



Algerian EFL Teachers' Views on the Flipped Classroom Model for Critical Thinking Skills

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Abstract ;

The study investigates Algerian EFL teachers' attitudes toward the role of the flipped classroom model in enhancing students' critical thinking skills. The study adopts a quantitative descriptive survey design to collect data from a convenient sample of 45 participants through a structured questionnaire. Results report that most teachers have positive attitudes towards the potential of the model and they believe it can support critical thinking. The model's effectiveness is directly linked to the flipped classroom's in-class discussions and activities aspect. The study concludes that the effective implementation of the model in Algerian universities requires taking certain measures such as, developed technological infrastructure, specialized training for teachers, in addition to a gradual pedagogical transition.

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1. Introduction

The COVID-19 pandemic disrupted higher education in Algeria, forcing a rapid shift to remote teaching that exposed technological and pedagogical limitations, particularly the reliance on traditional lecture-based instruction in EFL classrooms. Although digital tools were temporarily adopted, many instructors returned to teacher-centered practices after face-to-face teaching resumed. Meanwhile, the post-pandemic context has intensified the need to develop students' higher-order thinking (HOT) skills, especially critical thinking (CT). However, opportunities to promote such skills remain limited. Innovative approaches like the flipped classroom model (FCM) are still underexplored, and little is known about Algerian EFL teachers' perceptions of its potential to foster CT. The examination of these attitudes is crucial for long-term educational reform. This study adds to the current research on flipped learning in Algeria. It identifies contextual implementation challenges, and offers insights to facilitate the shift toward more student-centered education.

2. Literature Review

This section reviews the core concepts and previous findings related to the FCM and CT skills. It begins with definitions of key concepts followed by a discussion of

previous research of the FCM's role in developing CT skills.

2.1 The Flipped Classroom Model

The FCM, also referred to as the inverted classroom, is an instructional approach in which the traditional sequence of teaching and learning activities is altered. In this model, direct instruction occurs outside the classroom setting, i.e., at home or any other place; through digital resources such as video lectures, online materials, or recorded presentations. While classroom time is reserved for interactive learning activities such as discussions, collaborative tasks, and problem-solving exercises (Baker, 2000; Lage, Platt, & Treglia, 2000). Additionally, The FCM is often considered as a specific form of blended learning (BL), in which online and face-to-face instruction are mixed together. According to Staker and Horn (2012), BL can take several forms as it comes in four different models, the rotation model, the flex model, the self-blend model, and the enriched virtual model, with the FCM representing a variation of the rotation model.

In contrast to traditional classrooms, flipped learning shifts the initial exposure to instructional content to the individual learning space, allowing classroom sessions to focus on active engagement with course material. As Herreid and Schiller (2013) explain, this structure enables instructors to maximize face-to-

face time for meaningful interaction and deeper learning. The FCM generally involves three main phases: *pre-class activities*, *in-class activities*, and *post-class activities*. In *pre-class activities*, students engage with instructional materials before class. In *in-class activities*, students participate in collaborative discussions, problem-solving tasks, and hands-on learning experiences. In *post-class activities*, learning is reinforced through reflection and assessment (Bergmann & Sams, 2012). So, by redistributing lecture time and encouraging student-centered learning environments, flipped instruction increases opportunities for active learning, facilitates differentiated instruction, and has also been associated with higher levels of student engagement and improved learning outcomes (Fulton, 2014). In this sense, flipped learning transforms the classroom into a dynamic space where instructors help students in the application of concepts and engaging with course content in a creative way (Flipped Learning Network, 2014).

Moreover, the FCM is grounded in several pedagogical and learning theories that emphasize active and student-centered learning. In particular, the approach mirrors principles and beliefs of constructivist learning theory, which views knowledge as active built up through interaction and engagement rather than passive reception. Similarly, the FCM aligns with active learning theory as it encourages students to

participate in collaborative problem-solving and discussion during class time (Tucker, 2012). The approach is also consistent with Vygotsky's (1978) social constructivist perspective, since it emphasizes the importance of peer interaction and guided learning in the construction of knowledge. In addition, because students are required to engage with instructional materials independently before class, the FCM incorporates elements of self-directed learning (SDL) (Knowles, 1975), where learners take responsibility for managing their own learning processes.

Bloom's revised taxonomy of cognitive learning also provides a useful theoretical lens for understanding the pedagogical value of the FCM (Anderson & Krathwohl, 2001). This taxonomy distinguishes between lower-order thinking (LOT) skills such as remembering and understanding and higher-order thinking (HOT) skills including analyzing, evaluating, and creating. In traditional classrooms, lower-order cognitive processes often occupy most class time through lectures. In contrast, the FCM reverses this structure by allowing students to engage with basic instructional materials before class, while classroom time is devoted to collaborative activities that promote HOT skills. Consequently, this instructional model provides greater opportunities for students to develop CT abilities, particularly analysis, evaluation, and inference.

2.2 Critical Thinking Skills

According to Facione (1990), CT is a “purposeful, self-regulatory judgement which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgement is based” (p. 2). It includes the abilities that “distinguish a skilled but sophisticated thinker from a skilled fair-minded thinker” (Paul & Elder, 2005, p. 7)

The study adopts Facione’s model of CT skills. The model provides a detailed taxonomy that encompasses both cognitive and metacognitive skills. Facione’s (1990) model includes six key components. The first one is *interpretation*. It is the ability to understand the significance of a broad range of experiences, circumstances, facts, events, judgments, beliefs, rules, or criteria. Interpretation includes three sub-skills. They are categorization, decoding significance, and clarifying meaning. The second one is *analysis*. It is the ability to analyze statements, questions, concepts, descriptions which are meant to convey beliefs, judgments, experiences, experiences, reasons, information, or opinions in order to determine their intended and inferential linkages. Analysis involves three sub-skills, examining ideas, detecting arguments, and analyzing arguments. The third one is *evaluation*. Evaluation is determining the credibility of claims and other representations that reflect

one’s perception, experience, circumstances and assessing the logical strength of actual or intended inferential connections among statements, questions, and other forms of representations. It includes two sub-skills: assessing claims, and assessing arguments. The fourth one is *inference*. It means identifying the needed elements for drawing reasonable conclusions; in addition to making guesses and hypotheses, looking at relevant data and figuring out consequences based on statement, evidence, judgments, or any other types of representations. Inference involves querying evidence, conjecturing alternatives, and drawing conclusions. The fifth one is *explanation*. It means stating the results of your reasoning, and defending it by pointing out the evidence, ideas, methods, standards, etc which led to those results in the first place. Explanation includes three sub-skills: stating results, justifying procedures, and presenting arguments. The sixth one is *self-regulation*. It means one’s ability to be aware of his mental processes, specifically by applying the analysis and evaluation skills to his inferential judgments through questioning, validating, and even correcting his own reasoning. Self-regulation contains two sub-skills: self-examination and self-correction.

Within the classroom context, developing CT abilities offers several benefits, including improved learning outcomes and higher motivation (Trilling & Fadel, 2009)

2.3 Previous Research on the Flipped Classroom and Critical Thinking Skills

To provide a clear and structured overview of the existing literature, studies reviewed in this section are organized geographically and chronologically. First, international studies are presented and arranged in chronological order to highlight the evolution of research on FCM over time. Subsequently, Algerian studies are discussed, also following a chronological order.

Alpat and Görgülü (2024) investigated the impact of flipped classroom-supported instruction on EFL learners' CT levels and writing performance. The study adopted a quasi-experimental mixed-methods design involving thirty upper-intermediate Turkish EFL students divided into experimental and control groups. Data were collected using the California Critical Thinking Disposition Inventory, argumentative essay assessments, attitude questionnaires, and focus-group interviews. The results revealed that students who participated in the flipped classroom intervention demonstrated higher levels of CT disposition and improved writing performance compared to those receiving traditional instruction. Furthermore, most participants expressed positive attitudes toward flipped learning, reporting increased motivation and engagement in classroom activities. While the study provides empirical evidence supporting the effectiveness of FL in

enhancing CT and writing skills, it primarily focuses on students' performance and perceptions.

Putro et al. (2024) investigated the effectiveness of the FCM in improving students' CT skills through an LMS-based learning environment. The study adopted a mixed-method approach involving pre-test and post-test assessments and the Cornell Critical Thinking Test (CCTT) to measure students' CT development. The FCM was implemented using the Moodle Learning Management System, allowing students to access instructional materials before class and engage in collaborative activities during classroom sessions. The results revealed improvements in both students' CT skills and learning outcomes after the implementation of the FCM. Despite providing empirical evidence supporting the effectiveness of FL, the study primarily focused on student performance and did not examine teachers' perceptions or attitudes toward the flipped classroom approach.

Talat, Javaid, and Al Ghotheify (2026) conducted a quasi-experimental mixed-methods study comparing flipped classroom instruction and Open Educational Resources (OER)-based instruction in an online multilingual EFL context. The study involved approximately sixty learners who participated in an eight-week instructional intervention. Quantitative results from pre- and post-tests indicated that both instructional approaches improved learners' language

performance; however, the flipped classroom group demonstrated significantly higher gains. Questionnaire and interview findings further revealed that students in the flipped classroom reported higher levels of engagement and interaction during synchronous learning sessions.

We come to an end with international studies; we move now to tackle national studies.

Bouguebs (2019) examined the FCM in EFL higher education through a descriptive exploratory analysis of the literature. The study discusses the conceptual foundations of flipped learning, its distinctive pedagogical features, and its potential benefits for language learning. The author argues that the flipped classroom promotes active learning and enables instructors to devote classroom time to HOT activities such as analysis, evaluation, and problem solving. Additionally, the study highlights several pedagogical advantages of the approach, including increased student motivation, greater learner autonomy, and enhanced CT development.

Belguermi (2019) provides a conceptual discussion of the FCM within the Algerian educational context. The author describes FL as a pedagogical approach that reorganizes traditional instruction by transferring theoretical content outside the classroom through digital resources, while classroom time is devoted to collaborative

learning and problem-solving activities. The study emphasizes that this model promotes learner autonomy, interaction, and active participation in the learning process.

Sebbah (2019) conducted a quasi-experimental study to investigate the impact of the flipped learning model on first-year Algerian EFL students' reading ability at the University of Algiers 2. The study involved one hundred student divided into experimental and control groups and employed a reading test and a perception questionnaire as data collection instruments. The findings revealed that students who experienced FL significantly outperformed those taught through traditional instruction in terms of reading performance. In addition, the participants expressed positive perceptions toward the FL environment, highlighting increased interaction, autonomy, and engagement in learning activities. Although the study primarily focused on improving reading ability rather than CT skills, it provides empirical evidence supporting the pedagogical value of FL in Algerian EFL contexts.

Benabed (2021) conducted an experimental study at Badji Mokhtar University in Annaba to examine the effectiveness of the FCM in teaching scientific English writing. Using a pre-test/post-test control group design, the study compared learners following a FL approach with those studying in a

traditional classroom. The findings revealed that students in the flipped classroom demonstrated significantly better writing performance and higher engagement levels than those in the traditional group. The results also indicated that the FL model promoted learner autonomy and active participation. Furthermore, the study highlighted the role of FL in activating higher-order cognitive processes described in Bloom's taxonomy, as students were able to apply, analyze, and evaluate information during classroom activities. These findings support the pedagogical value of the flipped classroom in English language learning contexts.

Despite the growing body of research examining the FCM in language education, several gaps remain in the literature. Previous studies have largely focused on measuring the effectiveness of flipped learning in improving students' academic performance, language skills, and CT abilities. While these studies provide valuable empirical evidence supporting the pedagogical potential of the FCM, they primarily emphasize learners' outcomes and perceptions. Moreover, a number of conceptual discussions have highlighted the theoretical advantages of flipped learning in promoting active learning and HOT processes. However, relatively limited attention has been given to teachers' perspectives, particularly in EFL contexts where the successful implementation of innovative pedagogical

models largely depends on teachers' attitudes, beliefs, and institutional conditions. In the Algerian higher education context, research examining teachers' perceptions of the FCM and its potential contribution to developing students' CT skills remains scarce. Addressing this gap is essential for understanding how educators view the applicability of this pedagogical approach within their specific teaching environments. Therefore, the present study seeks to explore Algerian EFL teachers' attitudes toward the FCM and their perceptions of its potential role in fostering students' CT skills, as well as the factors that may influence its implementation in Algerian universities. Since the study adopts an exploratory perspective aimed at examining teachers' perceptions rather than testing causal relationships between variables, the investigation is guided by research questions rather than formal hypotheses. Accordingly, this study addresses the following research questions.

1. What are Algerian EFL teachers' attitudes toward the FCM?
2. How do Algerian EFL teachers perceive the potential of the FCM for developing students' CT skills?
3. What factors influence Algerian EFL teachers' attitudes toward implementing the FCM, including perceived benefits, challenges, and contextual constraints?

3. Research Methodology

3.1 Research Design

The current study is exploratory in nature as it adopts a quantitative descriptive survey design. In particular, it seeks to examine general patterns in teachers' perceptions of the FCM's potential in fostering CT. This design allows for the systematic collection and statistical analysis of the data.

3.2 Participants

The study involved 45 EFL university teachers from five public universities in eastern Algeria: the University of Annaba, the University of Guelma, the University of Setif, the University of Tebessa, and the University of Souk Ahras. A total of 70 teachers were invited to participate in the study, however, only 45 completed the questionnaire. Participants were selected using a convenience sampling technique, as the study targeted accessible EFL teachers within the selected universities. While this approach limits generalizability, it is appropriate for exploratory research focusing on teachers' perceptions within a specific educational context.

3.3 Research Instrument

A questionnaire was selected as the primary data collection tool because it is particularly appropriate for examining teachers' beliefs, attitudes, in a structured and systematic manner. In addition, it

enables the collection of standardized and quantifiable data that can be systematically analyzed to identify patterns and trends in teachers' responses. Moreover, it allows for efficient data collection from geographically distant participants across multiple universities. Prior to its official administration, the questionnaire was piloted with a small group of EFL teachers to ensure the clarity, relevance, and comprehensibility of the items. Feedback from the pilot phase led to minor revisions in wording and structure to improve clarity and eliminate ambiguity. These adjustments enhanced the validity of the instrument by ensuring that items accurately reflected the constructs under study, and improved reliability by promoting consistent interpretation of the questionnaire items. The questionnaire contains eleven questions, which are in turn divided into four sections. The first section, entitled Professional Background, contains two questions about respondents' academic qualifications and professional experience. The second section, entitled Teachers' Perceptions of the FCM, comprises three questions that ask about teachers' experience with the model, frequency of using it and its impact on students' engagement. The third section, entitled Flipped Classroom and CT Development, includes three questions to obtain teachers' attitudes toward the potential of the model on CT skills. One item in this section specifically asked participants to identify their perceptions of the FCM on students'

ability to analyze, evaluate, and draw inferences from information. Note that this item was informed by Facione's (1990) model of CT. Although the model contains six core skills, the present study focused on three core skills only which are analysis, evaluation and inference simply because they received the highest level of consensus among Facione's project experts (95%) as central components of CT and also because they align directly with the higher-order cognitive processes typically fostered through flipped-classroom activities. The fourth section, entitled Challenges and Future Implementation, involves three questions on challenges and recommendations for an effective integration of the model in Algerian higher education.

3.4 Procedures

Following the piloting phase, the finalized questionnaire was administered online during the academic year 2024/2025 using Google Forms. The online format was selected due to the geographical distribution of the participating universities which made face-to-face distribution challenging and time-consuming. The survey link was shared electronically through various platforms, including personal and professional email addresses, Facebook Messenger, and WhatsApp. The questionnaire remained accessible for approximately one month. Participants were informed of the purpose of the study and assured that their responses would

remain anonymous and confidential. A total of 70 teachers were invited to participate, but only 45 completed responses were included in the final analysis.

4. Results and Discussion

Section 1. Professional Background

Table 1. Academic Qualifications of Participants

Qualification	Frequency	Percentage
Masters' degree	10	22.22%
Doctorate	8	17.77%
Other Magister/Pre-doctorate diploma)	27	60%
Total	45	100%

The analysis of participants' academic qualifications shows that 60% (n=27) have a magister or pre-doctorate diploma, followed by 22.22% (n=10) holding a Master's degree and 17.77% (n=8) possessing a doctoral degree. This distribution suggests that most respondents are academically advanced. Participants with magister or pre-doctorate degree make up the majority, which indicates that the sample is professionally advanced and that their opinions on the flipped classroom are probably well-informed.

Table 2. Years of Experience in Teaching EFL at the University Level

Years of Experience	Frequency	Percentage
Less than 3 years	4	8.88%
3-5 years	6	13.33%
6-10 years	10	22.22%
More than 10 years	25	55.55%
Total	45	100%

The distribution of participants' teaching experience indicates that the majority of them 55.55%, (n=25) possess more than ten years of experience in teaching EFL at the university level. Meanwhile, 22.22% (n=10) reported having between six and ten years of experience, whereas smaller proportions indicated three to five years (13.33, n=6) and less than three years (8.88%, n= 4). Based on this distribution, it looks like most of the sample is made up of experienced teachers whose thoughts on the FCM are probably based on their classroom experience. Also, the fact that there are highly experienced teachers in the study makes the results more credible, since their views on new ways of teaching like the "flipped classroom" are based on years of experience in the classroom.

Section 2. Teachers' Perceptions of the FCM

Table 3. Experience with the FCM

Have you ever used the Flipped Classroom Model	Frequency	Percentage
Yes	8	17.77%
No	37	82.22%
Total	45	100%

Table 3 shows that most teachers (82.22%, n=37) said they have never used the FCM before, while only 17.77% (n=8) said they have. This finding shows that even though the FCM is increasingly discussed in educational research, its implementation remains limited within the Algerian context

(Cao, et al., 2024). The low adoption rate could be due to limited technological infrastructure, lack of institutional support, and insufficient teacher training. Similar challenges have been widely reported in the literature as key barriers to the effective adoption of the model in EFL settings (Cao, et al., 2024).

Table 3.1 Frequency of Flipped Classroom Implementation

Frequency of use	Frequency	Percentage
Always	0	0%
Often	3	6.66%
Sometimes	4	8.88%
Rarely	1	2.22%
Never	37	82.22%
Total	45	100%

The results presented in table 3.1 provide further insight into the frequency of flipped classroom implementation among participants. A large majority of respondents (82,22%, n=37) indicated that they have never used the model in their teaching practice. In contrast, only a small proportion indicated some level of use, with 6.66% (n=3) reporting that they often use it, 8.88% (n=4) sometimes using it, and 2.22% (n=1) rarely adopting it. Notably, no participants reported consistent or systematic use of the flipped classroom (0% for "always"). These findings suggest that the FCM is not yet integrated into regular teaching practices. Even among the small number of teachers who have

experimented with the approach, its use remains occasional rather than systematic. While previous research has shown the pedagogical potential of FL in promoting active learning and HOT (Bouguebs, 2019), and empirical studies have demonstrated its effectiveness when implemented in Algerian contexts (Benabed, 2021), the present findings reveal a clear gap between theory and actual classroom practice.

Table 4. Teachers' Perceptions of the FCM's Impact on Student Engagement

Perception	Frequency	Percentage
Strongly agree	7	15.55%
Agree	14	31.11%
Neutral	4	8.88%
Disagree	9	20.00%
Strongly disagree	11	24.44%
Total	45	100%

Table 4 shows how teachers think the FCM's has changed how engaged their students are. 46.66% (n=21) of respondents agreed or strongly agreed that the model improves student engagement, a similar percentage (44.44%, n=20) stated disagreement. Based on this distribution, teachers' views on the effectiveness of the flipped classroom in promoting student engagement are still divided. On the one hand, many studies have reported that flipped learning can enhance student engagement and classroom interaction by creating more active learning environments (Alpat & Görgülü, 2024;

Talat et al., 2026; Benabed, 2021). On the other hand, the differences observed in the present findings may be explained by differences in implementation conditions, including technological infrastructure, instructional design, and teachers' familiarity with student-centered approaches. Previous research has emphasized that, despite its potential benefits, the effectiveness of the FCM is highly dependent on contextual and practical factors (Cao et al., 2024). Therefore, these findings imply that although the flipped classroom can increase student engagement, its effectiveness varies and is mostly dependent on how it is applied in certain educational contexts.

Table 5. Teachers' Perceptions of the FCM's Role in Promoting Learner Autonomy

Perception	Frequency	Percentage
Strongly agree	8	17.77%
Agree	15	33.33%
Neutral	0	0%
Disagree	10	22.22%
Strongly disagree	12	26.66%
Total	45	100%

Table 5 presents teachers' perceptions of the FCM's role in promoting learner autonomy. The data show that 17.77% (n=8) strongly agreed and 33.33% (n=15) agreed that the FCM encourages students to become more autonomous learners. In contrast, 22.22% (n=10) disagreed and 26.66% (n=12) strongly disagreed. However, none of the

participants chose the neutral option. The results indicate a relatively divided perception among teachers regarding the model's effectiveness in fostering learner autonomy. Although slightly more than half of the respondents (51.11%) expressed favorable opinions, a similar percentage (48.88%) remained skeptical. This division may reflect differences in teachers' experiences with student readiness for active learning. FCM requires students to engage with instructional materials prior to class, thereby transferring part of the learning responsibility from teachers to learners. These expectations are consistent with the concept of SDL (Knowles, 1975), in which learners assume responsibility for managing their own learning process.

Previous studies have also highlighted the potential of flipped learning to promote learner autonomy and active participation. For instance, Sebbah (2019) revealed improved learner independence and favorable views about SDL in Algerian EFL situations, whereas Benabed (2021) indicated that students in flipped classroom settings showed better autonomy and engagement. In a similar vein, Bouguebs (2019) highlights how flipped learning settings motivate students to actively participate in the construction of their knowledge. However, other research suggests that the successful development of learner autonomy in

flipped environments depends on students' readiness and their ability to adapt to SDL practices. In this regard, Cao et al. (2024) noted that students may face difficulties in adjusting to autonomous learning due to lack of preparation or familiarity with such approaches. Therefore, the mixed responses observed in this study may reflect concerns about students' readiness to assume greater responsibility for their learning, particularly in contexts where teacher-centered practices remain prevalent.

A comparison between the findings of Table 4 and Table 5 reveals a consistent pattern in teachers' perceptions of the FCM. In both cases, respondents expressed divided opinions regarding its effectiveness, whether in promoting student engagement or fostering learner autonomy. This parallel suggests a strong conceptual link between the two constructs. In the context of flipped learning, student engagement during in-class activities is closely dependent on learners' ability to engage autonomously with instructional materials prior to class. Therefore, teachers' skepticism about students' readiness for SDL may directly influence their perceptions of the model's capacity to enhance classroom participation. These findings indicate that concerns about learner autonomy may underlie broader doubts about the effectiveness of the FCM,

particularly in educational contexts where students are accustomed to teacher-centeredness.

Table 6. Teachers' Perceptions of the FCM in Promoting CT Skills

Response option	Frequency	Percentage
Strongly agree	9	20%
Agree	24	53.33%
Neutral	5	11.11%
Disagree	4	8.88%
Strongly disagree	3	6.66%
Total	45	100%

Table 6 presents teachers' perceptions regarding the potential of the FCM to promote CT skills among EFL students. The results indicate that the majority of respondents hold positive attitudes toward the model's cognitive benefits. Specifically, 53.33% of teachers agreed and 20% strongly agreed that the flipped classroom promotes CT skills, representing a total of 73.33% of the participants. In contrast, 11.11% remained neutral, while only a small minority expressed negative perceptions, with 8.88% disagreeing and 6.66% strongly disagreeing. These findings suggest a strong overall endorsement of the model's role in fostering higher-order cognitive processes. This perception can be explained by the structure of flipped learning, which reallocates instructional time by shifting lower-order cognitive tasks, such as content acquisition, outside the classroom and reserving in-class time for higher-order activities

such as discussion, problem-solving, and collaborative learning. This approach aligns with Bloom's revised taxonomy, which emphasizes the importance of higher-order thinking skills such as analysis and evaluation (Anderson & Krathwohl, 2001). The results are also consistent with previous empirical studies demonstrating the effectiveness of flipped learning in enhancing CT skills. For instance, Alpat and Görgülü (2024) and Putro et al. (2024) found that students exposed to flipped classroom instruction showed significant improvement in CT and higher-order cognitive abilities. Similarly, Benabed (2021) reported that flipped learning environments promote active engagement and the application of analytical and evaluative skills. Furthermore, the findings align with Facione's (1990) model of CT, particularly the core skills of analysis, evaluation, and inference, which are frequently activated through problem-based and interactive classroom activities characteristic of flipped learning. Therefore, teachers' positive perceptions may reflect an awareness of the model's capacity to create learning environments that encourage deeper cognitive engagement. However, as indicated in previous sections, positive attitudes toward the flipped classroom do not necessarily translate into its widespread implementation, as various

contextual constraints may limit its practical application.

Table 7. Most Effective Aspect of the FCM in Developing CT

Aspect	Frequency	Percentage
Pre-class materials	3	6.66%
In-class discussion and activities	30	66.66%
Collaborative learning and peer feedback	5	11.11%
Problem-solving tasks	7	15.55%
Other	0	0%
Total	45	100%

Table 7 presents teachers' perceptions regarding the most effective aspects of the FCM in developing students' CT skills. The results indicate that the majority of respondents (66.66%, $n = 30$) identified in-class discussions and activities as the most influential component. In comparison, problem-solving tasks were selected by 15.55% ($n = 7$), collaborative learning and peer feedback by 11.11% ($n = 5$), while only 6.66% ($n = 3$) considered pre-class materials to be the most significant aspect. This distribution suggests that the primary pedagogical value of the FCM lies not in the delivery of pre-class content, but in the interactive learning experiences that occur during classroom sessions. In EFL contexts, pre-class materials typically function as preparatory resources, enabling class time to be devoted to higher-order cognitive activities such as discussion, collaborative analysis, and problem-solving. These activities require students

to examine ideas critically, evaluate arguments, and draw reasoned conclusions, which correspond closely to the core CT skills of analysis, evaluation, and inference identified by Facione (1990). This interpretation is consistent with Bloom's revised taxonomy, which emphasizes the role of higher-order cognitive processes such as analyzing and evaluating in meaningful learning (Anderson & Krathwohl, 2001).

The findings also align with previous research highlighting the importance of active learning environments in fostering CT. Bergmann and Sams (2012) argue that the flipped classroom transforms class time into an interactive space where students actively engage with concepts rather than passively receiving information. Similarly, Hung (2015) emphasizes that flipped learning promotes meaningful interaction and collaborative inquiry, which are essential for developing higher-order thinking skills. In addition, empirical studies have demonstrated that classroom-based activities such as discussion, collaboration, and problem-solving play a central role in enhancing CT in flipped learning contexts (Alpat & Görgülü, 2024; Putro et al., 2024; Benabed, 2021).

Furthermore, the prominence of in-class activities observed in this study is consistent with earlier findings

regarding student engagement and learner autonomy. As discussed in Tables 4 and 5, the effectiveness of the FCM is closely linked to students' active participation and their readiness for self-directed learning. In this respect, teachers' responses suggest a clear awareness that the development of CT skills depends primarily on how classroom time is utilized, rather than on the mere provision of pre-class instructional materials. Therefore, the effectiveness of the FCM appears to reside in its capacity to create interactive, student-centered learning environments that promote deep cognitive engagement.

Table 8. Teachers' Perceptions of the Flipped Classroom Model on Students' Ability to Analyze, Evaluate, and Draw Inferences

Response option	Frequency	Percentage
Students who engage in pre-class materials come better prepared and can engage in deeper discussions, which helps them analyze and synthesize knowledge.	14	31.11%
Many students struggle with self-directed learning, which limits their ability to develop higher-order thinking skills	7	15.55%
While the flipped model can enhance critical thinking, it depends on how actively students engage with the provided materials	24	53.33%
Total	45	100%

Table 8 presents teachers' perceptions of the impact of the FCM on students'

ability to analyze, evaluate, and draw inferences from information. The results indicate that the majority of respondents (53.33%, $n = 24$) selected the option stating that the effectiveness of the flipped classroom in enhancing CT depends on the extent to which students actively engage with the provided materials. This finding suggests that teachers perceive the development of CT skills as conditional upon learners' active participation in both pre-class and in-class activities. In this respect, engagement is viewed as a crucial determinant of learning outcomes, particularly in fostering higher-order cognitive processes. This interpretation is consistent with Hawks (2014), who emphasizes that students are more likely to develop deeper understanding and CT skills when they actively engage with learning tasks and take responsibility for their own learning.

Furthermore, 31.11% ($n = 14$) of respondents indicated that students who engage with pre-class materials come better prepared and are able to participate in deeper discussions, which in turn supports the development of analytical and inferential skills. This highlights the complementary relationship between pre-class preparation and in-class interaction, where initial exposure to content enables more meaningful engagement during classroom activities. These findings

align with previous research demonstrating that flipped learning environments can enhance students' CT abilities through active engagement and collaborative learning (Alpat & Görgülü, 2024; Putro et al., 2024; Benabed, 2021).

In contrast, a smaller proportion of respondents (15.55%, $n = 7$) pointed to students' difficulties with self-directed learning as a limiting factor in the development of higher-order thinking skills. This perspective reflects the principles of self-directed learning theory (Knowles, 1975), which emphasizes learners' responsibility for managing their own learning processes. In flipped classroom settings, this responsibility requires students to engage independently with instructional materials prior to class, a process that may be challenging for learners who are accustomed to teacher-centered approaches.

These findings are closely related to the results presented in Tables 5 and 7, where teachers expressed concerns about students' readiness for autonomous learning and emphasized the importance of in-class interactive activities in promoting CT. Taken together, the results suggest that the effectiveness of the FCM in developing CT skills depends not only on its instructional design, but also on students' ability and willingness to

engage actively with learning materials. Therefore, the development of CT in flipped learning environments appears to be contingent upon both pedagogical implementation and learner readiness.

Section 4. Challenges and Future Implementation

Table 9. Challenges of Implementing the FCM in Algerian Higher Education

Challenge	Frequency	Percentage
Lack of access to technology (computers, internet, etc.)	40	88.88%
Students' resistance to self-learning	23	51.11%
Teachers' workload in preparing pre-class materials	35	77.77%
Limited institutional support	34	75.55%
Lack of proper training for teachers	29	64.44%
Other (please specify)	0	0%

Table 9 presents teachers' perceptions of the main challenges that hinder the implementation of the flipped classroom model (FCM) in Algerian higher education. The results indicate that the most frequently reported obstacle is the lack of access to technological resources, cited by 88.88% ($n = 40$) of respondents. This was followed by teachers' workload in preparing pre-class instructional materials (77.77%, $n = 35$) and limited institutional support (75.55%, $n = 34$). Additionally, 64.44% ($n = 29$) of teachers identified the lack of proper training as a significant barrier,

while more than half of the respondents (51.11%, $n = 23$) pointed to students' resistance to self-directed learning (SDL) as another important challenge.

These findings suggest that although teachers recognize the pedagogical potential of the FCM, its implementation is constrained by a combination of technological, institutional, and pedagogical factors. The prominence of technological limitations reflects the persistence of digital inequalities within higher education institutions. Previous research has emphasized that adequate technological infrastructure is a fundamental prerequisite for the successful implementation of flipped learning (Bergmann & Sams, 2012; Zainuddin & Halili, 2016; Cao et al., 2024). Without reliable access to digital tools and online platforms, the pre-class component of the model becomes difficult to sustain.

Similarly, the high percentage of respondents identifying workload as a barrier indicates that the design and preparation of flipped instructional materials require considerable time and effort. As noted by Bergmann and Sams (2012), effective flipped instruction involves careful planning and the development of both pre-class and in-class learning activities. More recent studies have also highlighted increased teacher workload as a key challenge in

adopting flipped learning approaches (Cao et al., 2024).

Institutional support and professional training also emerged as critical factors. A substantial proportion of teachers reported limited institutional support and insufficient training, suggesting that successful implementation depends not only on individual teacher initiative but also on supportive institutional policies and professional development opportunities (Hung, 2015; Zainuddin & Halili, 2016).

Finally, students' resistance to SDL reflects an important pedagogical challenge. As the FCM requires learners to engage independently with instructional materials prior to class, students' readiness for autonomous learning becomes a crucial factor. In contexts where teacher-centered approaches dominate, this transition may be difficult, as suggested by Knowles' (1975) theory of self-directed learning.

Importantly, these challenges help explain several patterns observed in previous tables. The limited implementation of the FCM (Tables 3 and 3.1), the divided perceptions regarding engagement and autonomy (Tables 4 and 5), and the conditional effectiveness of the model in developing CT skills (Table 8) can all be understood in light of these structural and

pedagogical constraints. Therefore, addressing these barriers is essential for bridging the gap between teachers' positive perceptions of the flipped classroom and its actual adoption in practice.

Table 10. Teachers' Opinions on Integrating the FCM into Algerian EFL University Courses

Response	Frequency	Percentage
Yes, it should be fully integrated	23	51.11%
Yes, but only in certain courses	7	15.55%
Neutral / unsure	5	11.11%
No, it is not suitable for our context	10	22.22%
Total	45	100%

Table 10 presents teachers' views regarding the potential integration of the flipped classroom model (FCM) into Algerian EFL university courses. The results indicate that 51.11% of respondents ($n = 23$) believe that the model should be fully integrated into university instruction, while 15.55% ($n = 7$) support its partial integration in selected courses. In contrast, 11.11% ($n = 5$) remained neutral, and 22.22% ($n = 10$) expressed the opinion that the FCM may not be suitable for the Algerian educational context. Overall, these findings indicate that a clear majority of teachers (66.66%) support the integration of the FCM, either fully or partially, into Algerian EFL courses.

This positive tendency suggests that many instructors recognize the pedagogical value of flipped learning environments, particularly their potential to promote student engagement, active learning, and higher-order thinking skills. These perceptions are consistent with previous research demonstrating the effectiveness of flipped instruction in enhancing learning outcomes and CT in EFL contexts (Alpat & Görgülü, 2024; Putro et al., 2024; Benabed, 2021). Similarly, Hung (2015) found that flipped classroom environments encourage greater student participation, while Zainuddin and Halili (2016) report that the model enables instructors to dedicate classroom time to interactive and student-centered activities.

However, the presence of a notable proportion of teachers expressing skepticism (22.22%) indicates that the adoption of the FCM is not universally accepted. This hesitation may be linked to the contextual constraints identified in Table 9, including limited technological infrastructure, insufficient institutional support, and lack of professional training. Such challenges have been widely documented in the literature as key barriers to the successful implementation of flipped learning (Bergmann & Sams, 2012; Zainuddin & Halili, 2016; Cao et al., 2024).

Furthermore, the neutral responses may reflect uncertainty or limited familiarity with the model, which is consistent with earlier findings in this study showing low levels of actual implementation (Tables 3 and 3.1). While teachers generally acknowledge the model's potential for promoting engagement, learner autonomy, and CT (Tables 4, 5, and 6), concerns related to student readiness and practical implementation remain evident.

Taken together, these findings suggest that although Algerian EFL teachers demonstrate a generally favorable attitude toward the integration of the FCM, its successful adoption depends on addressing the structural and pedagogical challenges identified earlier. Bridging the gap between positive perceptions and practical implementation will therefore require sustained institutional support, adequate technological infrastructure, and targeted professional development initiatives.

Table 11. Suggested Measures for the Effective Implementation of the Flipped Classroom Model

Suggested Measure	Frequency	Percentage
Training programs should be mandatory for both teachers and students	40	88.88%
University administrators should invest in better technological infrastructure	40	88.88%

EFL teachers should collaborate and share best practices	35	77.77%
Gradual implementation through blended approaches and awareness campaigns to prepare students for flipped classrooms	25	55.55%

Table 11 presents teachers' recommendations for facilitating the effective implementation of the FCM in Algerian higher education. The results show that mandatory training programs for both teachers and students and improved technological infrastructure were the most frequently suggested measures, each selected by 88.88% of respondents (n=40). Additionally, 77.77% (n=35) emphasized the importance of collaboration among EFL teachers to share best practices, while 55.55% (n=25) recommended gradual implementation through blended approaches and awareness campaigns to prepare students for FL environments.

These findings suggest that teachers view the successful integration of the FCM as dependent on both institutional and pedagogical support mechanisms. The strong emphasis on training reflects teachers' awareness that the flipped classroom requires new instructional competencies, including designing pre-class materials, facilitating interactive classroom activities, and managing technology-enhanced learning environments. Previous research similarly highlights the importance of

professional development in enabling teachers to adopt innovative pedagogical practices. For instance, Zainuddin and Halili (2016) note that effective flipped classroom implementation often depends on teachers' technological readiness and pedagogical training.

Furthermore, the emphasis on improving technological infrastructure indicates that teachers perceive limited access to digital resources as a major barrier to the adoption of FL. This concern aligns with earlier findings in technology-enhanced education research, which emphasize that reliable internet access and digital tools are essential prerequisites for implementing blended and flipped learning environments (Bergmann & Sams, 2012).

The recommendation encouraging collaboration among teachers also reflects the importance of professional learning communities, where instructors can exchange instructional strategies and share experiences with flipped classroom practices. Such collaborative environments have been shown to support pedagogical innovation and facilitate the adoption of student-centered approaches.

Finally, the suggestion for gradual implementation through blended approaches indicates that teachers

recognize the need for a context-sensitive transition toward FL rather than an abrupt pedagogical shift. This perspective aligns with research emphasizing that the successful adoption of active learning models requires gradual adaptation and preparation of both instructors and students for new learning roles (Hung, 2015).

Overall, the findings of Table 11 highlight that while teachers generally recognize the pedagogical value of the model, they also perceive its effective implementation as contingent upon institutional support, teacher training, technological infrastructure, and collaborative professional practices.

4.1 Limitations of the Study

Despite its contributions, this study has several limitations that should be acknowledged. First, the research is based on a relatively small sample of Algerian EFL university teachers, which may limit the generalizability of the findings beyond the specific context of the study. Second, data were collected through a self-reported questionnaire, and therefore reflect participants' perceptions rather than direct observation of classroom practices. Given that the FCM is not widely implemented among the participants, many responses are based on

expectations and beliefs rather than sustained pedagogical experience.

In addition, although the questionnaire was carefully designed to align with the research objectives and constructs under investigation, further statistical validation, such as the calculation of internal consistency measures, could strengthen the robustness of the instrument. Finally, the study adopts a cross-sectional design, which does not capture changes in teachers' perceptions over time.

Future research could address these limitations by employing larger and more diverse samples, incorporating mixed-method approaches such as classroom observations and interviews, and adopting longitudinal designs to examine the actual impact of flipped classroom implementation on students' CT development over time.

5. Conclusion

This study examined Algerian EFL university teachers' perceptions of the flipped classroom model (FCM) and its potential role in enhancing students' CT skills. The findings indicate that although the model is not widely implemented in practice, the majority of teachers hold positive attitudes toward its pedagogical value, particularly in promoting higher-order thinking through interactive in-class activities such as discussion, collaboration, and

problem-solving. These findings are consistent with international research highlighting the effectiveness of student-centered learning environments in fostering CT.

However, the study also reveals a clear gap between teachers' positive perceptions and the actual implementation of the FCM. This gap is largely explained by contextual constraints, including limited technological infrastructure, insufficient institutional support, lack of systematic training, and students' limited readiness for self-directed learning. These findings suggest that the successful integration of the FCM in Algerian higher education requires a gradual, context-sensitive approach supported by institutional investment and professional development initiatives.

By focusing on teachers' perspectives, this study contributes to addressing a notable gap in the literature, which has predominantly emphasized students' outcomes and perceptions. It provides insights into the conditions necessary for the effective adoption of flipped learning in underexplored EFL contexts, particularly within Algerian higher education.

Overall, the findings highlight that the effectiveness of the FCM is not solely determined by its instructional design, but also by the broader educational

environment in which it is implemented. Future research is encouraged to build on these findings by employing mixed-method and longitudinal approaches to examine how flipped classroom practices influence students' CT development in real classroom settings over time.

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