | 58 | Not Significant |
| | Control | 30 | 2.87 | 1.14 | | | |
| **EFL Reading skills** | Experimental | 30 | 16.27 | 2.46 | 1.949 | 58 | Not Significant |
| | Control | 30 | 14.80 | 3.31 | | | |

The aforementioned table makes it evident that there was no difference in the calculated values of "t," which meant that there was no significant difference

between the mean scores of the two groups. The values of calculated "t" are not significant, as shown in Table 1. Therefore, before the study experiment was conducted, the two groups (experimental and control) were comparable.

## Instruments and Materials of the Research

The following instruments and resources were produced by the researchers to achieve the research's objective:

1) Reading comprehension skills checklist.
2) A pre-post reading test with a criteria for improvement to assess the success of the web-based flipped learning strategy by assessing some EFL reading comprehension skills among first-year secondary stage students.
3) A rubric.
4) Teachers' guide.

## Construction of the Pre-post Reading comprehension Test

## Objective of the Test

The pre-post reading comprehension test was designed to evaluate first-year secondary students' EFL reading comprehension abilities. Prior to experimenting, the test especially aims to gauge pupils' proficiency in reading comprehension. It also tries to evaluate how well their reading comprehension skills are improving as a result of the web-based flipped learning.

## Description of the Pre-post Reading Test

The purpose of the pre-post reading comprehension test was to compare the pupils' reading comprehension abilities. There was only one part to it. There were two reading portions, and then fifteen questions for each of them. The weight of each skill is displayed in the specs table below:

**Table ( 2 ) : The Pre-post reading comprehension test specifications**

| Skills measured | Sub-skills measured | Items |
|---|---|---|
| **literal comprehension skills** | 1- interpreting words based on their context. | Passage 1:Q1<br>Passage 2:Q1 |
| | 2- identifying the main idea. | Passage 1:Q 2<br>Passage 2:Q 2 |
| | 3- Recognising supporting details | Passage 1:Q 3<br>Passage 2:Q3 |
| **Inferential comprehension skills** | 4- Assuming a cause-and-effect connection. | Passage 1:Q 4<br>Passage 2:Q 4 |
| | 5- Deducing what the author's intended meaning is. | Passage 1:Q 5<br>Passage 2:Q 5 |
| | 6- Relate textual information to prior knowledge. | Passage 1:Q 6<br>Passage 2:Q 6 |
| **Critical comprehension skills** | 7- Identify the author's goal. | Passage 1:Q 7<br>Passage 2:Q 7 |
| | 8- Recognising connections between sentences. | Passage 1:Q 8<br>Passage 2:Q 8 |
| | 9- Deducing logical conclusion | Passage 1:Q 9<br>Passage 2:Q 9 |
| **Creative comprehension skills** | 10- Creating fresh concepts.<br>11- Supporting or criticising the author.<br>12 Responses to the thoughts in the passage | Passage 1:Q 10<br>Passage 2:Q 10<br>Passage 1:Q 11<br>Passage 2:Q 11<br>Passage 1:Q 12<br>Passage 2:Q 12 |
| **Appreciative comprehension skills** | 13- Obtaining from the text an emotional or other valuable response. | Passage 1:Q 13<br>Passage 2:Q 13 |
| | 14- Showing sympathy, empathy, or sensitivity to persons and circumstances by identifying with them. | Passage 1:Q 14<br>Passage 2:Q 14 |
| | 15- addressing a character or circumstance in a text personally. | Passage 1:Q 15<br>Passage 2:Q 15 |

## Validity of the Reading Comprehension Pre-Post Test

The test was presented to a jury of experts in curriculum and English teaching techniques in order to be validated.

They were asked to read the passages and answer the questions before providing their feedback on:

1) The content's acceptability for secondary school students.
2) The passages' difficulty and duration.
3) The extent to which each question assesses the intended skill.

By computing the square root of the reliability coefficient (i.e., experimental validity), the reading comprehension test validity was determined to be (0.73). The test was therefore determined to be legitimate.

**Table ( 3 ) the correlation coefficient between the degrees of dimensions and the total score of the reading test**

| | | literal comprehension skills | inferential comprehension skills | critical comprehension skills | creative comprehension skills | appreciative comprehension skills |
|---|---|---|---|---|---|---|
| **EFL writing skills** | Pearson Correlation | 0.68** | 0.77** | 0.72** | 0.71** | 0.79** |
| | Sig. (2-tailed) | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| **. The 0.01 level of significance for correlation (2-tailed). | | | | | | |

The test was valid, according to the results in table (3).

## Reliability of the Pre- reading test

Twenty first-year secondary students were given the EFL reading comprehension skills test to determine its reliability, and then the same group was given the test again four weeks later. The SPSS programme was used to calculate the correlation between the students' test scores from the two administrations. The reliability coefficient that resulted was discovered to be high (0.732). This indicates that the test is trustworthy, as indicated by table (4).

**Table ( 4 ) Reliability statistics by calculating cronbach's alpha of the scores of EFL reading** comprehension **skills test**

| **Skills** | **Cronbach's Alpha** |
|---|---|
| Literal comprehension skills | 0.731 |
| Inferential comprehension skills | 0.657 |
| Critical comprehension skills | 0.689 |
| Creative comprehension skills | 0.693 |
| Appreciative comprehension skills | 0.711 |
| **EFL Reading comprehension skills** | 0.732 |

The test's Cronbach's Alpha value was 0.732.

The test was reliable, according to the results in Table (4).

**Scoring the Pre- post reading test**

A rubric was created by the researcher to correct the reading comprehension test.

**Content of the teacher's guide**

It consisted of twelve sessions. To select the method content, the following topics have been taken into consideration:

1. The overall objectives of the teacher's guide.

2. The students' achievement standard.

3. The texts that lend themselves to a task and activity based content.

The content of the teacher's guide was a task / activity web- based content. A list of skills served as the basis for organization. The texts were used as instruments to help develop the (15) specified sub-skills of the research. The selected texts were closely related to the content area subjects of the target population. The content of the method was therefore, a mixed one: the skills, the texts and the web – based activities. The reading texts were chosen from the school text book that was modified by the researcher and some websites to be appropriate for the pupils in terms of difficulty and length. All reading texts included ideas commonly known to the study participants.

A task / activity web-based content was performed following the texts. They included a task / activity web-based content to train students. In each of the method's

lessons, the specified fifteen sub-skills for EFL reading comprehension have been fully established., i.e. each of the lessons included a task / activity based content to train students on the fifteen sub-skills of EFL reading comprehension skills.

The following format was used in designing the sessions of the flipped classroom approach:
Phase 1: Before class (Watching videos-Answering online quizzes).
Phase 2: During class (Receiving audience response - Active learning).
Phase 3: After class (reflecting – on line assignments).

**Implementing the web-based flipped learning:**
According to the adopted definition of the flipped learning it consists of three main stages: before, during, and after class. It can be illustrated by the following figure.

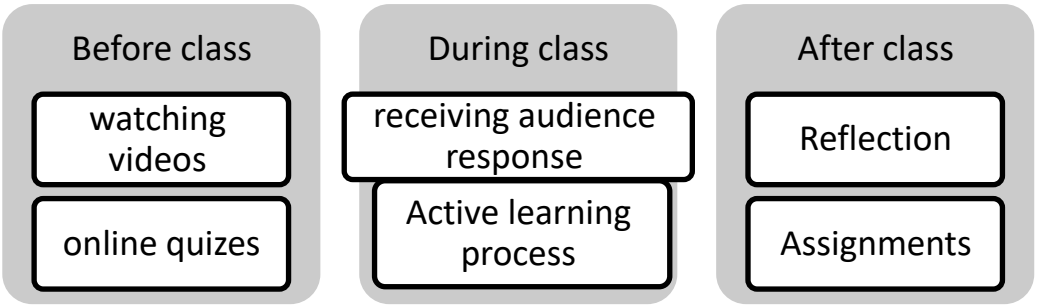


**Figure ( 1 ) Steps of implementing the web based flipped learning**

**1 - Before Class**
This stage is called preparation and it is divided into two major parts: fist, watching videos second, answering online quizzes. Every week, the teacher prepares and assigns some short videos for students to watch for the next lecture so that they can acquire the basic knowledge before class. Students have the choice to make a comment on each video and discuss the difficult parts with the teacher or their classmates.

**2- During Class**
In this stage, the researcher made best use of the class time to involve the students in active participation in the educational process in the classroom. This stage consisted of two major parts: receiving student's response via remembering the main information and involving students with active learning and reflecting processes.

**3- After Class**
This stage focuses on thinking and tasks. At home, students entered an online discussion forum where they exchange their experience with their friends and

teacher about the videos they watched. The researchers guide the process of reflection by encouraging students to answer questions such as:, "What questions do you still have about the topic or exercise?", "What do you suggest to upgrade the activity?" and "Did you like the flipped class? " Furthermore, students had the chance to provide questions for the teacher to answer.

Concerning assignments, the researchers divided students into groups of three to four and assigned a task /activity for each group. This web-based task /activity provided additional chance for practice, encouraged higher-order thinking, and evaluated learners' skills to test, synthesize, and assess the content. At the beginning of the course, the researcher provided samples of the web-based tasks /activities implemented in the course. He also offered assistance through the discussion forum. The following figure indicates the components of the flipped classroom.

**The role of the teacher:**

The teacher works as a guide, a monitor and sometimes as a model for the pupils. First, he works as a guide when he describes to the pupils what they have to do and when he corrects mistakes. Second, he works as a monitor when he watches out the pupils' performance. Third, he also works as a model in some sessions to show the students how to perform certain web-based tasks/activities.

**The role of the students:**

The role of the students is to perform the web-based tasks/activities given to them. They work individually when they have to perform the tasks on their own. Second, they work in pairs in pair-work activities. Third, they work in groups in group work activities.

**Procedures of the Study**

The procedures used in the web-based flipped learning were as follows:

1- Reviewing the previous literature and studies in the areas of web-based flipped learning and EFL reading comprehension skills.
2- Creating a list of reading comprehension skills needed by students in their first year of secondary school.
3- Preparing the reading comprehension skills test.
4- Presenting the tests to a panel of jurors for validation.
5- Preparing the principles, criteria and guidelines for the web-based flipped learning
6- Presenting the research sample.
7- Administering the program based on the web-based flipped learning on the research sample.
8- Post-testing the research sample.
9- Comparing the research sample's pre- and post-testing outcomes.

10- Analyzing the results statistically.
11- Interpreting the results and discussing them.
12- Drawing findings, making suggestions, and offering ideas for additional research.

**A sample teaching session followed with the study group went as follows:**

**1- Objectives:**

The researcher informed the students of the objectives of the session which were as follows:

By the end of the class, the students will be able to:

a) Form associations with the topic of the passages they are going to read about it.
b) Get practice in identifying main ideas and supporting details in a reading passage.
c) Express and show their understanding of the text through answering some questions based on the reading texts.
d) Summarize the reading text in their own words.

**2- Teaching aids:**

a) Data show
b) Social media such as: Facebook and WhatsApp.
c) Computer

**3-Presentation:**

The researchers having informed the students the objectives of the lesson. They apply the following procedures using tasks and activities-based content as shown in the following table 5:

**Table ( 5 ) The steps followed in the model:**

| Steps | Details |
|---|---|

| | |
|---|---|
| **Step One**: Deciding the lesson to be flipped and the learning outcomes. | The lesson to be flipped is chosen. The researchers begin to determine the learning outcomes that match with the web-based activities which students will perform. |
| **Step two**: Designing the content. | The researchers design the content through videos, audios, power point presentations, and deliver it to the students before the next class. At home, students watch the videos, listens to the audios and the other materials assigned by the instructor. They have to recall the information provided, comprehend the ideas of the lesson and resolve the content provided. |
| **Step three:** Pre-class web-based activities. | The researchers provide some pre- class web-based activities to prepare students before the class and make them interested. The researchers encourage students to involve in the preparation process through preparing and responding to various kinds of questions. |
| **Step three** In-class web-based activities. | Inside the classroom, students are involved in discussions, active learning web-based activities, cooperative learning, critical thinking skills and so on. In addition to, pair and teamwork are performed to promote students' involvement and participation. Student-centered learning is mandated for the majority of class time. The researchers guide and monitor students' learning; they prompt students to share and controls the web-based activities been performed. |
| **Step four:** Post-class web-based activities. | Students must do presentations and assignments related to the lesson through searching the web for more resources. These web-based activities are evaluated by the teacher to make sure that the learning goals are fulfilled. |
| **Step 6:** Ongoing web-based Evaluation or Assessment. | The researchers use both formative and summative ways to evaluate the comprehension and efficiency of students. They evaluate the web-based activities to make sure that the learning goals are fulfilled. They assess student understanding at all stages. |

## Findings of the Study

Students' scores on the pre and post administration of reading comprehension test were analyzed statistically. Relevant data to the hypotheses of the study are provided in this part**.**

## Investigating validity of the hypotheses:

## Results related to the first hypothesis of the research

"There is a statistically significant difference between the post-test administration mean scores of the experimental and the control groups in overall reading comprehension skills in favor of the experimental group."

The following table shows the results of the calculations made to determine the arithmetic average (Mean), standard deviation, minimum and maximum values for the two groups—the experimental group and the control group—in order to examine the validity of this hypothesis.

**Table ( 6 ) Descriptive Statistics to the Scores of Students of the Control Group and the Experimental Group in the Overall reading comprehension skills**

| Test | Group | N | Mean | Std. Dev. | Min | Max | Mean dif. | total score |
|---|---|---|---|---|---|---|---|---|
| overall reading skills | Experimental | 30 | 25.73 | 2.24 | 20 | 30 | 8.6 | 30 |
| | Control | 30 | 17.13 | 6.38 | 4 | 28 | | |

Table (6) demonstrates that the experimental group's mean score for total reading ability was 25.73, greater than the control group's score, which was (17.13). Table 6 demonstrates that after administering the overall reading skills test, the experimental group's results increased more than those of the control group. Additionally, it demonstrates how the experimental group's grades are becoming more homogeneous than those of the control group as a result of using a flipped classroom strategy to teach the experimental group. Figure illustrates this in pictorial form (2).

**Figure ( 2 ) The Mean Scores of the Control Group and the Experimental Group in the Post Overall reading skills Administration**


The previous diagrams demonstrated that there were notable discrepancies between the two groups' scores. And the figure demonstrated it as follows by summarising the degrees of the two groups:

**Table ( 7 ) Summarizes of the Degrees of the Control Group and the Experimental Group**

| Statistical measures | The control group | The experimental group |
|---|---|---|
| Minimum | 4 | 20 |
| Maximum | 28 | 30 |
| Lower Quartile (Q1) | 14.25 | 25 |
| Median | 16.5 | 26 |
| Upper Quartile (Q3) | 22.25 | 27 |

The t-value for the difference between the mean scores of the two groups was calculated to examine the significance of the differences, as shown in table (8 ).

**Table ( 8 ) The t-Value to Signify the Difference between the Mean Scores of the Two Groups in the Post Administration**

| Test | Group | Mean | S. D | t-value | d.f | Sig | $^2\eta$ | D | Effect size |
|---|---|---|---|---|---|---|---|---|---|
| **Overall reading skills** | Experimental | 25.73 | 2.24 | 6.968 | 58 | at (0.01) | 0.46 | 1.83 | Large |
| | Control | 17.13 | 6.38 | | | | | | |

The difference between the mean scores of the two groups reached the level of statistical significance, as shown in Table 8 by the calculated value of "t" (6.968) being higher than the tabulated value of "t" at 58 degrees of freedom and significant level "0.01".

Thus, the hypothesis was accepted which indicated that "There is a statistically significant difference between the post-test administration mean scores of the experimental and the control groups in overall reading comprehension skills in favor of the experimental group."

The value of ETA square and the effect size (d) were determined as its value (ETA square) was 0.46 to analyse the effect and educational importance of the outcomes as well as their effectiveness. The height effect, educational value, and practical significance of the ETA square value outweighed the psychological research results, which were 0.14. And in light of this, it can be concluded that the use of web-based flipped learning for developing and enhancing general reading skills had a significant educational impact and could account for 46% of the variations in student scores in overall reading comprehension skills between the two groups of students.

**Discussion of Results**

The students in the flipped class in this research appeared to acquire accustomed to the web-based flipped learning, even if it was still regarded as a new teaching paradigm in the Egyptian environment. A sizable discrepancy in the students' results served as evidence. The experimental group performed better on the posttest. These outcomes are consistent with earlier study on the use of web-based flipped learning in EFL cases, which demonstrates successful outcomes following application, and they support that research (see: Sung, 2015; Webb, Doman & Pusey, 2014; Yujing, 2015).

The results of the research were given, and they demonstrated the significance of web-based flipped learning in the teaching of reading as well as its favourable impact on the reading levels of ESL students. Flipped learning on the web can be seen as the major tool for enabling students to fully participate in the learning process and acquire higher grades with higher levels of critical thinking abilities. As a result, educators should use this strategy when instructing students (Pang, 2022).

**Limitations of the study**

The researchers encountered a number of unique difficulties in putting the web-based flipped learning model into practice, but they also gained important insights.

**First**, because every student is unique and has a distinct learning style, the flipped language class may not be appropriate for everyone. The amount of time that students should anticipate spending on extracurricular activities needs to be clarified and relocated. It is acceptable to use a screening procedure to identify students who are self-motivated, skilled at self-regulated learning, and good at time management. Practice sessions on effective study habits may be essential at the start of the course to aid in increasing the students' sense of responsibility outside of the time spent in face-to-face interaction.

**Second**, despite the fact that some issues are difficult to anticipate at the design stage, it is important to have a general understanding of the types of issues students may run into when interacting with online learning content. Teachers may need additional time and technology support to tackle any number of strange difficulties that arise while they are teaching.

**Third**, instructors were faced with the issue of reorganising their lesson plans in order to make the most of the valuable classroom time that had been freed up from explanations of the topic. There was a necessity to apply present tools to merge seamlessly the online learning significance with the classroom instruction.

**Fourth**, to keep track of students' learning outside of class, measures should be put in place. The web-based flipped learning method works best when all students complete the online homework prior to class. It appears that even one tardy student might slow down class progress. Although we could monitor how long students spent on the assigned website and how often they visited, we could not be certain that they always behaved as they are expected to throughout those periods.

**Fifth**, our online tests were created to make sure that students have finished the prior online lesson. These tests served as a low-stakes, formative evaluation to aid in giving feedback on students' understanding of the concepts covered in the online video and to assist students in determining whether they had understood those concepts. Even though the same concept or message could have been expressed in many ways in real life, these tests are challenging since there may only be one correct response to a given question. Therefore, for those quizzes, convergent questions performed better than divergent questions.

**Sixth**, Additionally, the outcomes of the online class observation revealed that more than half of the students did not finish their online tests within the first week of implementation. There had been certain initiatives to encourage student participation, such as additional points for active sharing, compliments, etc. Notably, during the next weeks, more and more students will share. Nevertheless,

not the entire class took part. Numerous earlier research (such as Roshan (2013) and Seaboyer (2013) have cautioned that additional preparations must be made to prepare for potential difficulties. But it appears that more than just elaborations are needed. Revisions, reflections, and more continual efforts to encourage and support students' active involvement in their online class.

The current study findings are consistent with several findings of previous related studies. For instance, regarding the reading comprehension skills, the findings were consistent with Mahmoud (2020), Nursyahdiyah & Daulay (2022) and Ardiansyah & Meirani (2022).

**Findings of the current study might be due to the following:**

**First:** One of the phases of online flipped learning is setting goals. Students became acquainted with the aims and purposes of the web-based flipped classroom during the introduction lesson.

**Second:** In a safe learning environment with a low-effective filter, the usage of web-based flipped learning encourages the development of reading skills.

**Third:** The web-based flipped learning model offers a framework for instruction in which modules were created and customised to match the unique linguistic requirements and linguistic developmental stages of each learner.

**Fourth:** The web-based flipped learning activities engage students more in the learning process and pique their attention. Learning consequently has a deeper significance.

**Fifth:** The researcher used verbal persuasion feedback in the form of positive statement before, while and after performing the activities to help them gain confidence in their abilities.

**Conclusion:**

The results presented imply that teachers need to be well-prepared before implementing web-based flipped learning in their classes. They must first gain a thorough understanding of what flipped learning is, how it is applied, what challenges are typically encountered, and how to overcome them. Additionally, teachers must constantly review and update the actions and activities used. In the meanwhile, it is advised that schools be equipped with the tools needed to implement web-based flipped learning. Computers and great Internet connectivity are amenities that should be offered. Finally, future investigations ought to look into the issue of the instructional materials employed more thoroughly. Additionally, in order to provide a broader view on the application of web-based flipped learning in EFL scopes, a study of a similar nature with various learner groups and situations is required.

In conclusion, the web-based flipped learning method was successful in improving the reading comprehension abilities of first-year secondary school pupils. The remarkable improvement in students' reading comprehension skills was an indicator of this outcome. This outcome may be attributable to a number of variables, including the opportunity for both individual and cooperative learning, the students' favourable attitudes regarding web-based flipped learning, and the researcher's supportive role.

## Recommendations

The following recommendations could be made based on the earlier findings:

1. Teachers should use short, engaging video lectures or readings to introduce new vocabulary and concepts before class.
2. Encouraging students to actively engage with the material by asking questions, taking notes, and summarizing key points.
3. In class, teachers should provide opportunities for students to practice and apply their new knowledge through activities such as group discussions, debates, and collaborative projects.
4. Providing regular formative assessments to check students' understanding and adjust instruction accordingly.
5. Using technology to enhance student engagement and learning, such as interactive quizzes, digital flashcards, and online discussion forums.
6. Encouraging independent reading practice outside of class and provide guidance and support to help students choose appropriate texts.
7. Providing regular feedback to students on their reading comprehension skills, and work with them to set individualized goals and develop a plan for improvement.

## Suggestions for Further Research

The following ideas were suggested to be further researched in light of the findings of the current research:

1- More research is required to determine how web-based flipped learning affects the development of other EFL reading comprehension skills.

2- More research is required to determine the impact of web-based flipped learning on the instruction of speaking English.

2. More research is required to determine the impact of web-based flipped learning on the instruction of English listening.

3- More research is required to examine how flipped learning on the internet might help secondary school students improve their EFL language skills.

4. Additional research is also required to determine how specific EFL reading skills at various educational stages are affected by web-based flipped learning.

## References

Alghonaim, A. S. (2020). Impact of Related Activities on Reading Comprehension of EFL Students. *English Language Teaching*, *13*(4), 15-27.

Alshammari, R. F. (2022). The Effect of Inquiry-Based Learning Strategy on Developing Saudi Students' Meta-Cognitive Reading Comprehension Skills. *English Language Teaching*, *15*(5).

Alshumaimeri, Y. A., & Almasri, M. M. (2012). The effects of using WebQuests on reading comprehension performance of Saudi EFL students. Turkish Online Journal of Educational Technology-TOJET, 11(4), 295-306.

Ardiansyah, W., & Meirani, W. (2022). Boosting Students' Reading Comprehension Attainment with Flipped Classroom Model: A Pilot Study at State Polytechnic of Sriwijaya. International Online Journal of Education and Teaching, 9(2), 871-883.

Arsanjani, M., & Faghih, E. (2015). The impact of the Webquest instruction system on Iranian intermediate EFL learners' writing performance and perception. International Journal of Instructional Technology and Distance Learning, 12(2), 37-47.

Bari, A., & Shaaban, M. (2010). Strategies of Reading Comprehension: Its Theory Foundations and its Practical Applications. Dar Al Masirah, Amman.

Bergmann, J., & Sams, A. (2014). Flipped learning: Gateway to student engagement. International Society for Technology in Education.

de Boer, B., Hoek, J., & Kudina, O. (2018). Can the technological mediation approach improve technology assessment? A critical view from 'within'. Journal of responsible innovation, 5(3), 299-315.

Erbil, D. G. (2020). A review of flipped classroom and cooperative learning method within the context of Vygotsky theory. Frontiers in Psychology, 11, 1157.

Guo, J. (2019). The use of an extended flipped classroom model in improving students' learning in an undergraduate course. Journal of Computing in Higher Education, 31(2), 362-390.

Halim, N., Arif, M. M., & Supramaniam, K. (2020). Enhancing reading comprehension through metacognitive reading strategies and peer tutoring among year 7 students at a home school centre. Asian Journal of University Education, 16(1), 22-31.

Hawks, SJ 2014, 'The Flipped Classroom: Now or Never?', AANA Journal, 82, 4, pp. 264-269, Academic Search Complete, EBSCOhost, viewed 16 August 2016.

Hung, H. T. (2015). Flipping the classroom for English language learners to foster active learning. Computer Assisted Language Learning, 28(1), 81-96.

Hung, H. T. (2018). Gamifying the flipped classroom using game-based learning materials. ELT Journal, 72(3), 296-308.

Hussein, S. H., & Al-Sultani, S. H. S. (2022). The Relationship Between Question Relations Strategy And Reading Comprehension. Journal of Positive School Psychology, 4303-4308.

Irzawati, I., & Asiah, N. (2013). Using WebQuest in learning grammar: Students' perceptions in higher education. Advances in Language and Literary Studies, 4(1), 13-19.

Jantakoon, T. H. A. D. A., & Piriyasurawong, P. A. L. L. O. P. (2018). Flipped classroom instructional model with mobile learning based on constructivist learning theory to enhance critical thinking (FCMOC model). Journal of Theoretical and Applied Information Technology, 96(16), 5607-5614.

Kirschner, P. A., Sweller, J., Kirschner, F., & Zambrano R, J. (2018). From cognitive load theory to collaborative cognitive load theory. International Journal of Computer-Supported Collaborative Learning, 13(2), 213-233.

Leng, B., & Pawelka, F. (2021). The cognitive load of the in-class phase of a flipped classroom course on radiology: Could computer support be of help?. Medical Teacher, 43(2), 216-222.

Lewis, C. E., Chen, D. C., & Relan, A. (2018). Implementation of a flipped classroom approach to promote active learning in the third-year surgery clerkship. The American Journal of Surgery, 215(2), 298-303.

Li, C. (2022). Application of Flipped Classroom in Second Language Teaching from the Perspective of Cognitive Load Theory. Advances in Educational Technology and Psychology, 6(3), 11-20.

Lindeiner-Stráský, K. V., Stickler, U., & Winchester, S. (2020). Flipping the flipped. The concept of flipped learning in an online teaching environment. Open Learning: The Journal of Open, Distance and e-Learning, 1-17.

Lindeiner-Stráský, K. V., Stickler, U., & Winchester, S. (2022). Flipping the flipped. The concept of flipped learning in an online teaching environment. Open Learning: The Journal of Open, Distance and e-Learning, 37(3), 288-304.

Mahmoud, N. H. (2020). Using Flipped Classroom Learning Model in developing some EFL Reading Skills among students at the Faculty of Specific Education. مجلة دراسات وبحوث التربية النوعية, 6(1), 484-493.

Mohseni, F., Seifoori, Z., & Ahangari, S. (2020). The impact of metacognitive strategy training and critical thinking awareness-raising on reading comprehension. Cogent education, 7(1), 1720946.

Nursyahdiyah, N., Dalimunte, A. A., & Daulay, S. H. (2022). The Implementation of Flipped Classroom in EFL Reading During Covid-19 Pandemic: Indonesian EFL Students' Voices. ENGLISH FRANCA: Academic Journal of English Language and Education, 6(2), 325-340.

Pang, Y. (2022). The role of web-based flipped learning in EFL learners' critical thinking and learner engagement. Frontiers in Psychology, 13.

Roshan, S. (2013). With flipped learning, how to make sure students are doing the work. Retrieved June, 10, 2013.

Samiei, F., & Ebadi, S. (2021). Exploring EFL learners' inferential reading comprehension skills through a flipped classroom. Research and Practice in Technology Enhanced Learning, 16(1), 1-18.

Seaboyer, J. (2013). The role of technology-assisted assessment in fostering critical reading in undergraduate literary studies. In International Computer Assisted Assessment Conference.

Sung, K. (2015). A case study on a flipped classroom in an EFL content course. Multimedia-Assisted Language Learning, 18(2), 159-187.

Wang, J., Antonenko, P., Keil, A., & Dawson, K. (2020). Converging subjective and psychophysiological measures of cognitive load to study the effects of instructor-present video. Mind, Brain, and Education, 14(3), 279-291.

Webb, M., Doman, E., & Pusey, K. (2014). Flipping a Chinese university EFL course: What students and teachers think of the model. The Journal of AsiaTEFL, 11(4), 53-87.

Williams, J. P., Stafford, K. B., Lauer, K. D., Hall, K. M., & Pollini, S. (2009). Embedding reading comprehension training in content-area instruction. Journal of Educational Psychology, 101(1), 1.

Yilmaz, R. M., & Baydas, O. (2017). An examination of undergraduates' metacognitive strategies in pre-class asynchronous activity in a flipped classroom. Educational Technology Research and Development, 65(6), 1547-1567.

Yulhendri, Y., & Kurniawati, T. (2019). Flipped Learning Berbasis Web Pada Pembelajaran di Universitas Negeri Padang.

Yulian, R. (2021). The flipped classroom: Improving critical thinking for critical reading of EFL learners in higher education. Studies in English Language and Education, 8(2), 508-522.

Zainuddin, Z. (2017). First-Year College Students' Experiences in the EFL Flipped Classroom: A Case Study in Indonesia. International Journal of Instruction, 10(1), 133-150.

Zheng, X. L., Kim, H. S., Lai, W. H., & Hwang, G. J. (2020). Cognitive regulations in ICT-supported flipped classroom interactions: An activity theory perspective. British Journal of Educational Technology, 51(1), 103-130.

Zidoun, Y., Dehbi, R., Talea, M., & El Arroum, F. Z. (2019). Designing a theoretical integration framework for mobile learning.