
RESEARCH ARTICLE

Enhancing Critical Thinking Skills and Communication Skills through Flipped Learning Technology in Moroccan Middle Schools

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ABSTRACT

Flipped learning technology is an effective approach that has been used widely in Morocco during the pandemic period. It is an approach that combines both face-to-face and online settings of learning and teaching. It is claimed that the utilisation of this approach matches the learners' needs and promotes autonomous learning among students at almost all educational levels. In this regard, this study aims to examine the effectiveness of Flipped learning technology in upgrading critical thinking and communication skills. This paper employed a quasi experimental pre-test post-test study design and teacher's observations. The sample was two groups consisting of 60 students aged 13 and 14 years old in the 8th grade at Tazi middle high school in Casablanca, Morocco. The participants were divided into an experimental group (N=30) that received the treatment study using Flipped learning technology approach and a control group (N=30) taught traditionally. They were taught using a teacher centred method. The researcher used a critical thinking and communication skills test as an instrument and a paired sample t-test for the analysis. The findings revealed a significant difference between the experimental and the control group (sig <0.05); it showed that experimental group participants achieved higher thinking and communication skills. Overall, we conclude that Flipped learning technology influenced critical thinking and communication skills.

KEYWORDS

Flipped learning technology- critical thinking- communication skills- teacher centred method

ARTICLE INFORMATION

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1. Introduction

Technology assisted learning helps in promoting various areas in the learning and teaching settings for both educators and learners. It transforms education from a teacher centered method towards a learner centered method that views students as active agents and fully engaged critical thinkers. It aids learners in consolidating their knowledge, collaboration, autonomy, critical thinking skills and communication skills, especially in Morocco, where learners are either bilingual or multilingual. They can speak different languages like Arabic, French, Berber and Spanish, along with various regional dialects and accents. Thus, a multicultural classroom where different ethnic groups and traditions exist should be inclusive (Hoosein, 2014), and instructors have to welcome all orientations of learners of EFL in Morocco in which communication skills in English are hard to meet.

Students often mix the English language with their native language because they have always been taught English from exam perspectives. Importantly, a lot of research has been conducted on critical thinking skills related to various dependent variables as problem based learning in the learning sphere as a study sample conducted by Saputra. (Saputra et al., 2019). However, the flipped learning technology can be an effective strategy to enhance students' participation (Chen Hsieh et al., 2017) (Sönmez, 2020) and encourage them to use the English language inside and outside the classroom (Basal, 2015). Moreover, group based flipped learning can enable learners to upgrade their high order thinking skills (Nugraheni et al., 2022). These skills are crucial to building

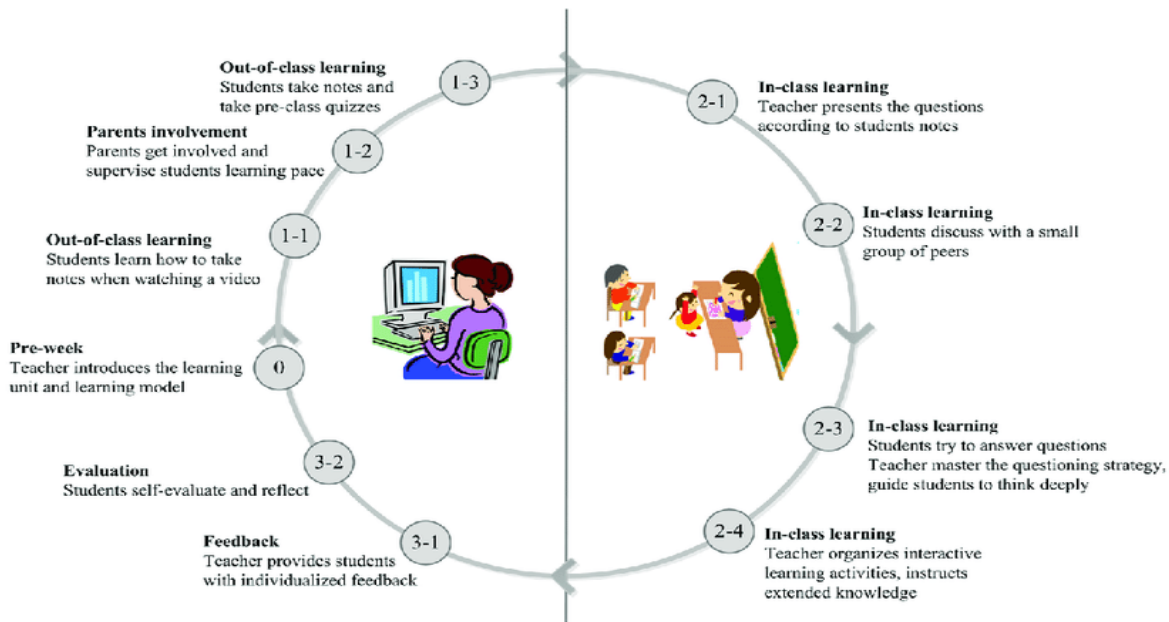
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up autonomous learning, communication skills and critical thinking. Furthermore, The flipped learning technology is a learner-centered pedagogical model that provides opportunities for all students to control and pause the activities by watching the videos assigned to them online (Bergmann & Sams A, 2012), which means that students can pause the videos if they don't understand a task, and in doing so, they have the accessibility to control the learning settings and consolidate their autonomy as well as self-confidence in learning processes.

In flipped learning, the time for teacher-centered instructions is minimized, and students are provided with opportunities to communicate in the target language and do verbal interactions and therefore improving their communication skills (Bergmann & Sams A, 2012)). The flipped model (FM) blends online learning with the traditional classroom. This blending involves integrating technology both inside and outside the classroom, enabling the students to prepare for the activities before participating in face-to-face tasks. As the students get exposure to the videos earlier, it will build confidence in them and enable them to participate in the classroom actively and, as a result, consolidate their critical thinking skills as well as communication skills. The main questions of this article are: **1-**How differently flipped learning promote communication and critical thinking skills of EFL students from conventional methods? **2-** To what extent does flipped learning technology boost students' communication skills and critical thinking skills? The researcher started with a short literature review as a general introduction to flipped learning technology in line with critical thinking skills and communication skills, followed by previous studies, a statement of the problem, research objectives, research questions, hypothesis and expected findings. However, the second part of the methodology presented data tools and instruments as well as the results analysis, discussion of the findings and conclusion.

2. Literature review

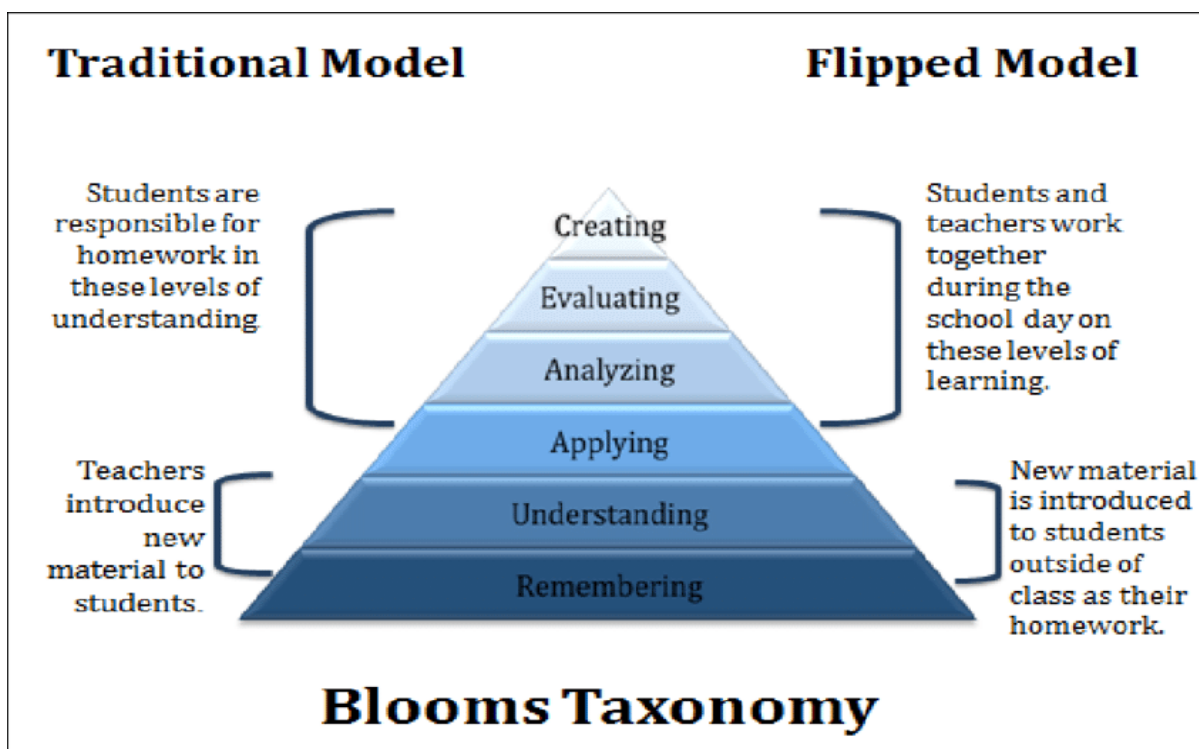
Flipped learning is a remarkable teaching model which alters the role of the classroom and homework. In traditional learning, the students acquire the knowledge in the classroom and practice it at home, whereas in flipped learning, the students acquire the knowledge at home using online technologies and then practice the skills in the class through different activities (Bergmann & Sams A, 2012). This gives —a dynamic and interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter(Network, 2014). Additionally, flipped learning has emerged as a pedagogical method that enhances the students' communication skills and participation. It enables students to learn at their own pace and watch the videos as many times as they want. They work in their space and stop the video whenever they want (Wei et al., 2020):



In doing so, students will deepen their understanding and develop the confidence in them to participate in class actively and make them more prepared to engage in classroom activities and, of course, develop their communication skills (Chen Hsieh et al., 2017).

Flipped learning technology helps learners develop their soft skills and critical thinking skills through empowering and consolidating full engagement and synthesis of information as well as the main and subsidiary aims of the target language. The pre-recorded lessons, clips and podcasts give learners opportunities to think deeply about their learning and promote their cognitive competencies, insightful reasoning, decision making, out of the box thinking, data manipulation, meta-analysis, analysing and evaluating, resulting in insightful and transferrable knowledge. To this end, flipped learning technology facilitates learning and makes it fascinating to learners. It helps them prepare at home and participates fully in the classroom, and more importantly, reflect and ask questions about anything they didn't understand at home; as a result, students will improve their communication

skills through role-play, dialogues, immediate feedback, pair work, debates, speaking engagement. All in all flipped learning technology enables students to promote their communication skills, synthesize complex information and therefore enhance their critical thinking skills, as shown in the figure below. (Williams, 2013)



(Williams, 2013)

2.1. Previous study and statement of the problem

The research was conducted by Webb (Webb et al., 2014) at the University of China, including 150 EFL learners as participants. The learners favoured traditional teaching at the beginning, but they opted for flipped learning once they experienced it. In another quasi experimental study (Touchton, 2015), this study indicated that the flipped group students showed more engagement in participation than those who studied traditionally. (Hung, 2015) employed FL to teach a communicative English course to 75 EFL learners at a Taiwanese university. The results indicated that the students in a flipped group showed more improvement in their academic scores. Moreover, Lee and Wallace (Lee & Wallace, 2018) tried to examine the effectiveness of flipped learning. The study's findings showed that the students in flipped classrooms were more engaged in the learning process than students in traditional classrooms. In general, learners tend to prefer blended learning in many studies conducted recently [(Ali et al., 2023) (Sari et al., 2023)].

In Morocco, English has been taught as a foreign language for decades, but still, the students find it hard to develop their communication skills. The teachers need to switch from a traditional method towards a technology-based approach that will empower students' communication skills. This paper basically addressed this issue and highlighted the importance of using flipped learning models to enhance the student's critical thinking skills, communicative skills and engagement in the EFL classroom. This study vindicated the effectiveness of providing online video materials to students as homework and engaging them through communicative activities in class. Various researchers have highlighted the importance, challenges and strategies of teaching and learning the English language using several innovative methods like ICT (Information and Communications Technology), CALL (Computer Assisted Language Learning), or CLT (Communicative Teaching Approach), but few of these researches consider the issue of communication skills and critical thinking skills along with flipped learning technology. Likewise, research has been conducted in the EFL classroom in the Moroccan context about digital textbooks and flipped classrooms and how they improve students' soft skills and disciplinary knowledge (Moundy et al., 2022). However, the present study focussed on two main skills, communication skills and critical thinking skills.

2.2. Research objectives

The purpose of this study is:

- i) To indicate the effectiveness of using a flipped learning model in teaching English as a foreign language.*
- ii) To manifest the importance of communication and critical thinking skills in learning English at the middle level.*
- iii) To spotlight the effectiveness of flipped learning technology in enhancing the communication skills and critical thinking skills of EFL students.*

2.3. Research questions

Q1: How differently flipped learning promote communication and critical thinking skills of EFL students from conventional methods?

Q2: To what extent does flipped learning technology boost students' communication skills and critical thinking skills?

2.4. Expected findings (Hypothesis)

- The flipped model has a positive influence on communication skills of learning English as a foreign language.
- Flipped learning enhances the critical thinking skills of EFL students in Moroccan middle high schools.

2.5. Significance of study

i) For Teachers:

This research encourages the education system and teachers to introduce and implement innovative teaching methods in the EFL classroom, like flipped learning technology, ICT and CALL. It also motivates them to teach their students using technological media such as news, cartoons, captioned films, etc. It enables the teacher to focus more on students' communication and critical thinking skills.

ii) For Students:

This research provided opportunities for the students to communicate and captivate them to use English confidently and participate actively in class activities. It also developed and upgraded their communicative skills and autonomous learning.

iii) For Readers:

This research provided more information to the reader about how to ameliorate communication skills and critical thinking skills in learning EFL.

iv) For Researchers:

The findings of this research provided directions for further research, like improving students' communication skills through ICT (Information and Communications Technology) or developing critical thinking skills of students using CALL (Computer Assisted Language Learning), or studying the impact of integrating flipped learning at the primary level.

3. Methodology

3.1. Research settings and participants:

The research was conducted at TAZI middle-high School in Morocco. This study was conducted to improve EFL communication skills and critical thinking skills through flipped learning in Moroccan Middle High Schools, which have multicultural classrooms where students belong to different backgrounds and different cultures and are either bilingual or multilingual. First, the population was divided into a control and experimental group with 30 participants each through random sampling. This selection enabled the researcher to include the samples that best represent the entire population.

3.2. Data collection technique:

The researcher collected the data by conducting pre-test and post-tests for communication and critical thinking skills.

3.3. Data analysis tools:

The inferential statistics summarised and analysed the quantitative data. It included a t-test which is a hypothesis testing tool that allows testing the researcher's assumption that can be then generalized to the whole population.

4. Findings and analysis

The researcher employed a pre-test for both the treatment group and control group to measure and assess their critical thinking and communication skills. The scores were very low for the two groups. Then, the researcher used flipped learning technology with the experimental group to promote their level. Students in the 2nd year of junior school used **Portal to English two** (student's book and workbook+ extra material for communication mm. publication). Students were taught three modules 4,5,6 to upgrade

their thinking skills and communication skills. The teacher gave students tasks to do at home based on communication skills and critical thinking skills. The students watched a video and answered the questions at home, as you can see in the following two pictures taken from modules 4 and 5 (Malkogianni, n.d.-a) and (Jensvold, 2011) :

PORTAL TO MODULE 4
What happened?

A. Watch the whole video. What is it about?

a. everyday activities
b. a terrible day
c. a funny holiday experience



B. Watch the video again and tick (✓) the pictures that appear in it.


a


b


a


b


a


b


a


b


a


b


a


b

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PORTAL TO MODULE 5
A modern world

A. Watch the whole video. What is it about?

a. cleaning a beach
b. rubbish in schools
c. the students' neighbourhood



B. Watch the video again and tick (✓) the pictures that appear in it.


1


2


3


4


5


6

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The teacher provided students with the video to watch at home and answer the questions. This enabled Students to pause the video anytime in case they didn't understand something. Accordingly, it was observed that students were fully engaged in the class for a general discussion. They worked in groups of 5 students (6 groups) to discuss the two expressive pictures about the significance of protecting the environment as well as the danger of pollution.

The two pictures shown above were extracted from the lessons taught to students to improve their communication skills. However, the teacher employed another document included in Portal to **English 2 real life** to upgrade students' critical thinking skills; this document implemented exercises that boost students' critical thinking as puzzles and multiple questions, as shown in these two examples (Malkogianni, n.d.-b):

PORTAL TO REAL LIFE 6

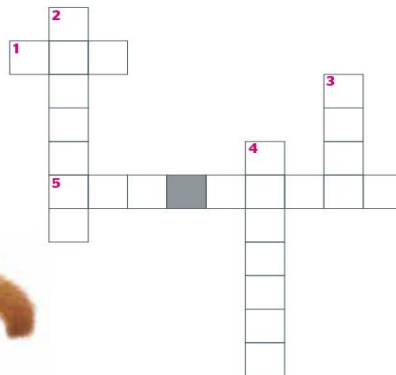
Two wild animals

Warm-up

A. Read the sentences and complete the crossword.

wild fur red panda habitat hunters

1. Cats have got **this** on their body.
2. **They** kill wild animals.
3. Lions and tigers usually live in the...
4. Animals live better in their natural...
5. **It** is red and small.



While watching

B. Watch Part B and tick (✓) the animals that are mentioned in the video.



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▶ C. Watch Part B again and write **P** for red panda, **T** for Sumatran tiger or **B** for both.

1. It lives in China.
2. It has got a bushy tail.
3. It eats small animals.
4. It lives on an island.
5. There are 400 of them in the wild today.
6. It has got fur.
7. People still hunt it.

▶ D. Watch Part B again, pay attention to the details and answer the questions.

1. What colour legs have red pandas got?
 - a. brown
 - b. black
2. What is the red panda in the tree doing?
 - a. sleeping
 - b. eating
3. What does the red panda in the last scene walk under?
 - a. a tree
 - b. bamboo
4. Which country is close to Sumatra?
 - a. India
 - b. Malaysia
5. Which ocean is to the west of Sumatra?
 - a. the Atlantic Ocean
 - b. the Indian Ocean

After watching

▶ E. Discuss.

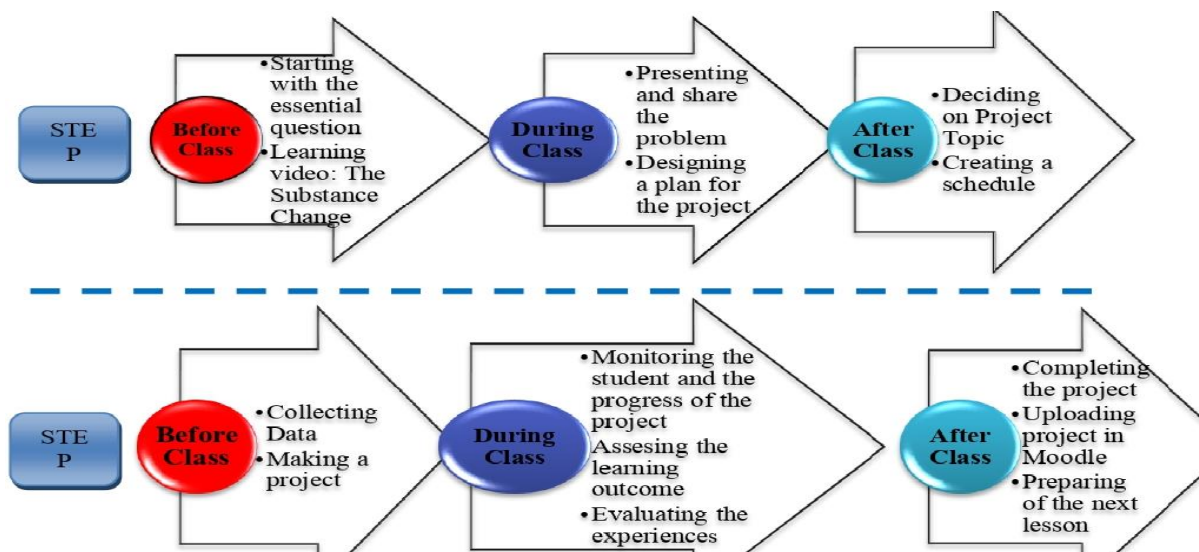
- Should wild animals be kept in zoos?
- Name some wild animals from your country. Are they endangered?



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The procedure included before, while and after watching, also a combination of problem/project-based learning and flipped learning pedagogy (before class-during class-after class cycle):



(Andrini et al., 2019), The Flipped Classroom and Project Based Learning Model

Students started with a warm-up to complete the crossword; they were given key sentences to help them to do the task. This exercise is based on problem solving components to prepare students to watch the video and understand it. The while watching and after watching exercises included questions that helped students to think critically and share their thoughts.

The procedure of teaching the three units (lessons for flipped learning only) took 8 weeks. To this end, the researcher employed a post-test to examine the level of students after the implementation of flipped learning technology. The experimental group was taught using flipped learning strategy. They were given tasks to watch videos and answer questions through three stages before watching to set the context and while watching, in which students watched the full video and answered multiple choice questions, who/which/that/why to develop high order thinking skills and synthesis of information. The paired sample test revealed the following results:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE-TEST CONTROL GROUP	11,97	30	2,798	,511
	POST TEST CONTROL GROUP	10,90	30	3,468	,633
Pair 2	PRE TEST EXPERIMENTAL GROUP	11,37	30	2,414	,441
	POST TEST EXPERIMENTAL GROUP	16,80	30	2,310	,422

The table revealed that the control group participants got average scores after applying the dependent sample test. The mean score in the pre-test was (M = 11,97, SD =2,798), and the post-test mean score was (M = 10,90, SD =3,468), which means that the level of students almost remained the same. There was a slight regression in their performance. However, the treatment (taught using flipped learning) outperformed the control group. They got higher scores after the implementation of flipped learning technology. The mean score for the treatment group in the pre-test was ((M = 11,37, SD =2,414), and the mean score was less than the treatment group. Accordingly, in the post test, the experimental group got higher scores and outperformed the control group. The mean score was ((M = 16,80, SD =2,310), which revealed the effectiveness of flipped learning technology.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
			Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PRE-TEST CONTROL GROUP - POST TEST CONTROL GROUP	1,067	2,545	,465	,116	2,017	2,295	29	,029
Pair 2	PRE-TEST EXPERIMENTAL GROUP - POST TEST EXPERIMENTAL GROUP	-5,433	2,501	,457	-6,367	-4,500	-11,900	29	,000

The table showed that the significance value is small (sig <0.05), and the T value is far away from 0 (-11,900). The results showed that students' communication skills and critical thinking skills have improved with the use of flipped learning and the videos implemented to catch the interest of students. The treatment group participants showed positive feedback and excelled in the post test.

5. Results and discussion

The implementation of flipped learning was obviously effective and helpful to learners. They were able to communicate and showed a passion for the pedagogical material given to them to perform the target language at home and interact with the teacher

and their classmates in class. It is observed that students were eager to use and watch videos at home, where they had more time to read and could pause the video whenever they wanted. Accordingly, flipped learning helped the students to identify the problems and complexities and find clues to certain issues through pair work and group work, which resulted in improving their creativity, passion, autonomous learning, responsibility, reflection, imagination and, most importantly, evaluation of the learning outcomes. Flipped learning helps learners to enhance and build up their high-order thinking through the implementation of tasks and projects (Bergmann & Sams, 2014). It gives an opportunity to all learners to take part in the educational settings in which the learner is considered the centre of the learning process. Learners also had the opportunity to receive immediate feedback from their teachers and peers and develop their language skills. All in all flipped learning technology impacted students positively. It created a studious environment where the teaching and learning process is more learner centred, dynamic, lively, and engaging and learners are fully involved in interaction-based activities.

6. Pedagogical implementations:

- The implementation of technology in teaching is fruitful
- Pair work and group work is fruitful
- Flipped learning minimizes teachers' TTT
- Teachers should implement tasks based on higher order thinking for a fruitful constructive learning
- Assign personalized tasks to motivate and undertake more responsibility for learning to enhance students' intentionality
- Flipped learning increases self-directed learning and inclusive education

7. Conclusion

The aim of the study was to examine the effectiveness of Flipped learning technology in upgrading critical thinking and communication skills in Moroccan middle high schools. The findings concluded that flipped learning technology enhanced the students' communication skills and critical thinking; furthermore, it was revealed that the implementation of flipped learning upgraded students' self-reflection, motivation, learning responsibility, learning by discovery, and task/project-based learning. Thus, this study pointed out that using flipped technology is fruitful and promises positive results in educational outcomes. However, it seems difficult to generalize the data due to the small number used as a sample. This study had its delimitation and considerations related to the number of participants involved in the study. This research included 30 participants for the control group and 30 participants for the experimental group from Moroccan middle high school. So, it is difficult to generalize the findings to the whole population. The findings of this research can be used as a reference for future studies on the impact of flipped learning on self-directed learning in primary schools.

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