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# A Mixed-Method Action Research on Promoting Critical Thinking in the Classroom: Implications for EFL Teachers

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**Abstract**
Since acquiring critical thinking is a necessity to make sense of today's world, many teachers are looking for effective strategies that they can utilize in their classrooms to help students become apt critical thinkers. The present study, therefore, aims to investigate some of those strategies by adopting a mixed-method action research approach that was designed to implement, track, and evaluate the impact of integrating critical thinking-based instruction and activities as a part of the school curriculum to promote critical thinking skills and dispositions among Moroccan high school students. The significance of this study lies in its contribution to the field of critical thinking-based instruction in EFL education, as it can inform teachers, curriculum developers, and other education stakeholders on how to enhance students' critical thinking. Hence, the main questions posed by this study dealt with identifying the most effective instructional activities to develop students' critical thinking and their impacts on students' critical thinking skills and dispositions. The study sample consists of a class of 14 students who were selected to participate in a four-stage action research cycle for one school year. The 14 students were also invited to complete a questionnaire, and then six of them were selected to take part in semi-structured interviews. The study's findings reveal a noticeable and encouraging improvement in students' critical thinking skills and dispositions. Furthermore, the study provides practical implications for EFL teachers to promote students' critical thinking without disrupting the school curriculum.

*Keywords:* critical thinking, critical thinking dispositions, critical thinking skills, EFL teachers, mixed-method action research

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## Introduction

One of the main goals of education worldwide nowadays is the development of students' critical thinking prowess as it constitutes a significant pillar of the 21st-century learning framework (Kokkidou, 2013; Liu et al., 2014; Sellars et al., 2018), and the Moroccan education system is in line with this goal. Consequently, the Moroccan education system has made many reforms to accommodate this emerging trend to enhance the quality of its education by propagating and establishing the different pillars of this framework including critical thinking in the classroom (Ibourk, 2016). Most of those reforms have aimed at shifting the education system from the traditional trend to a more modern one by adopting approaches such as the competency-based approach and the humanistic approach, which are known to focus more on the learners and their role as active agents in the education system. Teachers, therefore, find themselves in a critical juncture as they are required to adopt and apply learning approaches to encourage students to think critically and help them develop their thinking abilities and express their opinions and ideas more fluently.

However, most teachers are unable to do so not only because most of them view critical thinking as "notoriously difficult to teach and develop" (Nieto & Saiz, 2011, p. 202) but also due to the heavy emphasis on standardized tests, especially at the level of secondary school, which as research has frequently shown (e.g., Paul & Edler, 2006; Bensley et al., 2010) seldom aim at developing students' critical thinking (Chouari & Nachit, 2016). Hence, they focus more on teaching for the test with so little or no time to develop such skills and "end up teaching students what to think instead of teaching them how to think" (Rouijel & Bouziane, 2020, p.24) which results in many students leaving high school and venturing into academia suffering from a deficiency at the level of critical thinking (The Superior Council of Education and Training and Scientific Research, 2016 as cited Rouijel & Bouziane, 2020). Teachers of languages, including EFL teachers, also find themselves devoting a considerable amount of time to the teaching of grammar rules and vocabulary and neglecting developing their students' critical thinking in the process. Another reason is that most teachers find it challenging to implement critical thinking-based instruction in class due to insufficient knowledge of the concept (Li, 2016). However, it has been well-established in the literature of language education that developing students' thinking leads to the development of students' language proficiency (Liu & Stapleton, 2018; Saleh, 2019, p.3).

In this context, the present research aims to investigate feasible alternative practices and recommendations that can be adopted and implemented in the EFL classroom at the secondary level to promote students' critical thinking in conjunction with the current practices that focus on preparing students to sit for standardized tests through a process of action research model. Hence, this study is an attempt to add to the emerging body of research in the field of EFL teaching as it aims to provide implications for teachers to improve critical thinking-based instruction in the EFL classroom. Furthermore, it is noteworthy that the findings of this study contribute significantly to the new and scarce literature on developing critical thinking in the EFL classroom in secondary schools through adopting effective critical thinking-based instruction in the Moroccan educational context.

Hence, the present study applies a mixed-method action research model first to investigate students' awareness of the importance of critical thinking, and the main factors that affect its development from their perspective. The study also aims to identify the most effective in-class critical thinking-based instructional strategies and activities that may contribute to developing

critical thinking skills and dispositions, and the impacts of such an instruction on enhancing students' critical thinking awareness and ability. To meet the research objectives, this study is designed to reply to the following questions:

- What is students' level of awareness of the importance of critical thinking?
- What are the factors that hinder the development of students' critical thinking?
- What are the best instructional activities for promoting students' critical thinking?
- What are the impacts of these activities on students' critical thinking?

In this framework, a hypothesis is put forward stipulating that using effective critical thinking-based instructional methods and strategies within an action research model may likely promote students' critical thinking awareness and skills in the classroom and beyond.

## Literature Review

### *Critical Thinking Definition*

It is very imperative to put forward a relevant definition for critical thinking because as one defines it, in this case, the teacher will be able to teach it and assess it (Johnson & Hamby, 2015, p.419). Since critical thinking has become such a common buzzword in education, there has been a plethora of definitions of this term. For instance, McPeck (1981, p.7) defines critical thinking as "the skill and propensity to engage in an activity with reflective skepticism" (as cited in Nieto & Saiz, 2011, p.202). Ennis (1996) adds to the previous definition and defines it as "reasonable, reflective thinking that is focused on deciding what to believe or do" (p.166). Paul and Elder (2008) view critical thinking as "the art of analyzing and evaluating thinking with a view to improving it" (p.2). They also highlight a specific type of thinking called 'egocentric standard' that most students resort to in the classroom, which is mainly based on whether they agree or disagree with a particular issue, relying on their personal beliefs in the process (Paul & Elder, 2013); it is a type of thinking that is subjective and "inconsistent with the spirit of critical inquiry and can lead to intellectual sophistry and manipulation" (Cosgrove, 2011, p.345). Hence, it is vital to inform students on how to think more objectively. To do so, however, students' critical thinking must be improved, which means that their critical thinking skills and critical thinking dispositions must be nurtured (Bensley & Murtagh, 2011; Zhao et al., 2016), and their ability to intentionally use them in given situations (Bensley & Murtagh, 2011).

### *Teacher's Role in Implementing Critical Thinking-Based Instruction*

The literature on critical thinking-based instruction has always suggested that teachers need to be critical thinkers themselves to teach it (Zhang, 2022). The teacher plays a significant role in facilitating critical thinking-based instruction because she helps students become aware of their assumptions and those of others and reflect on them (Mezirow, 1997; Christie et al., 2015) and guides them to make effective changes in their frames of reference (Mezirow, 1997). In this regard, Li (2016) argues that implementing a critical thinking-based approach is dependent on the belief and conceptualization of what critical thinking is and how teachers practice it in their classrooms. Similarly, Abrami et al. (2015) postulate that promoting students' critical thinking skills and dispositions depends on teachers' critical thinking experience, preparation, and availability. Hence, it is the teacher's responsibility to make use of and implement suitable teaching methods in the classroom (Lampert, 2006 as cited in Karami et al., 2012) as well as provide a classroom environment that allows students to "experience both certainty and uncertainty of knowledge and knowing to develop their ability to evaluate conflicting views or evidence" (Cheng & Wan, 2017,

p.157). However, to do so, the teacher should have a good knowledge of those methods and the strategies that can positively influence students' ability to think critically (Karami et al., 2012). Hence, having such knowledge enables the teacher to give specific instructions, implement interventions (Niu et al., 2013), and design classroom activities that aim to improve students' critical thinking.

***Interventions of Promoting Critical Thinking in the Classroom***

Many activities are used to promote and assess students' critical thinking, such as debates, interviews, presentations, compositions, cooperative tasks, self-assessment and self-evaluation, role plays, and project-based activities (Marin & Pava, 2017). Yet, one of the best and most agreed-on activities in the literature is to engage students in discussions in which they listen and exchange their ideas and arguments with each other in a process of give and take (Chaffee, 2019) by asking and answering questions (Bezanilla et al., 2019). Questioning is essential as it is one of the main qualities of critical thinkers (Saleh, 2019). Jamiai and El Karfa (2022) also highlight the importance of questioning and believe that it is the basis for creating a communicative-oriented approach between the teacher and her students (p. 121) as this approach helps in generating "communication environments to exchange ideas" (Marin & Pava, 2017, p. 84) and act the basis for all other classroom activities. In this regard, Jamiai and El Karfa (2022) recommend using "open-ended and challenging questioning practice; indirect and tolerant error treatment patterns; open patterns of communication and social organization, and the creation of a safe environment in the classroom" (p. 122).

***Previous studies on Implementing Critical Thinking-Based Instruction in Secondary Education***

In the Moroccan education context, the integration and implementation of critical thinking-based instruction in school in general and the EFL classroom in particular at a secondary level is still somewhat of a novelty, which explains the scarcity of research and experience related to this field of study. The literature also reveals that a great majority of previous research focused mainly on developing critical thinking at the level of higher education (e.g., Chouari and Nachit, 2016; Rouijel and Bouziane, 2020; Ghazlane et al., 2020; Aouaf et al., 2023) with few exceptions that focused on secondary education (e.g., Mrah, 2017, Jebbour, 2019). However, most of those few studies done at a secondary level investigated EFL and ESL textbooks to see whether they promote critical thinking or not, except one study, which was done by Daniel et al. (2017) to examine the use of open philosophically-oriented questions to foster critical thinking among five groups of Moroccan pupils aged between 10 to 15 years old with 30 pupils in each group from two primary and secondary schools public schools in Rabat.

Therefore, the need to conduct more studies at the secondary level and investigate the implementation and development of critical thinking among students in the EFL classroom is crucial to fill this research gap and pave the way for other future studies that target critical thinking-based instruction in Moroccan education settings.

**Method**

To meet the study objectives, a combination of quantitative and qualitative methods has been employed in a mixed-method action research design.

***Research approach***

The choice of conducting mixed-method action research design is most efficient for the purposes intended behind this study as it yields a strong methodological approach, and foundation that targets practical classroom problems (Ivankova, 2015). Moreover, Ivankova and Wingo (2018) advance that opting for quantitative and qualitative methods and combining them with action research "can produce more scientifically sound and more transferable results" (p. 2) and can help "secure an effective and scientifically sound approach to action/intervention planning, implementation, and monitoring" (p. 9). This study also adopts a transformative learning framework within this model of mixed-method action research as they both aim to make better changes (Mezirow, 1991 as cited in Christie et al., 2015).

Furthermore, the use of educational action research in this study is suitable to investigate the research questions of this study as it closely aligns with "classroom inquiry that guides practice through activities, interventions, and reflection that teachers engage in as part of their day-to-day work and can be undertaken by individual teacher-researchers" (Brown et al., 2013, p. 62). Teachers play a leading role in this type of research because they become researchers who investigate what is happening in their classroom to improve their teaching practices which in turn leads them to become "active partners in leading school improvement" (Cochran-Smith & Lytle, 2009; Hopkins, 2008 as cited in Efron & Ravid, 2013, p. 2), especially if the teacher (and in this case also students) who is considered the primary audience and recipient of the findings of this research choose to share conclusions with secondary audiences such as other colleagues and educators inside the school and beyond it (Oranga & Gisore, 2023). Moreover, the teacher can often collaborate with other academic partners (Kemmis et al., 2014) with more experience and expertise and who will help improve the quality of teaching practices.

***Participants***

The study participants consisted of 14 students who were at the time of the study in their final year of high school. The students were involved in the study for a year. They were physics sciences stream students and belonged to the same class in a public high school in Taounate, Morocco. They were selected to take part in this study using convenience sampling. This type of sampling was opted for due to the availability of the students at the time of the study, and their willingness to take part in the research. The students had three hours of English per week as mandated by official guidelines, and they were examined in English as a part of the national baccalaureate exam at the end of the school year.

For the students' English language level, they ranged from pre-intermediate to upper-intermediate. There were 42.9% male students, 57.1% female students and their ages ranged from 16-18 (71.4%) to 18-20 (28.6%). A majority of 64.3% had been students in the same teacher's class for two consecutive years. The classroom size and the number of participants were ideal for the study as it does not require a large sample population.

***Data Collection Procedures***

The main data collection procedure used in this study is practical action research. This action research, as shown in Figure One, was adapted from and designed based on Kemmis and Mctaggart's (1988) four moments or stages cycle. The four-stage cycle begins by planning for an action, implementing that action using interventive strategies, observing the action, and then reflecting on it.

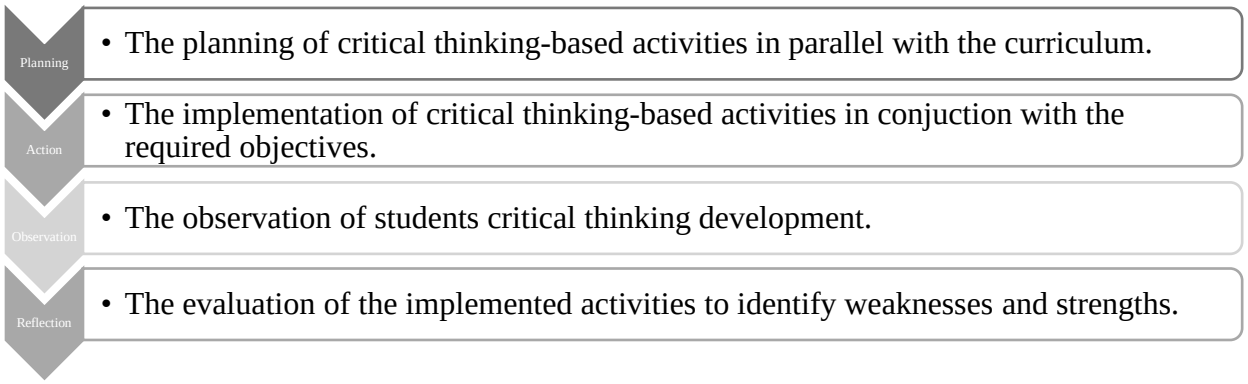



*Figure 1.* The four stages of the implemented action research

Before beginning the action research cycles, students were introduced to the skills used to analyze and argue critically in class. Students were also introduced to three different types of student talk in the classroom, as has been advanced by Mercer (1995), which are exploratory talk that demands students to "engage with one another's ideas in a critically constructive manner, providing suggestions and comments for joint consideration, challenging and counter-challenging one another's viewpoints with justifications, and proposing alternative perspectives," disputational talk that "contains disagreement and assertions without reasons," and cumulative talk which "features uncritical statements leading to common knowledge by accumulation" (as cited in Liang & Fung, 2020, p. 6). The students were required to take note of the three talks and opt for an exploratory talk when defending their ideas and using their arguments.

The second data collection procedure used in this study is a questionnaire given to the students to complete online after the end of the action research cycle. The first three parts of the questionnaire focused mainly on students' views on the factors that hinder critical thinking development in the classroom, the practical in-class activities that help in developing critical thinking, and the teacher's role and presence in fostering critical thinking. Part four which was adapted from Anderson and Krathwohl's (2001) revised version of Bloom's taxonomy of critical thinking skills and Facione et al., (1994) list of critical thinking dispositions, was reserved for students' personal reflection on to what extent they have developed their critical thinking abilities. The questionnaire was designed on a Five-point Likert Scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly disagree).

To have a more in-depth reflection and seek more details and comprehensive data, semi-structured interviews were carried out with six randomly selected students of the sample population. The semi-structured interview included nine open-ended questions that aimed at gaining more insight into students' experiences and improvement and reflection after the end of the year.

***Data Analysis***

The action research cycle was designed according to the suggested framework by Kemmis and Mctaggart (1988). The stages of the cycle were recorded manually by the teacher in the form of a reflection logbook to track the stages of planning, implementation, observation, and reflection of the implemented activities and their effect on students' critical thinking. As for the questionnaire, the data were computed and analyzed using the Statistics Package for the Social

Science (SPSS) version 27.0 and Microsoft Excel. Finally, the interviews were transcribed and themed using a content analysis approach.

## Results

### *Findings from the Action Research*

The action research cycle stages which as summarized in Appendix A, tracks the beginning of the teacher's intervention and use of critical thinking-based instruction from the planning stage to final reflection stage. The final stage which concludes with a reflection moment highlights the differences observed in students' thinking from the teacher's point of view based on the notes taken throughout the process.

At the level of critical thinking skills, the observation checklist included six primary skills as proposed by Anderson and Krathwohl's (2001) revised version of Bloom's Taxonomy. The skills descending from higher-order thinking skills to lower-order thinking skills are as follows: Creating, Evaluating, Analyzing, Applying, Understanding, and Remembering. Students' development in those skills was tracked individually for each student using a scale of 1. Excellent, 2. Good, 3. Satisfactory, and 4. Needs improvement. During the observation and reflection phases, most students showed a considerable improvement at the level of higher-order thinking skills especially when they were analyzing their ideas and making connections with their ideas and those of their classmates as well as when discussing different topics and evaluating the new information and ideas presented to them. They also showed apparent differences in their level of remembering basic concepts and facts, understanding received information, and applying it in new contexts. However, some students showed less improvement in these skills. The reason behind this is that they found the language as a barrier to sharing their ideas and opinions. However, though language posed a barrier for some, students still managed to make use of exploratory talk and they reminded each other during discussions to minimize cumulative talk, and avoid disputational talk as much as possible when presenting their arguments or responding to those of their peers.

As for students' motivation and disposition to apply those previously observed skills, most students showed high levels of curiosity to learn about new issues and formulate questions concerning them, especially when the topics of discussion were of interest to them. Half of them were also open-minded to explore alternative points of view and demand justifications when processing new information. Few students, however, seemed less interested in weighing in and presenting their point of view, and when they were asked about the reasons behind this, they chalked it up to tiredness and demotivation.

### *Findings from the Questionnaires and Interviews*

One of the first questions that students were required to answer was related to their awareness of the importance of developing critical thinking. The results as shown by Figure Two below, reveal that more than half of the students (57.1%) believe that critical thinking is important whereas 42.9% voted maybe and 0% voted no. In the interviews, most students confirmed their awareness of how important critical thinking is, such as Student Two, who stated that "Critical thinking is very important, as it enables us to have the ability to use our brains correctly, meaning that we do not consume the ideas that are presented to us before we are sure of their validity, and that we build logical ideas that come from us, not by following others." Similarly, Student Five advanced, "I am aware of my critical thinking ability, especially in evaluating information, forming logical arguments, and expressing ideas coherently." He further added that "Critical thinking is an

essential skill as it enables individuals to solve problems, make informed decisions, and navigate complex situations effectively."

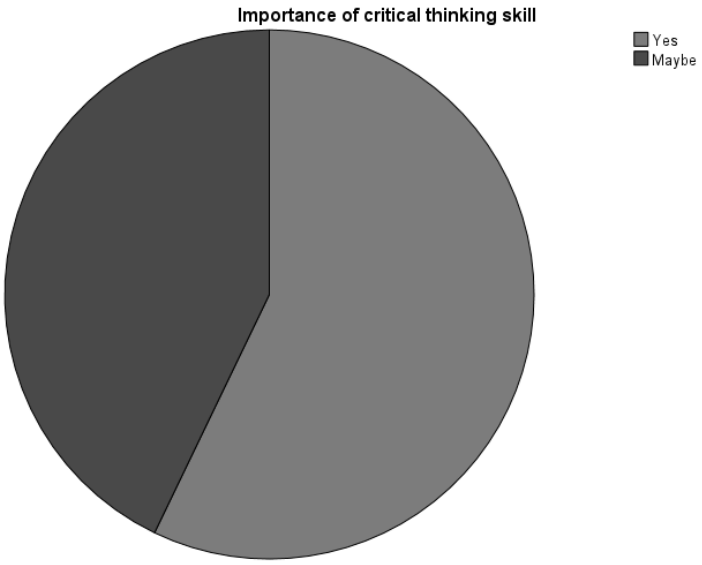



*Figure 2.* Students' level of awareness of critical thinking importance

For the second question, students were asked about the factors that hinder their overall development of critical thinking. The results were close, as shown in Figure Three, for the factor of "heavy focus on the language system (grammar and vocabulary) over communicative skills,' 28.6% of the students equally strongly agreed and agreed that it impedes the development of their thinking whereas 35.7% opted for neutral. As for the second factor which is the 'language barrier and low level of English' 37.5% of students agreed and disagreed that it affects their development of critical thinking. 28.6% of students equally strongly agreed, agreed, and disagreed with the third factor, which is "Affective factors such as speaking anxiety, inhibition, and lack of motivation." In contrast, 35.7% of them agreed and 21.4% strongly agreed with factor four "the teacher devote time mainly to teaching the important aspects of language mainly comprehension, grammar, and writing." When asked about the factors that hinder students' development of critical thinking, Student Four listed several factors that he found hindering the development of his and his classmates' critical thinking not just in English but in other subjects as well; he stated, "I find that adopting the lecture method most of the time, not doing practical experiments, and not allowing students to put forward views and discuss. Also, not giving students enough waiting time while answering questions is one of the biggest problems we as students face." As for Student Six, she believed the main factors are a lack of topical knowledge and bad communication skills; she stated, "I think that the lack of information and communication skills causes an obstacle to the development of our critical thinking." Other factors, which were mainly affective factors, were highlighted by Student Three, who said, "I think being afraid of telling their honest critical opinion is one of the biggest problems that face students when it comes to students' development; also, not being aware of the expressions that should be used in this skill."

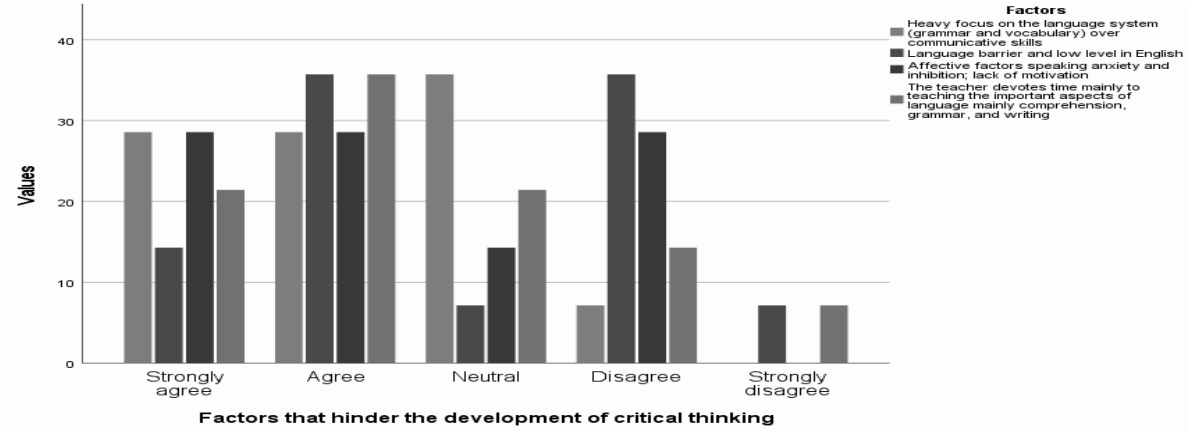



*Figure 3.* Factors that hinder the development of critical thinking from students' view

For the third question, which aimed at exploring the best classroom activities to promote critical thinking from students' view, the students were asked to rank the different activities from the most effective one to the least effective one. The results shown in Figure Four reveal that students preferred the activity of 'class discussions' as 71.4% of them ranked it first. As for the activities 'justifying an opinion' and 'oral presentations' they were both ranked second by 50% of respondents whereas 'constructing and asking questions' and 'learning new vocabulary' were also equally ranked third by 42.9%. Concerning the activities 'answering questions' and 'debates,' they were ranked fourth by 28.6%. Finally, 'reflective interactions' was ranked by only 7.1% as the least relevant activity. These preferences were also evidenced in the interviews as most students preferred certain activities over others; for instance, Student Three stated, "This year, I loved a lot of the activities that we used to participate in, like debates, class discussions, and oral presentations." Student Five also said that "Activities like group discussions, and creative writing have been particularly interesting in class." Similarly, Student Two mentioned, "Some of my favorite class activities are: class discussions and debates between students about a certain controversial topic or issue." In this regard, Student Four shared how he appreciated the time allocated for discussing questions and topics; he said, "The activity I liked most was at the end of each lesson that there was some time allocated to answer our questions. Also, at the end of the lesson, a classmate would suggest a topic, and we discussed it."

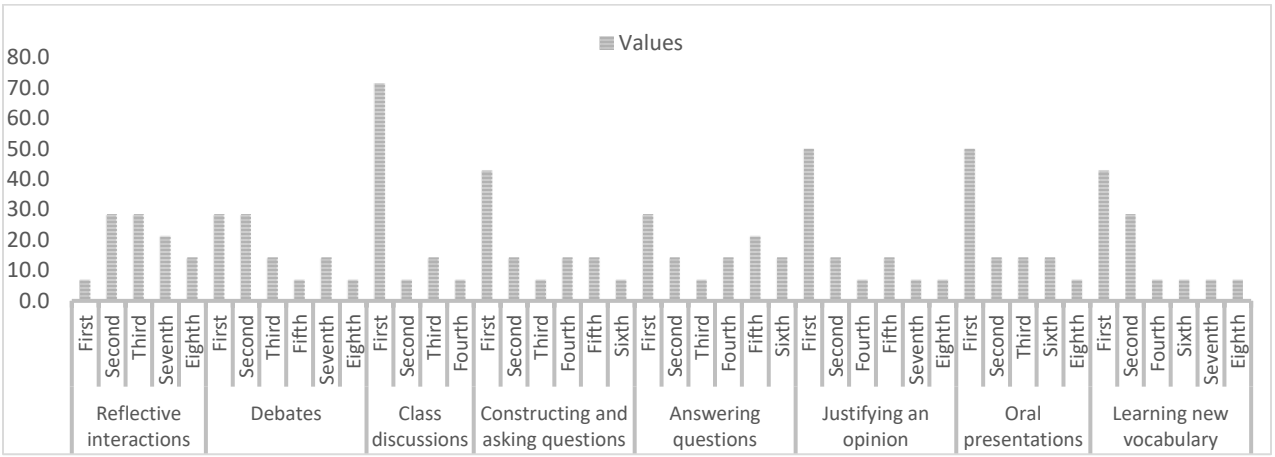



*Figure 4.* Students' ranking of classroom activities that promote their critical thinking


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As for the final research question of this study, which aimed to explore the impacts of these activities on students' critical thinking, students were asked whether they felt a difference in the level of their thinking after or not. As shown in Figure Five, a majority of 85.7% of them voted yes, whereas only 14.3 voted no.

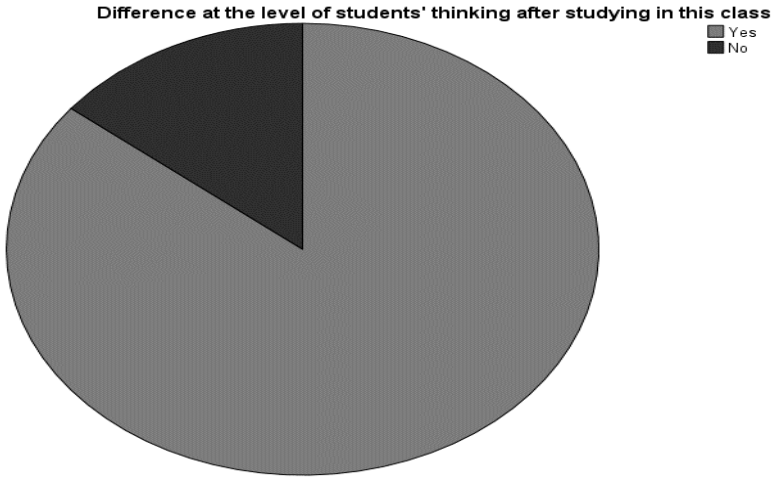



*Figure 5.* Difference in the level of students' thinking from students' view

Students were also asked to report on how they evaluated their thinking skills after the end of the action research cycles and the school year. The skills were the same as the ones used in the observation checklist and included six primary skills proposed by Anderson and Krathwohl's (2001) revised version of Bloom's Taxonomy. The students mainly reported positive results at the level of all six skills as displayed in Figure Six; for instance, 78.6%, 57.1%, 57.1% of students voted good on the following skills: evaluating skill, creating skill and applying skill respectively. Also, a majority of 64.3% voted fair on their level of analyzing skill, and 50% voted fair on their level of understanding and remembering.

As for students' critical thinking dispositions, students were also asked to report on the extent to which they could perform five main mental tasks, as proposed by Facione (2000). Most of them reported positive levels that ranged from extremely to very, as indicated in Figure Seven; for example, 64.5% of students voted that they could process information in an organized and precise manner to a very large extent, and 42.9% reported that they have become open-minded to explore new alternatives views to an equally extreme and very large extent.

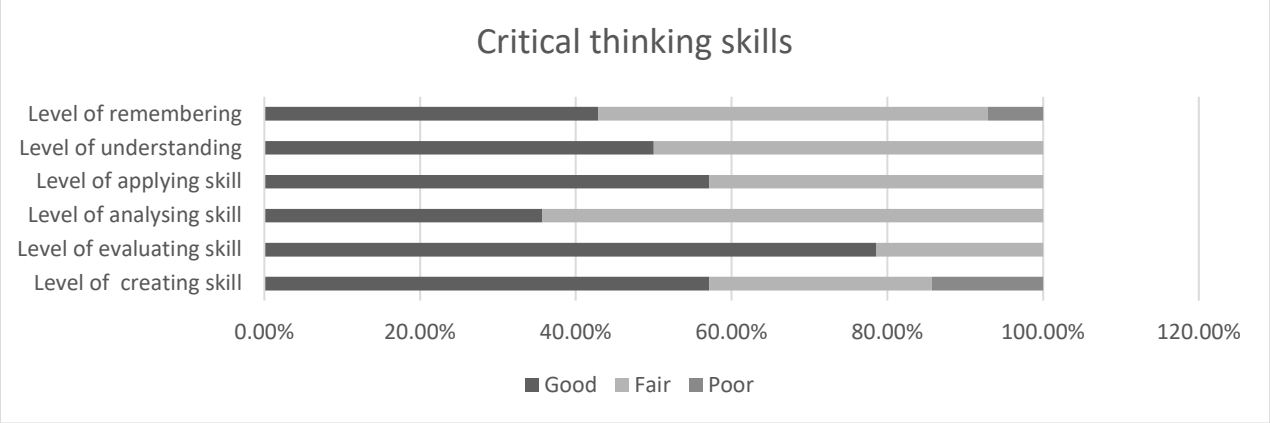



*Figure 6.* Students' critical thinking skills development

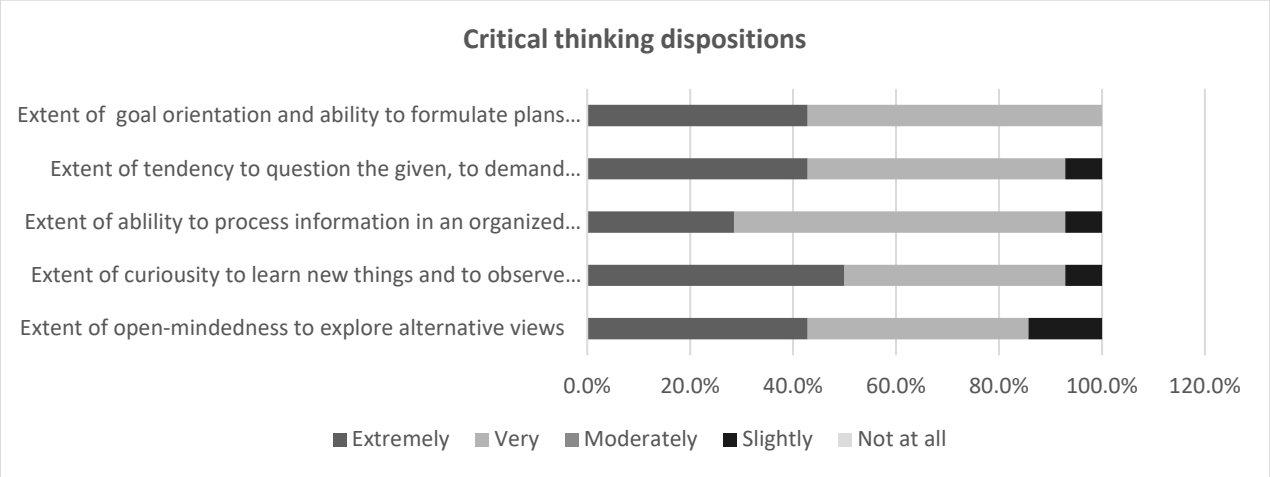



*Figure 7.* Students' critical thinking dispositions development

Different testimonies from the interviews reinforce this impact of integrating critical thinking-based instruction and activities in the classroom and the positive results reported by students in the questionnaires at the level of their skills and dispositions. An example of this is Student Three, who shared how her experience in the classroom has positively influenced her critical thinking as well as communication; she stated, "Indeed, my experience in the English class has enhanced my critical thinking because now I have become more aware of this skill and I learned to speak loudly about what I don't like without being afraid of how others are going to see me." Likewise, Student Three reported, "So in the beginning, I had difficulties in using the mind instead of emotions, but thanks to the English class, I could use the mind instead of emotions. It also helped me to develop better levels of thinking and criticism." Another testimony that was shared by Student Two sheds light on how her experience in class improved her critical thinking as she said, "My experience in the English class has helped me a lot in this because I often accepted the idea as it was and believed it without analyzing it, but in class with our teacher we would discuss many ideas and we would analyze them and see how true they were." Similarly, Student Five stated, "My experience in the English class has enhanced my critical thinking ability by engaging me with different viewpoints and articulating my thoughts effectively."

## Discussion

The current study aimed to investigate and highlight the best critical thinking-based instructional strategies that can be adopted to promote students' critical thinking skills and dispositions. Hence, the study was carried out to address and answer the following four guiding questions: "What is students' level of awareness of the importance of critical thinking? What are the factors that hinder the development of students' critical thinking? What are the best instructional activities for promoting students' critical thinking? What are the impacts of these activities on students' critical thinking?" through adopting a mixed-method action research with one class for one school year. The findings revealed that most students reported that they were aware of the importance of critical thinking and believed that the main factors that hindered the development of their critical thinking were affective factors (i.e., speaking anxiety, inhibition, lack of motivation), and the teacher's devoting more time to teaching the important aspects of language (i.e., comprehension, grammar, and writing). As for the language barrier and low level of English, half of the students believed it hindered their critical thinking development whereas the other half

disagreed. This disparity is mainly due to the different language levels among students in the class which has been apparent during the observation moment during the action research cycle. These findings support the view of Özkaya and Semerci (2022), who classified the barriers that impede promoting critical thinking into individual barriers and environmental barriers.

In addition, the previously presented findings and data from the action research, questionnaires, and interviews report a significant development of students' critical thinking skills and abilities after the implementation of critical thinking-based instruction and activities, which aligns with the reflection moment insights collected after the end of the action research cycle by the teacher and which highlighted how the adoption of such instruction had an impact on students thinking abilities and the overall manifestation of such abilities. Such an improvement serves the purpose of adopting and adapting action research to enhance students' learning (e.g., Burton & Bartlett, 2005; Fox et al., 2007; Herr & Nihlen, 2007; Jarvis, 1999; Menter et al., 2011 as cited in Efron and Ravid, 2013) and develop their critical thinking abilities over a long period of exposure (in this study, a full academic year), which is procedure that has been pinpointed by Niu et al. (2013) to be more effective in accumulating critical thinking skills and dispositions. The findings, hence, prove the hypothesis stipulated earlier which put forward that applying critical thinking-based instructional interventions and strategies, namely exploratory talk-based activities such as classroom discussions, within an action research model leads to promoting students' critical thinking awareness and skills in the classroom and beyond.

## Limitations and Future Implications

Even though one of the known limitations of action research is its limited generalizability, the findings of this study are promising as they prove that students can improve their critical thinking through using critical thinking-based instruction and activities without making any disruptions or reconstructions of the school's curriculum a suggested by Marin and Halpern (2011). Additionally, by adopting mixed methods procedures into the action research cycle, a more 'solid ground' has been provided to sustain the resulting changes and to guarantee the implementation of the action/intervention results in other professional contexts (Ivankova, 2015). Moreover, the current study determines the overall development of critical thinking, including skills and dispositions. At the same time, there should be specific related-topic research on how certain activities (e.g., debates, questioning) can lead to developing certain skills and dispositions. Furthermore, further hypotheses can be formulated and investigated concerning different critical thinking-based instructional interventions such as immersion-based instructional interventions and infusion-based instructional interventions and their effectiveness in the context of EFL education at the secondary level.

## Conclusion

The current study aimed to investigate how adopting action research to implement critical thinking-based instruction in the EFL classroom can help promote students' critical thinking without reconstructing the curriculum. The encouraging observable results obtained from the action research reflection stage and supplemented by findings from the questionnaires and interviews carried out with students align with previous conclusions found in the literature and can be added to the scarce research on students' development of critical thinking at the level of secondary education level. The study showed that students' awareness of the importance of critical thinking in today's world is evident. The study also revealed that two of the primary factors that

can cause a hindrance in the development of critical thinking from students' point of view are affective factors and the time devoted to teaching important aspects of the language over engaging in activities that can foster critical thinking abilities. More importantly, the current study yielded a positive impact of implementing critical thinking-based instruction at the level of both students' critical thinking skills and dispositions as well as their manifestation of those skills and dispositions through the intensive use of exploratory talk during the activities done in class over a long period of exposure. The findings of this study provide a promising example to EFL teachers and practitioners to support students' critical thinking development in the classroom.

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The authors declare no conflict of interest.

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## Appendices

### Appendix A

Table 1. *Summary of stages and procedures of the action research cycle*

| Stages | Procedure |
|---|---|
| Planning | • Shortage or lack of teaching opportunities to develop students' critical thinking abilities was identified as the main issue in class. Consequently, the classroom objectives and lessons were designed to accommodate critical thinking-based activities without affecting the general guidelines that emphasize preparing students to sit for the final national baccalaureate exam at the end of the year.<br>• Most lessons and worksheets included productive writing and speaking activities that targeted students' critical thinking such as: open-ended discussions, debates, role-plays, interviews, etc. |
| Action | • At the implementation stage, students were instructed and encouraged to learn how to ask and use open-ended questions that require a complete answer from their peers. They were also instructed and encouraged to listen well to the asked questions, |

| | |
|---|---|
| | analyze them and justify their answers using logical and sound arguments as well as reflect on their arguments.<br>• Students were given various, recent and individualized topics to discuss and reflect on, and were occasionally asked to suggest topics that interested them. |
| Observation | • A checklist for observations which included two main components: students' engagement and motivation and use of critical thinking skills was developed based on Facione et al., (1994) and Facione (2000) lists of critical thinking skills and dispositions.<br>• Notes were also written down in a manual reflective logbook for whole class performance and individual students after conducting activities that target students' critical thinking. |
| Reflection | • After all the previous stages were implemented, differences at the level of students' thinking and active engagement were highlighted before and after implementation.<br>• The activities used were also periodically evaluated to identify strengths and weaknesses. |