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| **RESEARCH ARTICLE**

The Effects of the Flipped Classroom Model on University Students' Writing Proficiency

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| **ABSTRACT**

This study seeks to investigate the effect of the flipped classroom model on university students' writing proficiency. To evaluate the state of the art in the Moroccan context, this study utilizes a pre-test/post-test quasi-experimental design with control groups. The sample of this research consists of (148) first-year university students enrolled in the department of English studies. This sample is divided into experimental and control groups to meet the objectives of the research design. For the purpose of data collection, this study uses a pre-test and a post-test of writing achievement. The data collected for this research is analyzed using independent samples t-tests. The findings of this study disclose that the flipped classroom model has a significant positive impact on students' paragraph-writing skills in general and on the writing of most of the paragraph's constructs in particular. The findings of this study suggest that English language teachers need to adopt student-centered teaching/learning models that integrate face-to-face with online learning modalities in order to improve students' writing proficiency.

1. Introduction

Blended learning is a new learning method that is based on combining the potential of the two learning modes (online and face-to-face) (Osguthorpe & Graham, 2003; Graham, 2004; Stein & Graham, 2014). This learning modality offers online content and instructions in addition to face-to-face learning opportunities in order to provide the best features of the two learning modes (Vaughan, 2007). Blended learning has been acknowledged as one of the most effective modalities in teaching and learning in higher education (Balula et al., 2019; Stein & Graham, 2014). Its great effectiveness in education derives from being a modality that has plenty of pedagogical implications for students' learning. It facilitates and increases access to content for revision. It provides students agency over their learning, letting them choose the appropriate place and time for learning; it offers a variety of assessment opportunities and many other implications that enhance students' learning (Graham, 2004; Osguthorpe & Graham, 2003; Stein & Graham, 2014).

The present study intends to implement the flipped classroom model of blended learning in teaching a paragraph-writing course for two main problems. The repeated complaints of today's generation of students about the traditional teaching method, which is lecture-based, as not meet their needs and also due to the complexity and difficulty of teaching and learning English as a foreign language in general and the writing skill in particular (Crystal, 2010; Koeller, 2012; Nunan, 1999). Many scholars in the realm of writing have discussed the complexity of writing skills in ELT. This language skill makes a great challenge for learners in both; L1 and L2; as stated by Richards (1990), "learning to write in either first or second language is one of the most difficult tasks that a learner encounters and one that only a few people can be said to fully master" (p. 100). The difficulty of mastering the writing skill for native speakers and foreign language learners ranges from being a skill that requires the mastery of many writing constructs and mechanics in addition to a well-developed lexical background in the target language and deep knowledge of its grammatical structures (Nunan, 1999; Richards & Renandya, 2002). The existing literature also asserts the great importance of technology-based teaching/learning modalities like the blended ones to enhance students' achievement. In this context, the legislators of the

No Child Left Behind Act in the USA strongly proclaim that to improve students' achievement in any skill. There is an urgent need to integrate computer technology into students' learning (Richardson, 2010). To this end, the current study aims at implementing the flipped classroom model in teaching a paragraph-writing course in higher education in order to examine the potency of blended learning in enhancing students' writing achievement in the Moroccan context. The research questions and hypotheses that emanate from the stated objective are the following:

1/ **RQ1**: Do students in the experimental group score higher than those in the control group on
the writing achievement post-test?

1.1/ **RH1**: Students in the experimental group outperform those in the control group on the writing achievement post-test.

2/ **RQ2**: does the experimental group score higher than the control one in all constructs of the
writing achievement post-test?

2.1/ **RH1**: the experimental group outperforms the control one in all constructs of the writing achievement post-test.

2. Literature Review
2.1. Defining the Flipped Classroom Model
To define this instructional modality, Bergman and Sams (2012a) note that the flipped classroom model reverses the traditional classroom upside down "which is traditionally done in class is now made at home, and that which is traditionally done as homework is now completed in class" (p.13). In simpler terms, the inverted classroom flips the function of the traditional classroom by providing students with online recorded lectures to study at home before coming to the classroom that turns into a workshop of active learning, where students practice problems/homework and work on projects under instructors' guidance (Bergmann & Sams, 2012a; Fulton, 2012; Horn & Staker, 2015; Khan, 2012). In another definition, the flipped classroom is referred to as an instructional blended learning model in which students are given lectures in an electronic format that can be either as instructional videos, podcasts, or narrated PowerPoint presentations to study independently before coming to the classroom to engage in student-centered learning (Lage et al., 2000; Strayer, 2012). From the definitions provided so far, it is noticeable that the key ingredient in the flip is the use of recorded videos to deliver short lectures for students to study before class time. Although there has been a strong consensus among many researchers like Horn and Staker (2015), Strayer (2012), and Tucker (2012) on the importance of using videos as a key element in the flipped classroom model, others emphasized more on the importance of the way teachers spend class time with their students. On this issue, Bergmann and Sams (2013) state that "flipped learning is not about how to use videos in your lessons. It's about how to best use your in-class time with students" (p. 16). Therefore, class time is considered another crucial element in the instructional flipped classroom model. In like manner, Fulton (2012), Herreid and Schiller (2013), and Ronchetti (2010) assert that the purpose behind freeing class time in the flipped classroom model is to leave instructors enough time to provide each learner with personalized support and engage all learners thoroughly and deeply in more active and student-centered activities. To this end, it can conclude that the flipped classroom model is a new instructional method. This method is based on inverting the function of traditional classrooms by giving students short lectures in electronic format to study independently and separately from the classroom setting with the aim of freeing class time for active learning with more student-centered activities.

2.2. Learning Theories Supporting the Flipped Classroom Model
The flipped classroom model stems its strengths from different learning theories. The learning theories that support the model are cognitive constructivism pioneered by Jean Piaget, social constructivism by Lev Vygotsk, and connectivism as a modern learning theory launched by Siemen (Bellefeuille, 2006; Pettenatti & Cigognini; 2007; Ray & Powell, 2014).

Piaget advocating cognitive constructivism presumes that learners construct their knowledge based on interaction with the learning activities being exposed to and their previous experiences, and cognitive knowledge-creating a process of knowledge assimilation and discovery (Bruner, 1990; Schunk, 2011). To clarify, Piaget firmly believes that knowledge resides in individuals' mind that interprets learning materials provided in order to construct knowledge (Prawat, 1996). Cognitive constructivism strongly supports the flipped classroom model that gives students agency over their learning by providing them content in videos to study independently for the sake of leaving a huge space for students to interpret and construct knowledge autonomously (Bergmann & Sams, 2012a; Cockrum, 2014). Supporting this claim, Bellefeuille (2006) and Ray and Powell (2014) point out that the characteristics of cognitive constructivism**,** including autonomous and self-directed learning, apply to the flipped classroom model that shares the same principles.

Social constructivism is also considered a learning theory that lays the foundation of the flipped classroom model deployed in this study since the basic principles of this model that are collaborative learning, interactive learning, and differentiated instruction, are

drawn from the social constructivism theory of learning (Bellefeuille, 2006; Strayer, 2012). On this matter, WhiteClark et al. (2008) point out that "cooperative learning, hands-on activities, discovery learning, differentiated instruction, technology, distributed practice, and critical thinking are elements that embrace the constructivist educational philosophy" (p. 42). All these active learning principles of constructivism are the same for blended learning in general and the flipped classroom model in particular.

Connectivism is another learning theory that supports the flipped classroom model of blended learning. This learning theory is based on the premise that knowledge is constructed via connections learners establish with each other through social networks and with technology itself (Pettenatti & Cigognini, 2007). The same idea is reinforced by Siemen (2005), the pioneer of connectivism, who notes that "Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or database)" (p.5). In addition, connectivism instills the principles of lifelong and self-directed learning in learners who needs to take responsibility for their own learning by looking for online resources and knowing how to go through their learning journey (Siemen, 2005). In this respect, it seems apparent that the flipped classroom model integrates the principles of connectivism as it is based on the use of technology for learning and encourages self-directed learning and autonomy.

2.3. Pedagogical Implications of the Flipped Classroom Model
There is great consensus among educationalists and researchers in ELT that the flipped classroom model is a very rich pedagogical model of instruction that provides immense pedagogical implications for learners. These pedagogical implications include providing self-paced learning, differentiated instruction, enhancing higher-order thinking skills, providing competency-based learning, increasing interaction and feedback, and providing active learning opportunities in the classroom (Bergmann & Sams, 2012a; Khan, 2012; Horn, 2013; Cockrum, 2014; Horn & Staker, 2015; Talbert, 2012; Tucker, 2012).

The flipped classroom model provides learners with self-paced learning by making them the agent of their learning practices. In this regard, Khan (2012) emphasized that learners have different learning needs and styles and learn at different paces. Therefore, they need to be given control over their learning to help them go through their learning journey at the pace that fits their learning style since what is of paramount importance is learning itself, not the pace or process of learning. Other scholars like Bergman and Sams (2012a) and Cockrum (2014) also emphasize that personalized or self-paced learning is not only about giving students control over their learning pace but also the time and place of learning. Some students may be in a good mood for learning in the morning at the school library, while others may prefer to study at night in their homes. On this concern, Talbert (2012) declares that in flipped learning, "students listen to as much or as little of the lecture as their schedules permit, and view the lecture on a mobile device rather than in a fixed location" (p.1). Thus, the only learning modality that can provide students with flexible learning is the flipped classroom model, which gives students total agency over the place and time of learning.

Differentiated instruction is another pedagogical implication of flipped classroom model. Differentiated pedagogy, according to Tomlinson (1999) and Tomlinson (2005), is based on differentiating content, the process of learning, learning environment, assessment level, and instructional methods to meet individual needs. The flipped classroom model adopted in this study is based on the same principles of engaging students in different learning tasks using different learning modes and instructional approaches to meet students' different needs and abilities (Bergmann and Sams, 2012a; Bergmann and Sams, 2015). This kind of differentiated learning has been proved to have a great impact on students' learning since instructors try to do their best to personalize learning tasks for all students based on their own abilities and learning preferences (Horn & Staker, 2015).

The flipped classroom model also has a great impact on enhancing students' higher-order thinking skills. Sams and Bergmann (2013) affirm that most of the traditional classrooms work only on students' lower thinking skills since teachers spend most of the class time lecturing while students listen passively and try to remember and understand the content being delivered, leaving no room for higher-order thinking skills to be developed in the classroom. However, in a flipped classroom, learners work independently on the lower-order thinking skills through studying recorded videos at home in order to free class time for developing high-order thinking skills (Sams & Bergmann, 2013). Supporting this view, Conklin (2012), Hamden et al. (2013), and Sams and Bergmann (2013) proclaim that giving students access to materials before coming to class makes them disposed to develop their lower-thinking skills into deep, lasting knowledge; through excessive work on problem-based activities that involve higher order-thinking skills.

Competency-based learning is another pedagogical implication of the flipped classroom model. The competency-based learning approach is based on the premise that students need to fully understand and grasp certain concepts or skills before moving to advanced ones to avoid developing gaps in their competencies (Horn & Staker, 2015). The flipped classroom model shares the principles of competency-based learning since it gives students control over their learning by giving access to recorded materials and online quizzes again and again till they achieve a complete mastery of the required competencies, which is not the case in traditional classrooms (Horn & Staker 2015; Horn, 2013; Fulton, 2012). On the same concern, Khan (2012) claims that in a flipped classroom, "[S]tudents could probably figure things out eventually—but that's exactly the problem. The standard classroom model

doesn't really allow for eventual understanding. The class—of whatever size—has moved on" (p. 21). The principles of competency-based learning are also highly demonstrated in the 'brick and mortar' part of the flipped classroom model because the free class time allows instructors to engage students in intensive and different learning activities that deeply strengthen their competencies in the target skills. (Bergmann & Sams, 2012a; Horn & Staker 2015; Horn, 2013; Fulton, 2012).

The increased interaction and feedback in flipped classrooms are among the pedagogical implications of the flipped classroom model. Through interaction and corrective feedback, learners get the chance to receive comprehensible input from instructors or more capable peers who try to adjust the linguistic output for learners to facilitate SLA and meet the required competence in the target language (Lyster & Ranta, 1997; Norris & Ortega, 2000). In this vein, Horn (2013) and Goodwin and Miller (2013) consider the flipped classroom model as one of the learning models that leaves a large room for interaction and corrective feedback. In light of this, Bergmann and Sams (2012a) proclaim that "one of the greatest benefits of flipping is that overall interaction increases: teacher-to-student, and student-to-student" (p.27). This increase in interaction and feedback is attributed to the active learning environment in flipped classrooms that engage students in different learning modes, which require differentiated levels of interaction, and also to the free class time that enables instructors to give individualized feedback to all learners.

To discuss active learning as one of the pedagogical implications of flipped learning, there is a need to mention that there is a great consensus among many scholars: Bergmann and Sams (2012a), Cockrum (2014), Khan (2012), Horn (2013), and Trucker (2012) that the flip classroom model is an active learning modality par excellence that offers student-centered learning opportunities to learners. Elaborating on this issue, Horn and Staker (2015) note that in flipped classrooms, "classroom time is no longer spent taking in raw content, a largely passive process. Instead, while at school, students practice problems, discuss issues, or work on projects. Classroom time becomes a time for active learning" (p.43). The strength of the flipped classroom model as an active learning modality derives from being compatible with other promising learning modalities in the field of education like problem-based learning and project-based learning (Bergmann & Sams, 2012a; Butt, 2014; Tucker, 2012). On this matter, Bergmann and Sams were asked by an educationalist about the compatibility of the project and problem-based learning with the flipped model, and they "cheer **yes**. We love the picture of a class-driven by student-identified problems or interests. Students are exploring a real-world problem and developing solutions" (Bergmann & Sams, 2012a, p. 50). Identically, Tucker (2012) emphasized that the face-to-face classroom part of the flipped classroom model provides enough time for active learning, pointing out that in flipped classrooms, students spend class time working "through problems, advance concepts, and engage in collaborative learning" (p. 82).

2.4. Assessment in Flipped Classrooms
Blended learning is based on a very rich assessment system that provides a variety of assessment opportunities that take place face-to-face and online (Bakerson et al., 2015, as cited in Koç et al., 2015; Graham, 2014). Blended learning environments provide instructors with enough chances to engage students in the 'onsite' assessment that requires the application of learned knowledge inside the classroom to solve real-world activities, especially in flipped classrooms that free class time for students to engage in active learning and go for different formative and summative assessment activities (Stein & Graham, 2014; Sams & Bergamnn, 2012b). Likewise, the onsite assessment in blended learning environments gives students the chance to engage in different modes of assessment, like group and peer assessment**,** that has been proved to give students authentic opportunities to learn from their peers with the aim of improving learning outcomes (Boud, 2007; Stein & Graham, 2014). Regarding the online part of the blended assessment, Stein and Graham (2014) and Bajzek et al. (2008) point out that online assessment is very crucial as it engages students in self-assessment tasks through the use of automated quizzes which provide immediate scoring and feedback. The great importance of thes**e** self-assessment quizzes in learning lies in making students evaluate their own work and take **an** active role in knowledge construction (Hattum-Janssen & Pimenta, 2006; Bajzek et al., 2008).

2.5. The Flipped Classroom Model in ELT
When the flipped classroom model was first introduced in the field of education, it was used a lot in teaching hard science subjects like chemistry, maths, physics, and others. With the popularity of the model, educationalists started questioning the compatibility and practicality of flipped instruction in other disciples, including ELT. The implementation of flipped instruction in ELT has shown great and promising results. Sams and Bergmann (2012a), discussing the relevance of the flipped classroom model in language teaching, note that the flipped classroom model is a very promising model of instruction in teaching any language. Elaborating on the practicality and the potential of the model in language teaching, Sams and Bergman (2012a) declare that the potential of the flipped classroom model in language teaching lies in providing enough class time for students to practice the target language. In the same context, Stannard (2015) states:

> We often need to teach grammar, explain different writing genres, or focus on the construction of paragraphs. A lot of this 'teaching stuff' could be put online so that the teacher is able to spend more time in the class getting students to use what has been taught via the homework (p.3).

Stannard implemented the flipped classroom model to teach writing skills, which is the concern of this study and declared that the model is very practical in teaching writing skills and paragraphs construction. He claims that in teaching paragraphs' construction, teachers can design videos/screencasts to explain the structural elements of a paragraph to students and discuss aspects of unity, coherence, and writing mechanics while reserving class time to work on problems and engage in projects.

2.6. Writing Paragraphs

Developing academic paragraphs requires deep knowledge of all the writing mechanics, aspects, and conventions. The writing mechanics include awareness of the rules of punctuation and capitalization with their appropriate usage, in addition to full mastery of the spelling system of the target language (Harmer, 2004). Similarly, successful paragraphs writing necessitates the appropriate use of writing aspects that comprise features of cohesion, coherence, and unity that are considered the core element in a written text (Oshima & Hogue, 2006). To meet the academic standards of paragraphs writing, writers also need to demonstrate a solid knowledge of the paragraph's conventions that encompass the structural elements of the paragraph and its format. (Guenther, 2001; Oshima & Hogue, 2007). The structural elements of the paragraph involve the topic sentence, supporting sentences most of the time with specific details, and the concluding sentence, while the format of an academic paragraph takes shape in indenting the first line of the paragraph by leaving a space at the beginning of the first line of the paragraph (Oshima & Hogue, 2006; Guenther, 2001).

2.7. Empirical Evidence on the Flipped Classroom Model and Achievement in ELT

In Japan, as an EFL environment, Leis et al. (2015) conducted a study to investigate the effect of the flipped classroom model on university students' English composition. In this study, the researchers employed a pre-test/post-test quasi-experimental research design with control and experimental groups. In their comparison of post-tests writing scores, the researchers found out that the flipped classroom model had a positive effect on students' writing achievement since the experimental group of students who received flipped instruction scored higher than those of the control group on the post-test ($p = 0.001$).

In a recent study, Ekmekci (2017) tried to investigate the impact of the flipped classroom model on EFL Turkish students' writing skills. In this study, the researchers used a pretest/post-test true experimental research design. The participants in this experiment were (43) EFL preparatory class students that were categorized into an experimental group of (23) students and a control group of (20) students. After one semester of treatment to the two groups of the study, the researcher applied different statistical tools, notably paired sample t-test and independent samples t-test, to analyze the scores of the writing post-tests. The statistical analysis showed that students in the flipped classroom outperformed those in the traditional classroom ($p=0.000$).

Another recent study by Karimi and Hamzavi (2017) tried to investigate the effect of the flipped classroom model on Iranian EFL learners' reading comprehension skills. To conduct this study, the researchers used a quasi-experimental design with control and experimental groups. The sample of this study was composed of (50) EFL students in a private language institute. This sample was divided into an experimental and a control group of (25) students in each group. Students in the two groups of the study received a reading comprehension pre-test that was designed by the researchers themselves to measure students' reading comprehension skills before the experiment. After one semester of treatment, the researchers administered the reading comprehension post-test to investigate if there was any significant difference between the control and experimental group in the target skills. The results of the ANCOVA analysis showed that the flipped classroom model had a positive effect on EFL Iranian Students' reading comprehension proficiency ($p<0.05$).

3. Methodology
3.1. Research Design

The present study utilizes a pre-test/post-test quasi-experimental design with control groups. This design is based on assigning the participants of the study into experimental and control groups. The experimental group receives an experimental treatment, while the control one receives a different treatment or no treatment at all (Fraenkel et al., 2012; Creswell, 2012). The pre-test/post-test quasi-experimental design is based on pre-testing and post-testing the participants involved in a certain study. These pre-testing/post-testing procedures make this quasi-experimental research design one of the most powerful designs since pretesting assures that any difference between the scores of the pre-test and the post-test is a result of the treatment provided to the participants and not of the pre-existing differences between groups before starting the experimental treatment (Muijs, 2004). Figure (1) demonstrates the research design of the current study.
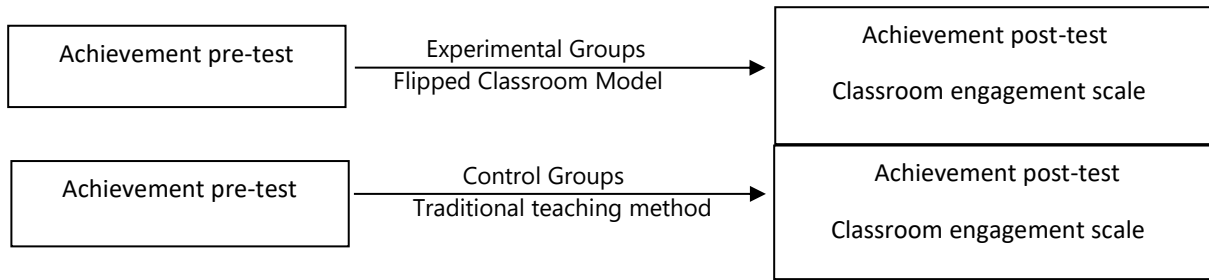
Figure 1. Research Design of the Study

3.2. Population and Sampling Methods

The population of the ongoing study is first-year university students who are enrolled in the English department at the Faculty of Letters and Human Sciences, Dhar El Mehraz, Fes, Morocco. This population is composed of (1200) students. From this population, I sampled (148) students using convenient sampling, which is a type of non-probability sampling (Fraenkel et al., 2012; Ruane, 2005). The reason behind opting for non-probability sampling is the infeasibility of random assignment of participants to experimental and control groups since the population of the study was already divided into groups. Accordingly, the distribution of the participants in the groups of the study is demonstrated in the table (1).

Table 1. Distribution of the Respondents in the Groups of the Study

Groups	Experimental	Control	Total
Group 1	37	37	74
Group 2	37	37	74
Total	74	74	148

3.3. Course of the Experimental Treatment

To pave the ground for the coming methodological section that discusses the treatment of the groups involved in this study, it is of crucial importance to describe the course content that I intend to teach in the paragraph-writing course, which is the concern of this experimental study. Hence, in the treatment that lasted for one semester (14) weeks, I had to teach a set of lessons. The first lesson was an introductory session in which I made a general introduction to the course by introducing the basic concepts of paragraph-writing to set the ground for the coming lessons. The second lesson was allotted to teaching the types of sentences and sentence errors. For the third lesson, I taught the topic sentence as one of the structural components in paragraphs. The fourth lesson in the paragraph-writing course was concerned with teaching supporting sentences and details as two important structural elements of paragraph-writing. The last structural component of a paragraph, which is the concluding sentence, was taught during the fifth lesson of the paragraph-writing course. In the sixth session, I taught coherence and unity as two very important aspects of writing. The seventh lesson is a follow-up to the previous one as I discussed different transitional words and their use as cohesive markers to establish coherence in paragraphs. Regarding the eight lessons, I had to teach writing mechanics, especially punctuation and capitalization. In the ninth session, students were instructed on the writing processes. The last lesson in the paragraph-writing course was on descriptive writing. This lesson was covered in three sessions, as the students are required to be exposed to different features of descriptive writing and be able to describe persons, objects, and places.

3.4. Treatment of the Control Groups

The control groups of students taking part in this experiment received the conventional method of instruction, which is lecture-based, to teach the paragraph-writing course. Consequently, the weekly two hours session classes were centered on the teacher as the sole disseminator of knowledge who spends most of the class time lecturing course content, while the practice of writing skills takes a small share in the two hours session, as can be demonstrated in the table (2).

Table 2. Timing of the Traditional Classroom Activities

Traditional Classroom	
Activity	**Timing**
Lecture new content	80-85 minutes
Guided and independent practice of writing skills	20-25 minutes

The timing of traditional classroom activities is inspired by a lesson plan designed by the pioneers of the flipped classroom model, Bergman, and Sams, to teach their chemistry classes.

3.5. Treatment of the Experimental Groups

Students in the experimental groups received flipped instruction in teaching/learning the paragraph-writing course. Flipped instruction, as mentioned in the literature review, is based on inverting the traditional classroom by giving students online lectures in electronic format to study independently as homework in order to free the face-to-face class time for working on activities that are assigned as homework in traditional classrooms. Hence, the experimental treatment is divided into online and face-to-face treatment.

3.5.1. Online Treatment

Before starting the experimental treatment, I consulted different writing books and online materials in order to design instructional videos that are recorded in the form of narrated PowerPoint presentations using Camtasia Studio 8 software[2]. After recording the videos, I uploaded them online for students with hyperlinks to other supplementary materials, and I also tried to provide online instructions to guide students' online learning. Students in the experimental groups were encouraged to study the narrated lectures, check the online materials, and bring their queries into the classroom for discussion. Similarly, online formative quizzes for each lesson of the paragraph-writing course were uploaded for students to check their understanding of the elements covered in each lesson.

3.5.2. Face-to-face Classroom Treatment

The online treatment of the experimental group that inverts the norms of conventional classrooms by sending lectures to students' homes helped to free class time for the extensive practice of writing skills. To mentor the face-to-face classes, I designed detailed lesson plans that fit the time slot of the weekly two hours session. The timing of face-to-face activities is considered a crucial element in flipped classrooms, as discussed in the literature review. As a result, the face-to-face class time of the flipped classroom in this experiment starts with a short discussion of (20) to (25) minutes of the videos and online materials trying to answer students' questions and clarify any misconceptions, while the remaining class time was devoted for the guided and independent practice of writing skills as shown in table (3).

Table 3. Timing of Face-to-Face Activities in the Flipped Classroom

Flipped Classroom	
Activity	**Time**
Questions and answers time on the videos and online materials	20-25 minutes
Guided and independent practice of writing skills	80-85 minutes

The face-to-face class time of the flipped classroom in this study was student-centered par excellence as students were at the center of the learning process. In the flipped classroom, students were engaged thoroughly in the practice of the writing skill through solving different task-based and project-based activities under the constructive feedback of the instructor and classmates. In addition, students in this classroom had the chance to engage in different learning patterns that include pair and group work activities, which permit students to scaffold each other learning and construct knowledge. The free class time in the flipped classroom also allowed me to give all students individual instruction and feedback when needed and to assign different face-to-face formative quizzes.

3.6. Data Collection Instruments

To collect data for the ongoing study that attempts to investigate the effects of the flipped classroom model on university students' writing achievement, I designed a writing achievement pre-test and a post-test in order to measure students' writing proficiency before and after the experimental treatment.

3.6.1. Writing Achievement Pre-test

Before starting the experimental treatment, I designed an achievement writing pre-test to assess students' writing proficiency. The pre-test consists of 10 activities that aim to test all the components of the paragraph-writing course. The first activity intends to test students' knowledge of writing mechanics, namely punctuation and capitalization. The second activity assesses the appropriate use of cohesive markers in paragraphs writing. Activity number (3) evaluates coherence in paragraphs. Activities number (4), (5), and (6) are concerned with testing the structural elements of a paragraph: the topic sentence, supporting sentences and details, and the concluding sentence. The seventh task deals with unity in writing paragraphs. Activities (8) and (9) are designed to test students' knowledge of the types of sentences and sentence errors. The last task is a writing prompt that asks students to write a descriptive paragraph as discourse knowledge is best assessed within the writing context (Scott, 1996).

3.6.2. Writing Achievement Post-test
The achievement post-test is the same as the pre-test at the level of difficulty, and the number of exercises students are required to answer. The only difference between the pre-test and the post-test is the wording of the content, as students were given different paragraphs and sentences to work on. The reason behind changing the wording of the writing post-test activities is to avoid students' familiarity with the pre-test's content, which may decrease the reliability of the post-test results, as this is the main problem with pre-test/posttest experimental research designs (Creswell, 2012; Cohen et al., 2007).

3.7. Internal Reliability Measures in the Current Study
To ensure the internal reliability of the instruments designed to collect data for the present study, Cronbach's alpha technique was used to check the consistency of the respondents' scores on the items of each instrument. Therefore, after constructing the instruments and modifying their items repeatedly to meet the internal reliability requirements, I ended up with quite a reliability result, as Cronbach's alpha coefficient was equal to (0.75).

3.8. External Reliability Measures in the Current Study
To check the external reliability of the instruments deployed in this study, I went for the test-retest technique during the piloting stage. The statistical test used to compare the results from the first to the second administration of the research instruments is the Pearson correlation test. The results of the Pearson correlation indicate that there is a strong positive correlation between the scores of the first and second administration of the writing achievement test to the respondents as the (r) value is equal to (0.91), which assures that the writing achievement test is externally reliable.

3.9. Data Collection and Scoring
The process of data collection started during the 1st week of the treatment. This week, the writing pre-test was administered to the control and experimental groups of students to check if there were any significant differences in the level of writing proficiency before starting the treatment. After the treatment to the control and experimental groups that lasted for (14) weeks, I administered the writing achievement post-test for the control and experimental groups to compare the writing scores between the groups of the study.

After collecting the writing achievement tests, I started grading the tests. The grading process went through two stages. First, I graded short answer questions that include fill-in-the-blanks, ordering, and multiple-choice questions that are objective to grade. However, the last question on the test that asks students to write a descriptive paragraph on a chosen topic was given to my colleagues as grading paragraphs and essays are considered by many educators as subjective and arbitrary in nature; thus, multiple scoring is recommended as it gives scores that are reliable (Kroll, 1990; Scott, 1996).

Once students' paragraphs were graded by three colleagues and turned back, I checked the inter-raters reliability. Accordingly, I ran the intra-class correlation coefficient test. This statistical test shows that there is consistency in grading for each rater involved in the study, as all the correlation coefficients in the inter-item matrix are above (0,70).

3.10. Data Analysis Procedures
To answer the two research questions of this study, I used parametrical dependent and independent t-tests to compare the means of the experimental and the control groups. The independent samples t-test was applied to compare the writing scores of the post-tests between the experimental and the control groups, while the dependent sample t-test was used to compare scores' improvement before and after the treatment of the two groups of the study (experimental and control).

4. Results of the Study
4.1. Results of the First Research Hypothesis
One of the main objectives of the present study is to investigate the effect of the flipped classroom model on students' writing proficiency. Based on this objective, I formulated a research hypothesis that claims that the flipped classroom model has a positive effect on students' writing proficiency. In this vein, after collecting data, I had to run the independent samples t-test in order to confirm or reject this research hypothesis. The results of such examination are displayed in the table (4).

Table 4. *Independent Samples T-Test of Students' Writing Proficiency on the Post-test of Paragraph-Writing*

	Group Statistics				T-Test for Equality of Means	
	Groups	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Paragraph-Writing Post-test	Experimental	74	41,56	4,86	12,48	0,000
	Control	74	32,18	4,25		

The results of the first research hypothesis show that the mean of the experimental group on the writing achievement post-test is (41,56), whilst the mean of the control group is equal to (32,18). This indicates that the mean difference between the two groups is (9,54). This difference is highly significant as the p-value gets down to (0,000), which is lower than the theoretical value of (0.05). This important disparity between the means of the groups denotes that students in the experimental group, who receive flipped instruction, outperform those in the control group, who receive traditional instruction in the paragraph-writing course. On this ground, the first research hypothesis is confirmed, claiming that the flipped classroom model is effective in enhancing students' writing proficiency.

4.2. Results of the Second Research Hypothesis

The second research hypothesis is closely related to the first one as it seeks to provide meticulous details on the effect of the flipped classroom model on students' performance in all the paragraph-writing constructs. On this matter, the independent samples t-test is applied to inspect all the paragraph-writing constructs included in the current experiment. The results of this inspection are presented in table (5).

Table 5. *Independent Samples T-Test of Students' Writing Proficiency on the Paragraph-Writing Constructs of the post-test*

	Group Statistics				T-Test for Equality of Means	
	Groups	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Writing Mechanics Post-test	Experimental	74	5,63	2,12	1,43	0,155
	Control	74	5,21	1,35		
Cohesion Post-test	Experimental	74	6,98	1,89	7,04	0,000
	Control	74	5,05	1,40		
Coherence Post-test	Experimental	74	7,40	1,90	8,66	0,000
	Control	74	4,85	1,66		
Structural Elements Post-test	Experimental	74	6,90	1,87	7,05	0,000
	Control	74	4,94	1,48		
Unity Post-test	Experimental	74	1,41	0,72	3,09	0,002
	Control	74	1,04	0,76		
Sentence structure Post-test	Experimental	74	7,48	1,82	5,96	0,000
	Control	74	5,67	1,87		
Descriptive Knowledge Post-test	Experimental	74	5,72	1,74	1,19	0,233
	Control	74	5,40	1,54		

The results of writing mechanics reveal that the mean of the experimental and the control group on the construct of writing mechanics are (5.63) and (5.21), respectively. The difference between these two means is equal to (0.42), and it is statistically insignificant as the p-value (0.155) is higher than the theoretical value of (0.05). These results denote that the flipped classroom model has not made any significant difference between the groups of the study writing mechanics. In regard to cohesion, table (40) indicates that the mean of the experimental group is (6.98) and that of the control one is (5.05). The discrepancy between the two means is (1.93), which is a highly significant discrepancy as the p-value is equal to (0.000), proving the efficacy of the flipped classroom model in teaching/learning cohesion. With respect to coherence, the results inform that the mean of the experimental group is (7.40), while that of the control one is (4.85). The difference between these two means, which is equal to (2.55), is statistically significant as the p-value falls off to (0.000). These results connote the potency of flipped instruction in teaching/learning coherence again. The mean difference between the experimental and the control group of the study on the structural elements is (2.05) as the mean of the experimental group is (6.90), whereas that of the control group is (4.94). The

difference between the means of the groups is significant as the p-value (0.000) is lower than the theoretical value of (0.05). This indicates that the experimental group of students who received the flipped treatment scored higher than students in the control group. In reference to unity, we remark that the mean of the experimental group is (1.41) and that of the control group is (1.04). The difference between these two means is equal to (0.37). This difference is significant as the p-value is equal to (0.000), which confirms that students in the experimental group are of greater proficiency in unity. The results of sentence structure disclose that the means of the experimental and the control group are (7.48) and (5.67), respectively. The difference between these two means is equal to (1.81), and it is statistically significant as the p-value (0.000) is lower than the theoretical value of (0.05). These results denote that the flipped classroom model has a positive impact on students' knowledge of sentence structure. Pertaining to descriptive knowledge, it could be observed that the mean of the experimental group is (5.72) and that of the control one is (5.40). The difference between the means of the two groups is (0.32), which is not statistically significant as the p-value (0.23) exceeds the theoretical value of (0.05), indicating that none of the groups outperforms the other in descriptive knowledge. To this end, the second research hypothesis is rejected as the flipped classroom model does not show a positive effect on all constructs of paragraph-writing.

5. Discussion

The findings of the first research hypothesis are consistent with a large number of studies examining the effectiveness of the flipped classroom model in teaching/learning writing skills. For instance, the results of a study targeting university students in Saudi Arabia informed that flipped instructions have a positive impact on students' writing proficiency (Mervet, 2016). In Turkey, as another context of an investigation, an experimental study disclosed that students who were taught in a flipped manner had better results in the post-test than those who were taught traditionally (Ekmekci, 2017). Another study by Pavanelli (2018) in the American context reconfirmed the efficacy of the flipped classroom model in teaching/learning writing skills among university students.

It is obvious that all the studies dealing with the effectiveness of the flipped classroom model in teaching/learning the writing skill yielded positive results confirming the potency of flipped instructions. This efficacy is not only in the ELT context but also in many different disciplines. It seems that the findings of all studies are surprising as none of them report negative results. On this concern, it can be noted, with certainty, that the flipped classroom model would lead to positive results if tested with the teaching/learning of any skill, as this model has enormous pedagogical benefits for the learner. By way of illustration, this model offers a student-centered learning environment in which the student is learning by doing different tasks and project-based activities that were proved to reinforce the subject matter **(**Aghayani & Hajmohammadi, 2019; Ahmed & Bidin, 2016**)**. Similarly, the increased interaction and feedback in flipped classrooms would certainly enhance students' learning as interaction and feedback are considered the key elements for successful language learning (Gass, 1997; Long, 1996; Pica, 1994). The flipped classroom also enables students to take different online and face-to-face formative quizzes that help them, and their teachers check if learning is taking place or if there is a need for remedial work to assure complete mastery of content knowledge. In the same vein, flipped instructions give students agency over their learning by delivering an online lecture for students to study at their own pace till they achieve an absolute proficiency in the target skill.

The second research hypothesis goes in line with the first one as it aims to give an in-depth analysis of the impact of the flipped classroom model on students' achievement in the paragraph-writing constructs, namely writing mechanics, cohesion, coherence, structural elements, unity, sentence structure, and descriptive knowledge. The results of the second research hypothesis are corroborated by some studies that examined the efficiency of the flipped classroom model in the ELT context. A study by Mervat (2016) revealed that students' writing skills, including appropriate ideas and content, sentence structure, organization of the written text, and style, were improved for students in the flipped classroom. On the same concern, Yoon and Lee (2010) reported that a blended learning environment enhanced Korean university students' writing skills in general and some paragraph constructs in particular. These constructs include structural elements, writing mechanics, sentence structure, and content. The flipped classroom model also showed a significant impact on the accurate use of cohesive devices among first-year university students in Chennai (Florence & Sherine, 2017).

These findings confirm again the effectiveness of the flipped classroom model in teaching/learning different aspects of paragraph-writing, specifically the structural elements of the paragraph, coherence, cohesion, unity, and sentence structure. The efficacy of the model would be imputed to the rich pedagogical implications of the flipped classroom model. By way of illustration, the free class time in flipped classrooms provides students enough time to engage in intense practice of the writing skill that requires much practice for successful mastery (Harmer, 2004; Klimova, 2014; Tai, 2017). Besides, differentiation is another characteristic of flipped instructions. This characteristic allows instructors to meet the needs of learners by differentiating classroom activities, the mode and pace of working on those activities, and many other teaching/learning processes. This differentiation in the teaching/learning process was proved to enhance students' achievement in different language skills, including the writing skill, which is the concern of this study **(**Adami, 2004; Endal et al., 2013**)**. The flipped classroom model also integrates the principles of competency-based

learning since it gives students open access to online lectures and quizzes to study repeatedly until they achieve complete mastery of the required competencies before moving to advance ones. The principles of competency-based learning are also apparent in the face-to-face part of the flipped classroom model that engages students thoroughly in the practice of the required skill in order to achieve great competency in the subject matter. Despite the great potency of the flipped classroom model in enhancing students writing skills, it is worth mentioning that the model has not made a significant impact on writing mechanics and descriptive knowledge in the current study. This could be ascribed to a number of reasons. For writing mechanics, namely punctuation and capitalization, it can be noted that there are interlingual and intralingual factors that hinder the mastery of these writing constructs (Brown, 2000; Kaweera, 2013). The interlingual factor refers to L1 interference as the rules of punctuation and capitalization are not universal (Awad, 2012; Carroll & Wilson, 1993; Byrne, 1988). The intralingual factor is developmental since it stands for the difficulties students face while learning a certain skill (Brown, 2000). This factor would certainly have a greater impact on the results of the present study for the reason that the participants involved in this study are first-year university students in the developmental process. This is, indeed, the case considering the fact that writing is not taught as a separate subject in high school, and therefore its constructs are not studied thoroughly and meticulously (Salamin et al., 2016; Awad, 2012**).** Hence, the results of writing mechanics would have been different if the study had involved advanced learners. The negative results of descriptive knowledge would probably be attributed to the fact that in writing descriptive paragraphs, students find themselves doubly challenged; first, in producing a paragraph that meets the academic standards of organization, coherence, unity, development, and writing mechanics, and second in including the linguistic and discourse features of descriptive writing properly in their writing. Therefore, students would find it hard to produce a descriptive paragraph that meets all those requirements.

6. Conclusion
The current study that aimed at investigating the impact of the flipped classroom model on university students' writing proficiency revealed that the model is of great efficacy in improving students' writing performance in general and the writing of most of the paragraph's constructs in particular. Based on the positive results of this study, some of the pedagogical recommendations are directed to educators and decision-makers in the Moroccan context.

First, there is an urgent need to shift from teacher-centered learning pedagogies into student-centered ones by making the learner at the center of the learning process. This shift into student-centered pedagogies offers students many pedagogical benefits. For instance, the flipped classroom model as one of these student-centered pedagogies proved to offer numerous pedagogical benefits to learners. It enables them to engage in an active learning environment where they learn by doing different problem and project-based activities under the guidance and feedback of the instructor and classmates. This learning pedagogy also enables the instructor to differentiate learning patterns by involving students in individual, peer, and group work activities and different assessment tasks.

Second, teachers are required to create blended learning environments in which the student benefits from online and face-to-face learning modalities. The online learning modality is essential in fostering learners' autonomy and meeting their learning pace and style. On the other side, the face-to-face learning environment is of great help in discussing and applying online knowledge. This active learning environment, face-to-face, gives a chance for the intense practice of the target skill under constructive and collaborative feedback and guidance of the instructor and classmates. Moreover, teachers are highly encouraged to implement blended learning models in general and the flipped classroom model, in particular, to enhance students' performance in language skills, as revealed by the findings of this experimental study.

Finally, it is extremely important to note that English language teachers and learners directed complaints about the difficulty of teaching and learning English as a foreign language (Crystal, 2010). This difficulty and complexity aggravate the teaching and learning of the writing skill that requires intense practice and feedback (Nunan, 1999; Richards & Renandya, 2002). Therefore, English language teachers need to find ways to use online technologies to ease the endeavor of English language teaching and learning. In the same way, teachers are urged to deploy technology-based learning modalities like the flipped one in order to free up class time for the intense practice of language skills, especially writing, which demands much practice.

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