



Exploring Teachers' Level of Use of Critical Thinking in Moroccan High Schools

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Abstract: Critical thinking is one of many learning skills necessary to prepare learners for post-secondary education and eventually the workplace. Every individual needs critical thinking skills to be successful in finding solutions to problems in everyday life. Examining the issue of critical thinking seems to be very essential not only for EFL learners but also for language teachers and syllabus designers. The main objective of this research is to investigate teachers' level of use of critical thinking in the classroom. The population for this study is composed of Moroccan English language high school teachers. The population consisted of both males and females. A survey questionnaire was used to gather data. The quantitative data was analysed using descriptive statistics of means and percentages. The results indicated that the level of teachers' use of critical thinking is (M=2,63). The average to poor results obtained by the participants concerning their level of use of critical thinking may have several distinctive interpretations. Therefore, further research is required to examine the relationship between teachers' level of use of critical thinking and their attitudes.

Keywords: Critical Thinking, High school, Level, Teachers

1. Introduction

It is commonly mentioned in various scientific works that critical thinking skill is one of the most primary skills in the 21st century (Ekici et al., 2017). Critical thinking can be illustrated as a systematic process that permits an individual to assess the evidence, assumptions, and logic underlying his/her opinions and those of others, to cultivate a profound awareness that can influence life in the future (Fajari et al., 2020a). According to Paul and Elder (2016), critical thinking is the knowledge of being able to identify right from wrong. Indeed, it is one of the notions, which we still trying to explain in connection with the distinctive backgrounds, thinking tendencies and traditions of other cultures (Alkin, 2012). Karakoc (2016) defined critical thinkers as those who can think analytically and synthesize information before accepting it. Individuals with advanced critical thinking skills should welcome information only after assessing it on the basis of special criteria instead of taking it as it is without questioning it, studying it in a planned way (Paul and Elder, 2016).

John Hughes (2014) mentioned that all the definitions of critical thinking contribute to the growing picture of what it is. Barnet & Bedau, H. (2016) described critical thinking as a "skeptical state of mind" (P. 3). Critical thinking skills have been defined as a thinking process that needs high cognitive processes (Suwono et al., 2018). Learners who own the ability to think critically can ask questions appropriately, present persuasive data, make realistic decisions from something questionable, and arrive at conclusions consistent in the process of solving a problem (Bustami et al., 2018). Hence, the intention to encourage learners get these abilities need self-awareness as part of the efforts from teachers (Fajari et al., 2020c; Puspita & Aloysius, 2019). In this regard, Halpern (2014) states that

critical thinking does not automatically come as a result of good education. In fact, she proposes, it requires to be developed diligently and explicitly.

2. Literature Review

Education systems nearly all over the world are switching their attention to improve students' higher mental processes, including critical thinking. To develop critical thinking skills, the teacher should assist learners with modern learning, active inquiry, and problem exploration (Changwong, 2018). However, learners who own the basic critical thinking skills, were not able to make use of these skills in different situations they encounter (Ekinci and Ekinci, 2017). Therefore, teachers need good training to encourage their learners to use critical thinking skills appropriately. In reality, teachers' critical thinking skills improve when they are provided with good quality training on critical thinking skills (Korkmaz, 2018). Since critical thinking begins with asking questions, it must be noted here that importance should be given to asking questions in teacher education (Nosich, 2016). So, textbooks should include activities that inspire students to think critically. Mrah (2017) comes to the conclusion that textbook "series do not effectively help learners become critical thinkers." (p. 283). Jebbour (2019) contends that "textbook[s'] designers need to supplement textbooks of the English language with additional activities, and high school teachers of English need to implement new teaching materials and practices to help enhance students' level of CT [critical thinking]" (p. 44).

In Morocco, previous works focused chiefly on textbooks and skills but teachers' knowledge about critical thinking tends to be ignored. The majority of those that examined textbooks adopted Bloom's taxonomy and the critical dispositions to explore EFL textbooks and questionnaires administered to EFL educators and learners (Jebbour, 2019). McPeck (2016) claims that it is meaningless to teach critical thinking skills separately of a context as the person thinks on content or subject when making use of thinking skills. Arrington (2017) mentioned that more than half of the faculty members (58.62%) working in universities believe that critical thinking should be taught on the content basis.

Amrous and Nejmaoui (2016) explored the influence of the academic level on Moroccan university learners' critical thinking skills. The researchers discovered that Moroccan university learners displayed a low level of critical thinking. According to them, this finding is associated with the kind of instruction learners receive, which takes care of teaching language and transmitting knowledge. Chouari (2016) examined learners' opinion (n=10) on the teaching of critical thinking as a taught course. Learners reveal their satisfaction about both the course and the exam. In this regard, it is worth mentioning that Chouari and Nachit (2016) interviewed an experienced professor who had taught the critical thinking course for years. The results showed that large classes, adapting materials designed for different contexts and the lack of professional development are the main barriers facing professors.

2.1. Level of critical thinking

2.1.1. Bloom's Taxonomy of Educational Objectives

This part of this research aims to review the literature regarding the relevance of Bloom's Taxonomy of Educational Objectives in the teaching of critical thinking. Before going any further, it is crucial to say that a taxonomy can be defined as a systematic categorization of elements which is commonly in an orderly connection like low to high or simple to complex (Fredericks, 2005). Categorization, and classification can be described as an organization of items into groups and levels (Wood & Linsey, 2007). A taxonomy is frequently but not all time hierarchical (Baliey, 1994). Hauenstein (1998), for instance, eliminated the belief of exact hierarchy in a taxonomy.

One of the aims of this study is to see whether teachers know the six levels of Bloom's Taxonomy, and how often they use them all within their lessons. Teachers should remember that Bloom's Taxonomy of Educational Objectives is very essential in education because it provides them with ideas about the order in which they should teach. In other words, the hierarchical ordering of skills helps teachers teach and students learn. Bloom's Taxonomy tells teachers that students should not learn just fact, but they ought to understand and apply other skills like analysis, synthesis and evaluation. To reach satisfactory understanding of Bloom's Taxonomy, it is necessary to shed light on both original and revised Bloom's taxonomies.

2.1.2. The original taxonomy

Various scholars refer to Bloom's work to describe critical thinking (Dam & Volman, 2004). Bloom's taxonomy has been practiced at all levels of education, from pre-school education (Bogan & Porter, 2005) to higher education (Granello, 2001) and in all kinds of academic subjects (Zheng et al., 2008). The adoption of this taxonomy is not restricted to the US, it has been applied all over the world (Squire, 2001). The original taxonomy (Bloom, 1956) introduced six basic levels (Figure 1): Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation.



Figure 1. Bloom's Taxonomy of Educational Objectives (Adapted from Bloom, 1956)

Knowledge: This level is described as the behaviours and test conditions that stress recalling data, either by understanding or remembering (Bloom, et al., 1956). Alaimam & Rahman (1983) described knowledge as the level where the learner recalls data either by retrieving or by highlighting the right materials from the non-pertinent ones in textbooks.

Comprehension: With comprehension the learners should not only own knowledge, but should also grasp what they experience (Bloom, 1956).

Application: Bloom (1956) explained this level as the capability to use studied element in different and tangible circumstances.

Analysis: Bloom (1956) illustrated that analysis implied the capability to divide materials into integral sections to grasp its central construction.

Synthesis: Synthesis is assembling components and units to design a complete, working with constituents, sections and connecting them in a way as to form a model or format not certainly there before (Bloom, 1956).

Evaluation: Bloom (1956) stated that evaluation signified the capacity to assess the importance of materials for a particular objective.

The impact of Bloom's original taxonomy has been primarily on teaching (Paziotopoulos & Kroll, 2004) and assessment (Oliver, Dobeles, Greber & Robert, 2004), but effect on standards and syllabi can take place as well (Sosniak, 1994). Surjosuseno and Watts (1999) emphasized that Bloom's (1956) taxonomy offers an important foundation for laying down aims, purposes, outlining, questions, exercises and assessment and as an instrument to guarantee suitable description of numerous sorts of cognitive requirements made on learners.

Bloom's taxonomy, which categorizes cognitive skills into lower and higher levels of thinking, has been described as one of the most prevailing taxonomies employed by instructors for evaluating critical thinking in the classroom (Brookhart, 2010). The lower skills are knowledge, comprehension and application, while higher skills are analysis, synthesis and evaluation. Moving forward from lower-level skills (knowledge) to higher-level skills (evaluation), Bloom's taxonomy introduces cognitive development as the attainment of higher order capabilities, as the student improves from knowledge to evaluation (Christi, 2012).

2.1.3. The revised taxonomy

Bloom's revised taxonomy (Anderson & Krathwohl, 2001) is, as the words suggest, a modification and an improvement of Bloom's original taxonomy (Bloom et al., 1956). Anderson et al.'s (2001) taxonomy includes two essential dimensions. The first stands for the knowledge domain and involves four kinds of knowledge: factual, conceptual, procedural, and metacognitive.

Factual knowledge contains "basic elements students must know, to be acquainted with a discipline or solve a problem in it" (p. 29).

Conceptual knowledge comprises "the interrelationships among the basic elements within a larger structure that enable them to function together" (p. 29).

Procedural knowledge covers "how to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods" (p. 29).

Metacognitive knowledge encompasses "knowledge of cognition in general as well as awareness and knowledge of one's own cognition" (p. 29).

The second dimension is called the cognitive process domain and includes six kinds of thinking. (Figure 2.2.)

Remembering: covers retrieving "relevant knowledge from long-term memory" (Anderson et al., 2001, p. 31).

Understanding: includes building "meaning from instructional messages, including oral, written, and graphic communication."

Applying: suggests completing or making use of "a procedure in a given situation."

Analyzing: comprises dividing material into significant sections and deciding “how parts relate to one another and to an overall structure or purpose.”

Evaluating: involves making “judgments based on criteria and standards.”

Creating: encompasses putting “elements together to form a coherent or functional whole” and reorganizing “elements into a new pattern or structure” (p. 31). (Anderson et al., 2001, p. 31)



Figure 2. Anderson's Taxonomy of Educational Objectives (Adapted from Anderson, 2001)

3. Methodology

3.1 Objective of the study

The primary aim of this part is to examine in detail the methodology used in the research. It outlines the procedures used to investigate teachers' practice of critical thinking in foreign language education classrooms. The objective of this study is to identify the level of teachers' use of critical thinking in teaching practice. Indeed. It aims to answer the following research question:

RQ. What is the level of teachers' use of critical thinking in teaching practice?

3.2 Research design

This research makes use of the quantitative method. Mertens (2009) described the quantitative method as “research that measures variables in a quantifiable way” (p.3). The quantitative method addresses experimentation and the revelation of the cause, or the result of experience and its validity relies on the accuracy and precision of the numerical data (Bryman, 2004). Goodwin (2010) stated that “with quantitative research, the data are collected and presented in the form of number's average scores for different groups on some tasks, percentages of people who do one thing or another, graphs and tables of data, and so on” (p.89). The same idea can be seen in Creswell (2012) who said that “quantitative data, such as scores on instruments, yield specific numbers that can be statistically analyzed, can produce results to assess the frequency and magnitude of trends, and can provide useful information if you need to describe trends about a large number of people.” (P.535).

3.3 Sample

The target population for this research includes Moroccan English language high school teachers. The survey questionnaire was distributed and sent via emails to several participants in order get access to various teachers and reach high response rates from them.

3.4 Instruments

The instrument that was used in this research is the questionnaire. The survey questionnaire was developed in this study by making use of information from the review of the literature. The questionnaire contains 20 items. The statements were based on a 5-point Likert scale with the following choices: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = usually, 5 = Always.

3.5 Validity and reliability

a. Validity

The research instrument of this study was piloted by administering copies of the questionnaire to high school teachers to measure its validity. First of all, validity stands for the extent to which any measuring instrument measures what it is intended to. Content validity, criterion-validity, face-validity, and construction-validity are the famous types of validity.

The results of the pilot study were employed to make an important judgement particularly on content validity to guarantee that it was in agreement with the aims it was outlined to measure. Some experts were asked to assess if the questions are representative of the area of interest and validate the content validity of the items in the questionnaire.

b. Reliability

Reliability means the extent to which a technique works consistently and accurately by giving the same results at different times or when used by different researchers. Based on the results of the pilot study, the researcher discovered the corresponding Cronbach coefficient alpha to be .75 (See Table1). Therefore, one can note that as a whole the instrument has a high degree of reliability.

Table 1. Reliability data

Cronbach's Alpha	N of items
.743	72

3.6 Procedures

The number of participants to whom the questionnaire was administered was a total of 600 copies of questionnaire were distributed over a period of three months. The copies of the questionnaire were delivered in person to English language teachers. Then, the copies of the questionnaire were collected in person a total of 423 were collected from the respondents. Descriptive statistics were used in this investigation to analyze the quantitative data. The data was analyzed using the "Statistical Package for the Social Science" (SPSS) to obtain research statistics. After receiving the completed surveys from 423 respondents in the study, the collected information was uploaded to SPSS 20. The procedures that were employed to analyze the data involved in the following statistical measures: Frequency distribution, Percentages, Means and Standard deviations.

4. Results

This part introduces the data analysis results. It details the findings related to the research question examined in the present study. Descriptive statistics such as means, standard deviations, and percentages were used.

4.1 Teachers' Demographic Characteristics

4.1.1 Gender distribution of the participants

The gender distribution of the sample displays that of the 423 respondents, 62.65% were male (N=265) and 37.35% were female (N= 158), as shown in Figure 3 below.

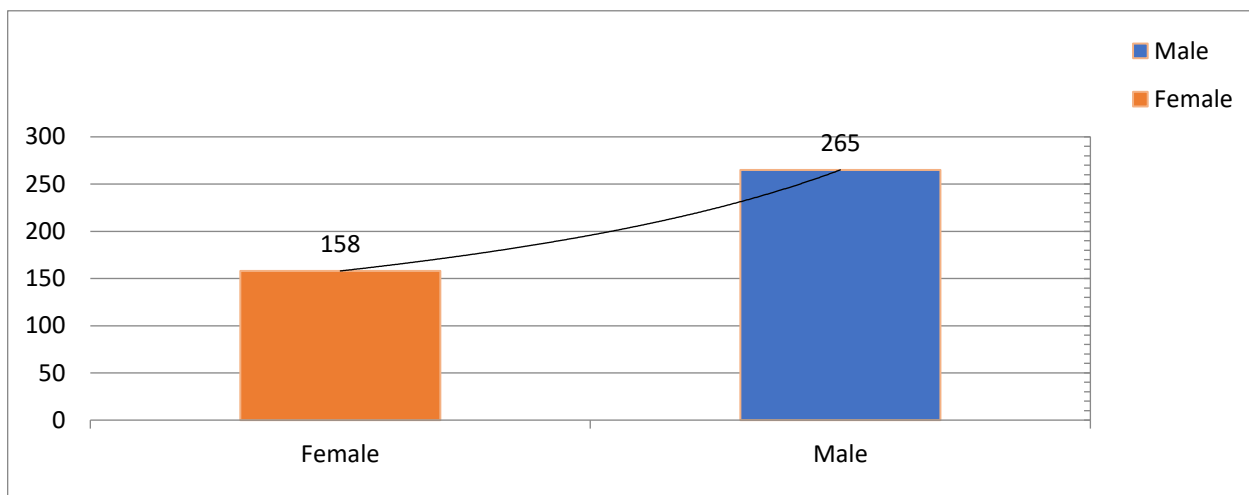


Figure 3. Gender distribution of the participants

4.1.2 Response frequencies for participants' training in critical thinking

The results indicated that the majority of the participants (N=320) received no critical thinking training at all whereas only (N=103) of the respondents mentioned that they had training in critical thinking, as shown in Figure 4 below.

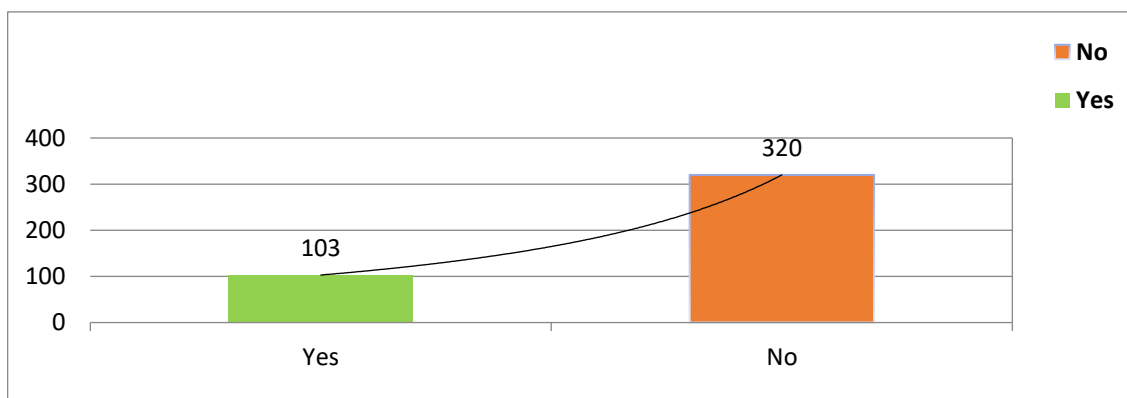


Figure 4. Response frequencies for participants' training in critical thinking

4.2 Results related to the research question

To answer the research question about teachers' level of use of critical thinking, respondents were required to indicate the frequency to which they used the twenty statements. The items were based on a 5-point Likert scale in which each point was given a numerical value ranging from: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Usually, 5 = Always. High scores on each item represented those respondents have a high level of critical thinking, whereas lower scores revealed a low level of critical

thinking. Table (2) Clearly demonstrates teachers' level of use of critical thinking in their classes. Indeed, the questionnaire involves 20 items which can be divided into four groups: (1) teaching techniques which include items from 1 to 5, (2) Bloom's Taxonomy which involves items from 6 to 11, (3) critical thinking standards which comprise items from 12 to 15, and (4) others which contain items from 16 to 20.

4.2.1. Teaching techniques

The first five items were designed to measure teaching techniques (items 1 to 5). The results show that under half of the respondents 44.7% reported they rarely use problem solving activities. This reflects that several English teachers seldom use it. Moreover, 58.9% of respondents affirmed that they rarely use role-play in their teaching. The findings showed that more than half of respondents 53.7% declared they never use classroom debates. Additionally, almost 57% of respondents (56.7%) stated that they rarely use logic puzzles in their classes.

4.2.2. Bloom's Taxonomy

The second six items were designed to measure Bloom's Taxonomy (items 6 to 11). In this part, respondents were asked to indicate the level of their use of the different levels of Bloom's Taxonomy. As displayed in Table (2), 40.7% of respondents declared that they rarely help students recall data they have read or heard about. Under half of respondents 44.2% confirmed that they rarely help students explain concepts they have read or heard about. Nearly, 45% of respondents 44.9% reported that they sometimes help students apply information learned in other contexts. In addition, 41.1% of respondents announced that they rarely help students analyse information. Another 40.7% of respondents noted that they rarely help students assess the quality of the data. Furthermore, almost 42% of respondents 41.6% revealed that they sometimes help students use the information provided to create something new.

4.2.3. Critical thinking standards

The next four items were designed to measure critical thinking standards (items 12 to 15). This study found that 33.3% of respondents acknowledged that they sometimes encourage students to ask questions. 41.4% of respondents asserted that they rarely encourage students to be open-minded. More than half of respondents 50.6% claimed that they sometimes help students explain graphs and photographs. Under half of respondents, 43.5% maintained that they sometimes help students find relevant information themselves.

4.2.4. Others

The last five items were designed to measure other factors (items 16 to 20). As can be noted from Table (2), a considerable number of English language teachers 61.7% stressed that they rarely help students distinguish facts from opinions. Furthermore, under half of respondents, 48.5% notified that they rarely help students listen critically. Additionally, approximately 67% of respondents (66.2%) confessed that they rarely help students compare and contrast multiple sources of information.

So as to further examine the level of teachers' use of critical thinking in teaching practice, means and standard deviations were carried out. In all, higher mean scores on each item showed a high level of critical thinking, whereas lower mean scores indicated a low level of critical thinking. The total overall mean of means score for this section was reported to be ($M=2,63$) with an overall standard deviation of ($SD=0,69$).

Table 2. Response frequencies for teachers' level of use of critical thinking

No.	Level of the use of critical thinking	Never	Rarely	Sometimes	Usually	Always
1	How often do you use problem solving activities?	1.9	44.7	41.8	10.4	1.2
2	How often do you use role play?	0.9	58.9	24.6	12.3	3.3
3	How often do you employ brainstorming?	0.0	3.8	32.9	34.0	29.3
4	How often do you use classroom debates?	53.7	26.0	15.3	4.5	0.5
5	How often do you use logic puzzles?	20.1	56.7	20.3	2.6	0.2
6	How often do you help students recall data they have read or heard about?	0.0	40.7	39.0	15.1	5.2
7	How often do you help students explain concepts they have read or heard about?	0.7	44.2	35.5	16.5	3.1
8	How often do you help students apply the information learned in another context?	0.2	31.7	44.9	20.6	2.6
9	How often do you help students analyse information?	19.00	41.1	25.5	11.8	2.6
10	How often do you help students assess the quality of the data?	30.0	40.7	20.6	7.3	1.4
11	How often do you help students use the information provided to create something new?	0.7	35.5	41.6	16.8	5.4
12	How often do you encourage students ask questions?	2.1	30.0	33.3	20.4	14.2
13	How often do you encourage students to be open-minded?	13.5	41.4	18.7	14.4	12.0
14	How often do you help students explain graphs and photographs?	1.0	19.6	50.6	26.2	2.6
15	How often do you help students find relevant information themselves?	0.9	33.3	43.5	20.3	2.0
16	How often do you help students distinguish facts from opinions?	8.7	61.7	18.7	9.0	1.9
17	How often do you help students list several solutions for the problem?	38.1	31.4	17.0	10.6	2.9
18	How often do you help students deduce and infer conclusions from available facts?	0.8	43.0	33.6	19.1	3.5
19	How often do you help students listen critically?	17.5	48.5	20.1	10.6	3.3
20	How often do you help students compare and contrast multiple sources of information?	2.4	66.2	21.3	8.3	1.8

Note: 1=Never, 2=Rarely, 3=Sometimes, 4=Usually, 5=Always

Obviously, mean scores for these items range from (M=1, 72) to (M=3, 89) and the standard deviations from (SD=0, 72) to (SD=1, 22). The three items that had the highest mean scores were observed for item (3) "How often do you employ brainstorming?" (M=3,89; SD=0,87), item (12) "How often do you encourage students ask questions?" (M=3, 14; SD=1, 06), and item (14) "How often do you help students explain graphs and photographs?" (M=3, 10; SD=0, 76). From this, one can note that these items were the most frequently used by English teachers who took part in this study. However, the three lowest mean scores were reported for item (4) "How often do you use classroom debates?", item (5) "How often do you use logic puzzles?" and item (10) "How often do you help students assess the quality of the data?" Mean scores for these statements were (M=1,72; SD=0,91), (M=2,06; SD=0,72) and (M=2,09; SD=0,95), respectively. Hence, it is possible to say that items (4),

(5), and (10) were less frequently used by English teachers. In a similar vein, the highest standard deviation ($SD=1,22$) was observed for item (13) “How often do you encourage students to be open-minded?”, whereas the lowest standard deviation ($SD=0,72$) was noticed for item (5) “How often do you use logic puzzles?”.

Table 3. Means and standard deviations of teachers’ level of use of critical thinking

No.	Level of the use of critical thinking	M	SD
1	How often do you use problem solving activities?	2,64	0,74
2	How often do you use role play?	2,58	0,84
3	How often do you employ brainstorming?	3,89	0,87
4	How often do you use classroom debates?	1,72	0,91
5	How often do you use logic puzzles?	2,06	0,72
6	How often do you help students recall data they have read or heard about?	2,85	0,86
7	How often do you help students explain concepts they have read or heard about?	2,77	0,84
8	How often do you help students apply the information learned in another context?	2,94	0,79
9	How often do you help students analyse information?	2,38	1,00
10	How often do you help students assess the quality of the data?	2,09	0,95
11	How often do you help students use the information provided to create something new?	2,91	0,87
12	How often do you encourage students ask questions?	3,14	1,06
13	How often do you encourage students to be open-minded?	2,70	1,22
14	How often do you help students explain graphs and photographs ?	3,10	0,76
15	How often do you help students find relevant information themselves ?	2,89	0,80
16	How often do you help students distinguish facts from opinions?	2,34	0,83
17	How often do you help students list several solutions for the problem?	2,09	1,10
18	How often do you help students deduce and infer conclusions from available facts?	2,82	0,87
19	How often do you help students listen critically?	2,34	0,99
20	How often do you help students compare and contrast multiple sources of information?	2,41	0,75
Total		2,63	0,69

Note: 1=Never, 2=Rarely, 3=Sometimes, 4=Usually, 5=Always

5. DISCUSSION

The current study examined teachers’ practice of critical thinking in Moroccan high schools. Part one of the survey questionnaire collected information about teachers’ demographic characteristics such as gender and training. The results of the present study indicated that there were more male teachers (62.65%, $N=256$) than female teachers (37.35%, $N=158$). Additionally, most of the respondents (75.65%) reported that they have never had any critical thinking training.

The findings showed that the overall mean for the use of critical thinking is ($M=2.63$) suggesting that critical thinking is rarely used by teachers. The average to poor results obtained by the participants concerning their level of use of critical thinking possibly indicate that they haven’t yet developed the skills to teach critical thinking. Therefore, it can be said that teachers’ critical thinking skills need to be developed.

This result is in compliance with the findings of Şen (2009) who examined Turkish teacher candidates’ critical thinking levels with regard to the dispositions dimension with a sample of 144 participants. She revealed that their critical thinking levels were at a moderate level. A similar finding was reported by Korkmaz (2009) who investigated critical thinking levels and dispositions of teachers.

The results showed that the participating teachers' critical thinking levels were at a medium level. Hence, teachers with an unsatisfactory level of critical thinking could be incompetent in teaching it.

There are various possible explanations for the average to poor results regarding teachers' level of use of critical thinking. First, the findings of this study showed that the majority of the participants (75.65%) revealed that they hadn't benefited from any training programmes regarding the implementation of critical thinking in the classrooms whereas only (24.35%) of them who acknowledged that they received training in critical thinking. In the light of this, one can conclude that lack of training in critical thinking might be an excuse for many teachers for not using critical thinking with their learners. Perhaps, assigning opportunities for teachers to learn specific knowledge or skills to improve their performance in critical thinking, would provide greater motivation for respondents and increase their level of use of critical thinking. In other words, good quality training might help teachers understand the importance of critical thinking in education and feel confident about their ability to use it in their classrooms.

Another important possible explanation for the average to poor results concerning the participants' level of use of critical thinking may be revealed by close examination of some of the statements involved in the study. As displayed in Table (3), the first lowest mean score ($M=1,72$; $SD=0,91$) was observed for statement "How often do you use classroom debates?". The second lowest mean score ($M=2,06$; $SD=0,72$) was noted for statement "How often do you use logic puzzles?". Another lowest mean score ($M=2,09$; $SD=0,95$) was observed for statement "How often do you help students assess the quality of the data?". In the light of information provided, one can note that classroom debates and logic puzzles are rarely used by teachers participating in this study. It is possible to say that teachers did not use classroom debates to promote critical thinking in class since this teaching technique is incompatible with students' level of English. However, if teachers want to get their learners excited about what they are learning and use critical thinking skills, classroom debates should be part of their classroom activities.

6. Summary of the findings

The present study examined teachers' practice of critical thinking in education. The main objective was to find out the level of teachers' use of critical thinking in teaching practice. The results revealed that the overall mean for this category is ($M=2.63$) which means that the level of teachers' use of critical thinking is average to poor. The conclusion that can be drawn from this finding is that critical thinking is still at the elementary stage in Moroccan high schools. This also means that teachers do not regularly use critical thinking in their teaching may be because of lack of understanding of teaching methods that can enhance critical thinking skills among their learners. Therefore, the role of teachers is now more complex than ever simply because students' needs are frequently changing due to a rapidly changing world. In the face of constant change, learners will need to have various skills to keep up with the latest changes and general developments. In the light of information provided, one can conclude the average to poor results concerning teachers' level of use of critical thinking means that teachers need effective training on how to use critical thinking in their classes.

7. Pedagogical implications

The study includes important theoretical implications related to the practice of critical thinking in Moroccan high schools. These can be summed up as follows:

- Textbooks need more critical thinking activities and open-ended questions that will inspire students to think critically. There are numerous benefits that can be achieved from the

construction of open-ended questions. For instance, open-ended questions encourage students to have a say in what happens and be free to tell their opinion. Since these types of questions require more than a one-word answer, students will be encouraged to speak and ultimately enhance their vocabulary skills. Therefore, more open-ended questions should be used by teachers to encourage learners to think critically. In this regard, teachers might invite a colleague to come into their classroom observe and record questions the teacher asks during that hour. Doing so, the teacher might know the type of questions he/she uses most.

- To increase the rate of integrating critical thinking in the classroom, the Ministry of Education should organize training sessions for teachers on the use of critical thinking in education.
- Large classes of students can be more challenging especially for teachers who would like to integrate critical thinking in their classes. Therefore, small class sizes are required to get all students engaged in learning.
- Critical thinking should be introduced in all Moroccan schools including primary and middle schools.

8. Recommendations for future research

Based on the findings of this study, the need for additional research is required. The proposed ideas may involve:

- The geographic location of schools may also have major roles to play in critical thinking practice in Moroccan high schools. Critical thinking development in rural areas and villages can bring up more problems and challenges than urban areas. Hence, conducting a comparative study of the usefulness of critical thinking in rural and urban areas in Morocco would be worthwhile. Such research can help to determine whether critical thinking is suitable for education in both areas.
- So as to reach a satisfactory understanding regarding teachers' practice of critical thinking in Moroccan high schools, a similar study using teachers from different subject matters must be conducted.
- Culture might have a strong influence on how well teachers implement critical thinking with their learners. This research involved teachers from different cities in Morocco. Therefore, further study could be carried to determine whether the cultural background of teachers impacts the successful integration of critical thinking in education.

The findings showed that administrative support is one of the difficulties that stop teachers from integrating critical thinking in their classes. Therefore, further research on the causes of the lack of communication between teachers and administrative staff is required.

References

- Alaimam, M. M., & Rahman, A. A. (1983). *Evaluation and Measurement*. Beirut, Lebanon: Dar al-Hikma.
- Alkin S (2012). Evaluation of Primary School Teachers' Behaviors to Support Critical Thinking. Unpublished Doctoral Thesis. Ankara University. Institute of Education Sciences. Ankara, TR.
- Amrous, N., & Nejmaoui, N. (2016). A Developmental Approach to the Use of Critical Thinking Skills in Writing: The Case of Moroccan EFL University Students. *Arab World English Journal, ASELS Annual Conference Proceedings*, 142-156.

- Anderson, J. R., & Krathwohl, D.R. (Eds.). (2001). *A taxonomy for learning, teaching and assessing: A revision of Bloom's taxonomy of educational objectives*: Complete edition. New York: Longman.
- Arrington, W. T. (2017). An analysis of the teaching of critical thinking skills in history in postsecondary education. Unpublished doctoral dissertation, Texas Wesleyan University, Texas.
- Bailey, K. D. (1994). *Typologies and taxonomies. An introduction to classification techniques* (Sage university paper series on Quantitative applications in the social sciences, series no. 07-102). Thousand Oaks: Sage.
- Barnet, S. & Bedau, H. (2016). *Critical thinking, reading and writing a brief guide to argument*. Bedford/St. Martin's
- Benjelloun, M., & El Kirat, Y. (2019). Blooms taxonomy and Moroccan children's vocabulary and critical thinking skills development. *Arab World English Journal (AWEJ)*, 10(2), 342 -352.
- Bloom, B. (1956). *A Taxonomy of Educational Objectives, Handbook 1: Cognitive Domain*. New York: McKay
- Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H. & Krathwohl, D. R. (1956). *Taxonomy of educational objectives: Handbook I: Cognitive domain*. New York: David McKay.
- Bogan, Y. K. H., & Porter, R. C. (2005). *On the ball with higher-order thinking*. *Teaching Pre-K-8*, 36(3), 46-47.
- Brookhart, S.M. (2010). *How to Assess Higher-Order Thinking Skills in Your Classroom*. Alexandria: ASCD.
- Bryman, A. (2004) *Social Research Methods*, 2nd ed, New York: Oxford University Press.
- Bustami, Y., Syafruddin, D., & Afriani, R. (2018). The implementation of contextual learning to enhance biology students' critical thinking skills. *Jurnal Pendidikan IPA Indonesia*, 7, 452-453.
- Changwong, K., Sukkamart, A., & Sisan, B. (2018). Critical thinking skill development: Analysis of a new learning management model for Thai high schools. *Journal of International Studies*, 11, 40-41.
- Chouari, A. (2016). Teaching critical thinking in Moroccan higher education: Challenges and opportunities. *Arab World English Journal (AWEJ)*, 7(2), 457-467.
- Chouari, A., & Nachit, M. (2016). Teaching and assessing 21st century critical thinking skills in Morocco: A case study. *Arab World English Journal (AWEJ)*, 7(4), 21-41.
- Christi, N. V. (2012). An Interpersonal Skills Learning Taxonomy for Program Evaluation Instructors. *Journal of Public Affairs Education*, 18(4), 741-756.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Upper Saddle River, NJ: Pearson Education.
- Dam, G. T., & Volman, M. (2004). *Critical thinking as a citizenship competence: Teaching strategies*. *Learning and Instruction*, 14(4), 359-379.

- Ekici G, Abide OF, Canbolat Y, Ozturk A (2017). Analysis of data sources of 21st century skills. *Journal of Education and Training Research* 6:124-134.
- Ekinci CE, Ekinci N (2017). A study on the relationships between teachers' critical dispositions and their perceptions of occupational professionalism. *Educational Process: International Journal* 6(2):53- 78.
- Fajari, L. E. W., Sarwanto & Chumdari. (2020a). The effect of problem-based learning multimedia and picture media on students' critical-thinking skills viewed from learning motivation and learning styles in elementary school. *Elementary Education Online*, 19, 1979-1811.
- Fajari, L. E. W., Sarwanto., & Chumdari. (2020b). Student critical thinking skills and learning motivation in elementary students. *Journal of Physics Conference Series*, 1440, 1-9.
- Fredericks, A.D. (2005). *The complete idiot's guide to success as a teacher*. New York: Penguin Group.
- Goodwin, C. J. (2010). *Research in psychology: Methods and design* (6th ed.). Hoboken, NJ: Wiley.
- Granello, D. H. (2001). Promoting cognitive complexity in graduate written work: Using Bloom's taxonomy as a pedagogical tool to improve literature reviews. *Counselor Education & Supervision*, 40(4), 292-306.
- Hakim, M. F., Sariyatun & Sudiyanto. (2018). Constructing student`s critical thinking skill through discovery learning model and contextual teaching and learning model as solution of problems in learning history. *International Journal of Multicultural and Multireligious Understanding*, 5, 175-183.
- Halpern, D. F. (2014). *Thought and knowledge: An introduction to critical thinking*. New York: Taylor & Francis.
- Hauenstein, A. D. (1998). *A conceptual framework for educational objectives. A holistic approach to traditional taxonomies*. Lanham: University Press of America.
- Hughes, J. (2014). *Critical thinking in the language classroom*. ELI Publishing
- Jebbour, M. (2016). Critical thinking in the Moroccan textbooks of English: Ticket to English as a case study. *World Academy of Science, Engineering and Technology, International Science Index, Cognitive and Language Sciences*, 10(1).
- Jebbour, M. (2019). Exploring the manifestation of critical thinking in the Moroccan textbooks of English: The case of "Ticket 2 English". *Journal of English Educators Society*, 4(1), 39-45.
- Karakoc, M. (2016). The significance of critical-thinking ability in terms of education. *International Journal of Humanities and Social Science*, 6/7, 79-95.
- Korkmaz SZ (2018). The Effect of Critical Thinking Skills Education on Teachers' and Students' Critical Thinking Skill. Unpublished Doctoral Thesis. Ataturk University. Institute of Education sciences. Erzurum, TR.
- Korkmaz, Ö. (2009). Teachers' critical thinking level and dispositions. *Ahi Evran University Kırşehir Journal of Education*, 10(1), 1-13.

- McPeck, J. E. (2016). *Critical thinking and education*. Routledge.
- Mertens, D. (2009) *Research and Evaluation in Education and Psychology: Integrating Diversity with Quantitative, Qualitative, and Mixed Methods*, 3rd ed, Newbury Park, CA: Sage.
- Moseley, D., Baumfield, V., Elliott, J., Gregson, M., Higgins, S., Miller, J., & Newton, D. P. (2005). *Frameworks for thinking: A handbook for teaching and learning*. Cambridge: Cambridge University Press.
- Mrah, I. (2017). Developing higher order thinking skills: Towards a rethinking of EFL coursebooks in Moroccan high schools. *Journal of English Language Teaching and Linguistics*, 2(3), 225-243.
- Nosich MG (2016). *Critical thinking and interdisciplinary critical thinking guide* (Trans.B. Aybek). Ankara: Ani Publishing.
- Paul R, Elder L (2016). *Critical thinking*. Istanbul, TR: Nobel Publishing.
- Paul, R. & Elder, L. (2019). *The miniature guide to critical thinking concepts and tools* (8th Ed.). New York: Thinker's Guide Library.
- Paziotopoulus, A., & Kroll, M. (2004). *Hooked on thinking*. *Reading Teacher*, 57(7), 672-677.
- Puspita, A. S., & Aloysius, S. (2019). Developing student's critical thinking skills through implementation of problem based learning approach. *Journal of Physics Conference Series*, 1241, 1-8.
- Şen, Ü. (2009). The evaluation of the various variables of Turkish teacher candidates' critical thinking attitude. *Journal of World of Turks*, , 1 (2), 69-89.
- Sosniak, L. A. (1994). *The taxonomy, curriculum, and their relations*. L. W. Anderson, & L. A. Sosniak (Eds.), *Bloom's taxonomy: A forty-year retrospective* (pp. 103-125). *Ninety-third Yearbook of the National Society for the Study of Education*. Chicago: University of Chicago Press.
- Squire, P. J. (2001). *Cognitive levels of testing agricultural science in senior secondary schools in Botswana*. *Education*, 121(3), 597-603.
- Surjosuseno, T. T. & Watts, V. (1999) *Using Bloom's taxonomy to teach critical reading in English as a foreign language classes*. *Contents*, 15(1), 227-244.
- Suwono, H., Pratiwi, H. E., Susanto, H., & Susilo, H. (2018). Enhancement of students' biological literacy and critical thinking of biology through socio-biological case-based learning. *Jurnal Pendidikan IPA Indonesia*, 6, 214-215.
- Szenes, E., Tilakaratna, N., & Maton, K. (2015). *The knowledge practices of critical thinking*. In M. Davies & R. Barnett (Eds.), (573-591). *The Palgrave handbook of critical thinking in higher education*. New York, NY: Springer.
- Wood, K. L., & Linsey, J. S. (2007). *Understanding the art of design: Tools for the next Edisonian innovators*. In A. B. Markman, & B. H. Ross (Eds.), *Categories in use* (pp. 65-122). Amsterdam: Elsevier.