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INFLUENCE OF TEACHING EXPERIENCE ON TEACHERS' LEVEL OF USE OF CRITICAL THINKING

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Abstract
Critical thinking is very important in the area of education, because it is an essential tool for solving problems and making good decisions. Through applying critical thinking in learning, students can become creative in discovering the best method of learning and organizing their work. Therefore, critical thinking is not an educational choice and all learners should be taught to think critically. The primary objective of this paper is to study whether teaching experience played a role in teachers' level of use of critical thinking. The quantitative method was used. The respondents of the study were Moroccan English high school teachers. A questionnaire was used to collect data from teachers. Both the online version and the paper-based version of the questionnaire were used to gather data from the participants. A total of 423 questionnaire were collected from the respondents. The Statistical Package for Social Sciences (SPSS) version 19 was used to analyze the data. The findings reveal that teaching experience significantly impacts teachers' level of use of critical thinking. This suggests that there is a connection between teachers' effectiveness and years of experience.

Keywords: Critical Thinking, Impact, High school, Teachers, Teaching experince

Introduction
The ability to think is often regarded as one of the primary aims of education at different level. Marzano, Brandt, & Presseisen (1988) say that thinking can be considered as an implementation of metacognition, creative thinking, and critical thinking and that there are unlimited lists of thinking processes. Along the same lines, Beyer (1997) proposes that educators can enhance the quality of learners' thinking by offering them favorable circumstances to take part in the kinds of thinking to be developed.

Critical thinking is described as a multidimensional construct that necessitates skills, reasoning, and selfregulation (Bensley & Murtagh, 2012). Critical thinking is not a recent notion. '' Throughout nearly 300 years of policymaking in the United States, educators have promoted eight broad goals of schooling: basic academic skills, critical thinking and problem solving, social skills and work ethic, citizenship, physical health, emotional health, the arts and literature, and preparation for skilled employment'' (Rothstein, Wilder, & Jacobsen, 2007, p. 8). According to Williams (2005), ''critical thinking is important in all academic

disciplines within democratic education, but it is indispensable in the field of teacher education'' (p.164). As critical thinking is an essential feature in intellectual development, knowledge acquisition, and knowledge utilization in individuals, instructors are supposed to cultivate learners' critical thinking skills. (Wangensteen, Johansson, Bjorkstrom, & Nordstrom, 2010).

Recent studies propose that critical thinking should be introduced into the whole curriculum with explicit instruction of critical thinking rules being taught to students at the beginning of the course to take advantage of innate thinking chances as well as constructing thinking classrooms (Alan Bensley and Spero, 2014). The point to make here is that studies into the teaching of thinking indicate that the enhancement of thinking profits more when educators offer explicit instruction, rather than just develop thinking without direct instructions (Abrami et al. 2008). According to Bataineh and Zaghoul (2006), critical thinking abilities can be taught and learnt well by offering suitable instruction, and, to reach this goal, educators should be trained in such skills (p. 38). Taking the same line of thought, Sadler (1989) stated that critical thinking skills are essential skills for developing learners' academic performance, and for the best learning results it is crucial to offer explicit instruction in the system. Besides, experimental research has proposed that explicitly teaching thinking skills enhanced adult learners' abilities to critically analyze course content and arguments (Penningroth, Despain, & Gray, 2007).

Literature Review

Before going any further, it is important to mention that Dewey (2009) asserts that it is hard to define thinking and thought, the product of thinking, because "everything that comes to mind, that goes through our heads, is called a thought" (p. 1). Lipman (1989) defined thinking as : " the conscious processing of experience " (p.5). In the same sense, Marzano, Brandt, & Presseisen (1988) state that thinking has numerous elements, like focusing skills, information-gathering skills, remembering skills, organizing skills, analyzing skills, generating skills, integrating skills and evaluating skills. Al-Atoom et al. (2007) further contend that an individual's thinking is influenced by the style of their childhood, motivation, abilities, and educational level, which all strengthen the uniqueness of every individual's particular reasoning. Chaffee (1988) probes the relationship between thinking and critical thinking by providing their definitions. Chaffee (1988) states that "thinking is our active, purposeful, organized efforts to make sense of the world" whereas "critical thinking is making sense of our world by carefully examining our thinking, and the thinking of others, in order to clarify and improve our understanding" (p.5). Dewey (1933) affirms that "critical thinking is clearly something to do with thinking, but again it is not all the process of thinking. Like reflection, it implies more detail than the generic term of thinking" (1933 as cited in Moon, 2008, p. 25).

The origin of critical thinking dates back to Plato. Philosophers like Socrates, Plato, and Aristotle considered critical thinking as the ability to ask questions, test, and think about ideas and values (McConnell, 2008). Indeed, there are diverse views about critical thinking since it is a complex concept and involves complex activities and mental processes that are not easy to describe and measure (Vacek, 2009). The significance of critical thinking can be historically traced to

1933 when Dewey said that the main goal of education is learning to think. Dewey (1938) stated that learning to think is the primary aim of education. Al-Qasmi (2006) states that, although critical thinking started with Socrates over 2,500 years ago, it is John Dewey who is often regarded as the founder of the modern-day tradition of critical thinking. This is affirmed by Ennis (1993), who cites Dewey's (1910) work ''How We Think'' as the seminal work in modern critical thinking which identifies it as a major educational goal. Al-Qasmi (2006) underlines the idea that Bloom (1956) was among the earliest writers on modern critical thinking theory.

Many teachers and researchers have declared that engaging in critical thinking demands pertinent skills and dispositions (Giancarlo et al. 2004). Facione and Facione (2008) outlined critical thinking skills as an interactive, reflective, reasoning process of making a judgement about what tobelieve and what to do. Along similar lines, Burke et al., (2007) suggested that cognitivists have tried to classify thinking skills by "using hierarchal frameworks. These frameworks differ in terms of terminology and in whether they are purely cognitive skill frameworks or include metacognitive and effective skills and dispositions whilst research on thinking would benefit from further conceptual clarification " (p.2). Various scholars contend that the cognitive skills and mental abilities included in critical thinking such as interpretation, analysis, evaluation, inference, explanation, and self-regulation are at the core of critical thinking (Facione, 1990). In this respect, Pascarella and Terenzini (1991) reveal that thinkers who employ cognitive skills do some or all of the following: identifying basic affairs and expectations in an argument, recognizing essential relationships, making correct inferences from data, deducing conclusions from information or data provided, interpreting whether results are justified on the basis of the data given.

Numerous educators frequently do their best to involve learners in critical thinking activities (Tempelaar, 2006), and learners rarely employ critical thinking skills to answer complex, real-world problems (Bartlett, 2002). Pinkney and Shaughnessy (2013) state that "educators must teach critical thinking because critical thinking is a skill which makes people fully human" (p. 351). "The more clear and explicit instructors are about what they want students to learn, the more likely it is that students will succeed in learning" (McPhail, 2005, p.65).

During the 1970s and 1980s, it was proposed that there was a connection between instructors' effectiveness and years of experience (Murnane & Phillips, 1981). Indeed, research concerning experienced teachers revealed that experienced teachers are usually familiar with the content they teach, and act differently in the classroom than novice educators do (Wolters & Daugherty, 2007). The level of experience and knowledge may have an influence on teachers' ability to teach (Murley, Keedy, & Welsh, 2008). For instance, Tschannen-Moran and Hoy (2007) asserted that experienced educators may promote higher self-efficacy as a result of the sincere favorable outcomes they experience with learners in the classroom. Some scholars have contended that critical thinking improves as the result of experience or as a logical result of a college education and /or experience (Gellin, 2003). Previous studies indicated that differences do occur between novice instructors and those instructors who are more experienced with reference to pedagogical knowledge, classroom management, problem

solving, decision making, and sensitivity to classroom affairs (Palmer, Stough, Burdenski, & Gonzales, 2005).

Semmar and Fakhro's (2009) research explored how elementary school educators in Qatar could strengthen learners' critical thinking skills in their classrooms. A critical thinking skills' questionnaire based on Bloom's taxonomy of educational objectives, cognitive domain, was used to examine educators' frequency of making use of particular critical thinking activities. Results revealed significant differences between public schools and private ones on the application, analysis, synthesis, and evaluation levels, but not on knowledge and comprehension. No significant differences were noticed between the two types of instructors, based on years of teaching experience. Another academic investigation proposes that experience may help with effectiveness although some experienced educators typically become less active later in their careers (Chingosa & Peterson, 2010). Wolters and Daugherty (2007) noted that educators with more years of experience felt more confident in their capability to make use of instructional and assessment practices that would aid even the most difficult learners. Hattie (2009) makes a distinction between experienced and expert instructors, proposing that experience alone is not adequate to determine effectiveness.

Method

This study aims to answer the following research question: are there any statistically significant differences between teachers' use of critical thinking with respect to teaching experience? Based on this research question, one independent variable and one dependent variable were discovered. The independent variable involves the demographic variable, gender, and the dependent variable includes teachers' level of use of critical thinking in teaching practice (DV). The study used a quanitative approach to assess the impact of teaching experience on teachers' level of use of critical thinking. 423 respondents took part in this study from different Moroccan high schools. The questionnaire was used as a data collection instrument to gather information.

Pilot testing of the questionnaire was conducted in this study to examine the instrument using participants' comments (Creswell, 2012). Admittedly, all data-gathering should be piloted ''to check that all questions and instructions are clear and to enable the researcher to remove any items which don't yield usable data'' (Bell, 1999,p.84). Conducting piloting is beneficial in the sense that it helps to discover any vagueness of the questions or any confusion (Creswell, 2012). The pilot study of the new instrument was carried out with 30 English language high school teachers. The high school instructors were invited to fill out and evaluate the instrument. They were asked to complete the questionnaire and return it with their feedback and comments. The copies of the questionnaire were handed back to the researcher. Based on questionnaire responses and problems that emerge after the pilot study, numerous modifications were made to simplify items on the questionnaire.

The questionnaire was distributed and sent via emails to many teachers to reach high response rates from participants. The mail facilitated ''quick data collection, often in as little time as 6 weeks from the first mailing to the

conclusion of data collection. A mailed questionnaire is economical because it involves only duplication and mailing expenses'' (Creswell,2012,p.383).

Descriptive and inferential statistics were employed in this study to analyze the quantitative data. The data was analyzed using the "Statistical Package for the Social Science" (SPSS) to obtain research statistics. The procedures that were employed to analyze the data involved in the following statistical measures: Means, Standard deviations, and One-Way ANOVA.

Ethical Issues

Ethics "define what is or is not legal to do or what moral research procedure involves" (Newman, 2003, p.19). Johnson (2008 p, 101) proposes that ethics are ''principles and guidelines that help us uphold the things we value''. In this research, three central ethical points were considered. Firstly, the researcher clarified the aims of the research, the questions, instruments, and the length of time it would take. Therefore, all the respondents approved that they realize the objective of the study, why they were chosen. The participants have a right to know that the data gathered from them is kept confidential (Oates, 2006). Secondly, participation was voluntary and anonymous. Thirdly, the participants' privacy and confidentiality of data were well protected by using numbers to returned instruments. In this regard, the investigator has a responsibility to obey the rights, needs, values, and desires of the participants. (Creswell, 2009). Protecting the anonymity of the participants of this study can be done by ''assigning numbers to returned instruments and keeping the identity of individuals confidential offers privacy to participants'' (Creswell 2012, p.926)

Findings and Discussion

Teachers' Demographic Characteristics :

Gender distribution of the participants

423 English language high school teachers participated in this study. As shown in figure (4.1), 62,65% were male (N=265) and 37,35% were female (N= 158).

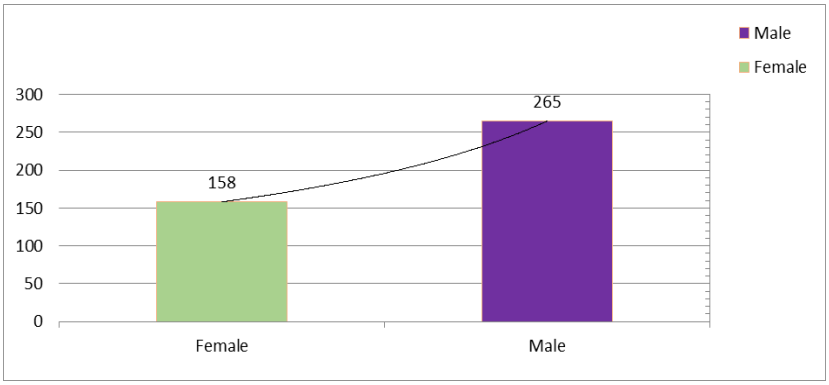


Figure : 4.1. Gender distribution of the participants

Response frequencies for participants' teaching experience

The findings indicated that (25%) of the participants had more than 25 years of teaching experience. Additionally, (16%) of the participants had between 16 to 20 years of teaching experience. In fact, the results showed that most English language teachers have been in the field of teaching for a long time.

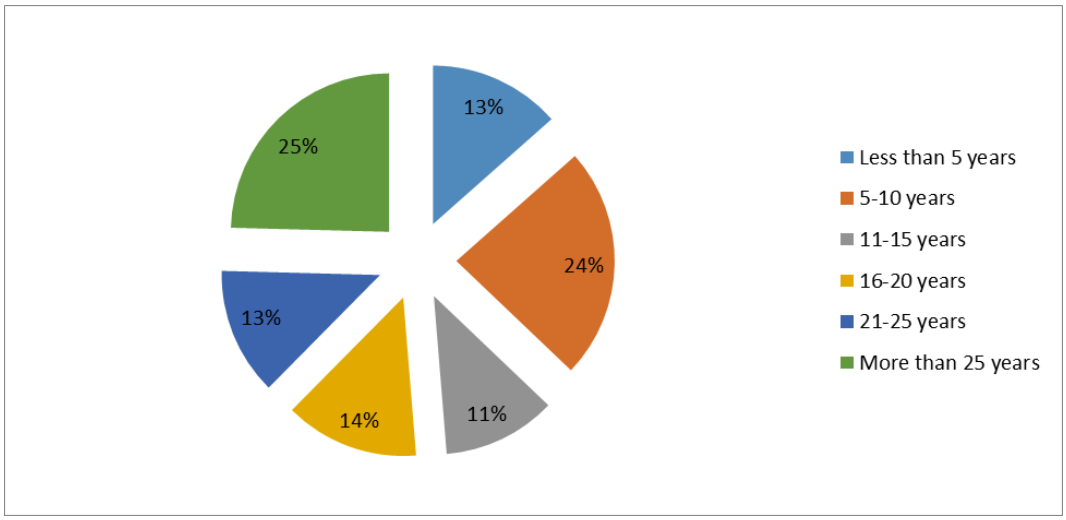


Figure : 4.1. Response frequencies for participants' teaching experience

To explore whether there is a significant difference between teachers' level of use of critical thinking and teaching experience, one-way ANOVA tests were implemented. Certainly, one-way ANOVA was employed in this study because we are interested in comparing the mean scores of more than two groups. In other words, it was performed to detect whether there are significant differences in the mean scores on the dependent variable across more than two groups. In this regard, it is necessary to state that in order to identify where these differences exist, Post-hoc tests should be used.

This research aimed at examining whether teaching experience played a role in teachers' level of use of critical thinking. To this end, a one-way ANOVA was run in order to discover any feasible difference. The results of the data analysis displayed that the first group of respondents who had less than 5 years of experience achieved the highest mean (M=3.12 ; SD=0.85). Another highest mean was obtained by participants who had more than 25 years of experience (M=2.80 ; SD=0.54). On the other hand, the lowest mean was attained by participants who had teaching experience between 16 and 20 years (M=2.35 ; SD=0.48). In the light of the results provided, one can conclude that teachers who had less than 5 years of experience seemed to use critical thinking more than the other groups.

Table 4.1. Descriptive statistics of teachers' teaching experience

Teaching experience	N	Mean	Std.Deviation	Std.Error
Less than 5 years	57	3,1237	,85163	,11280
5-10 years	100	2,4375	,70037	,07004
11-15 years	49	2,5867	,75455	,10779
16-20 years	58	2,3526	,48625	,06385
21-25 years	55	2,4936	,56822	,07662
More than 25 years	104	2,8038	,54165	,05311
Total	423	2,6330	,69520	,03380

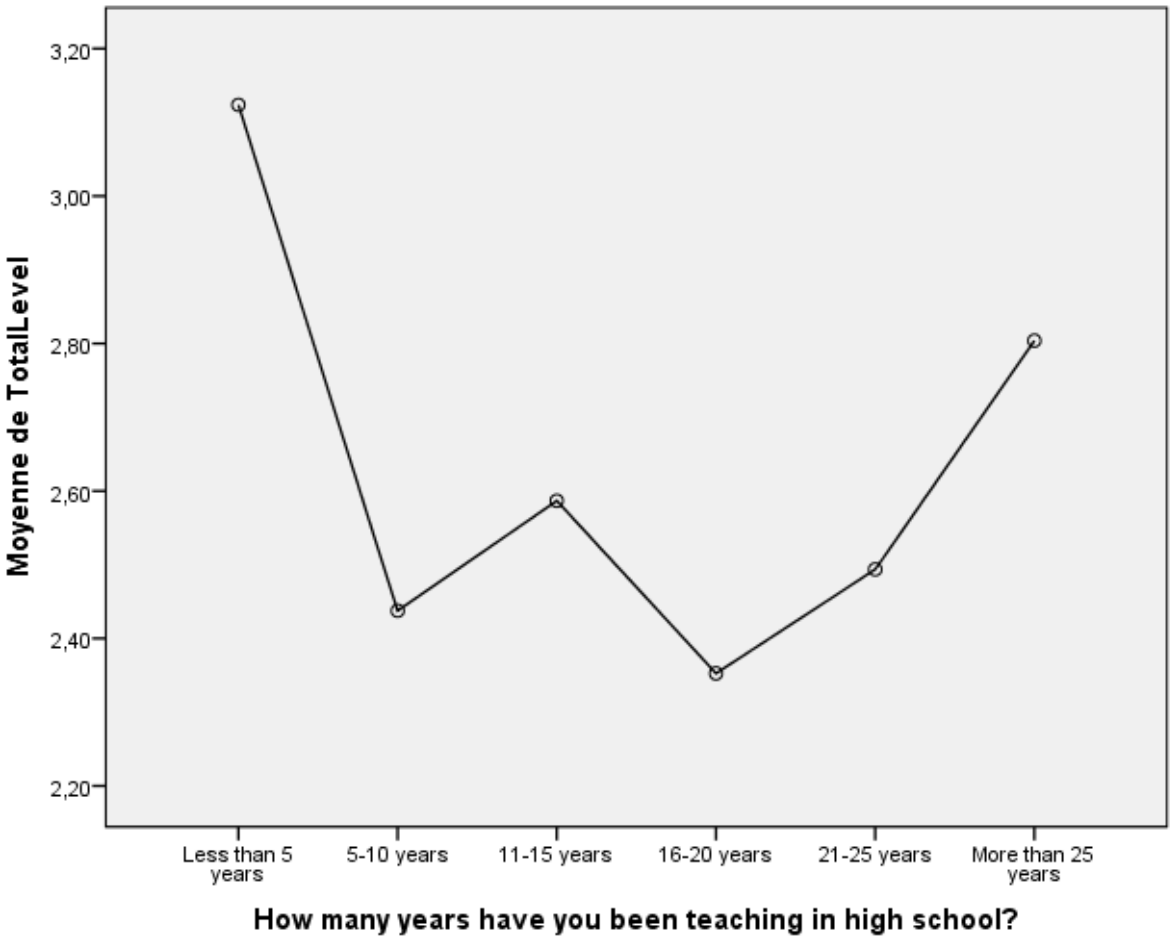


Figure : 4.3. Means plot for teaching experience and teachers' level of use critical thinking

To further examine whether the teaching experience of the participants affects their level of use of critical thinking, the means plot was created. According to the

results of the means plot, participants who had less than 5 years of experience scored higher (M=3.12 ; SD=0.85) than the other groups.

A one-way between-groups analysis of variance was conducted to study the effect of teaching experience on teachers' level of use of critical thinking. Effectively, participants were divided into six groups according to their teaching experience (Group 1: Less than five years; Group 2 : 5-10; Group 3 :11-15 ; Group 4 : 16-20 ; Group 5 : 21-25 ; Group 6 : More than 25 years). The results indicated that the Sig.value is (P=0.000) which is less than 0.05 (P=0.003<0.05). Therefore, there was a statistically significant difference in the mean of participants' teaching experience with respect to their level of use of critical thinking. Certainly, the null hypothesis that asserted that there are no statistically significant differences between teachers' level of use of critical thinking and teaching experience was rejected because the Sig.value (P=0.000) is less than 0.05. Along similar lines, to discover the effect size for this finding, the Eta squared should be calculated. Cohen (1988) suggested the following measures to interpret the strength of Eta squared : 0.01=Small effect ; 0,06=Moderate effect, 0.14=Large effect. The magnitude of the differences in the means was a moderate effect (Eta squared=0.12) (somewhat large). Another way of expressing this point is that 12% of the variance in teachers' level of use of critical thinking is explained by teaching experience.

Table 4.2. One-way between groups ANOVA for teaching experience and teachers' level of use of critical thinking

ANOVA	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	26,315	5	5,263	12,355	,000
Within Groups	177,637	417	,426		
Total	203,952	422			

The post-hoc tests were carried out to find out which group is different from other group. Indeed, the statistical significance of the differences between each pair of groups is well represented in table (4.3). According to the results of the post-hoc tests, group 1: less than 5 years is statistically different from the other groups.

Table : 4.3. Post Hoc Test (Tukey) for teaching experience and teachers' level of use of critical thinking

(I) Teaching experience	(J) Teaching experience	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 5 years	5-10 years	,68618*	,10832	,000	,3761	,9963
	11-15 years	,53695*	,12715	,000	,1729	,9010
	16-20 years	,77110*	,12173	,000	,4226	1,1196
	21-25 years	,63005*	,12336	,000	,2769	,9832
	More than 25 years	,31984*	,10756	,037	,0119	,6278
5-10 years	Less than 5 years	-,68618*	,10832	,000	-,9963	-,3761
	11-15 years	-,14923	,11381	,779	-,4751	,1766
	16-20 years	,08491	,10772	,969	-,2235	,3933
	21-25 years	-,05614	,10957	,996	-,3698	,2576
	More than 25 years	-,36635*	,09141	,001	-,6281	-,1046
11-15 years	Less than 5 years	-,53695*	,12715	,000	-,9010	-,1729
	5-10 years	,14923	,11381	,779	-,1766	,4751
	16-20 years	,23415	,12664	,436	-,1284	,5967
	21-25 years	,09310	,12821	,979	-,2740	,4602
	More than 25 years	-,21711	,11309	,391	-,5409	,1067
16-20 years	Less than 5 years	-,77110*	,12173	,000	-1,1196	-,4226
	5-10 years	-,08491	,10772	,969	-,3933	,2235
	11-15 years	-,23415	,12664	,436	-,5967	,1284
	21-25 years	-,14105	,12284	,861	-,4927	,2106
	More than 25 years	-,45126*	,10696	,000	-,7575	-,1450
21-25 years	Less than 5 years	-,63005*	,12336	,000	-,9832	-,2769
	5-10 years	,05614	,10957	,996	-,2576	,3698
	11-15 years	-,09310	,12821	,979	-,4602	,2740
	16-20 years	,14105	,12284	,861	-,2106	,4927
	More than 25 years	-,31021	,10882	,052	-,6218	,0013
More than 25 years	Less than 5 years	-,31984*	,10756	,037	-,6278	-,0119
	5-10 years	,36635*	,09141	,001	,1046	,6281
	11-15 years	,21711	,11309	,391	-,1067	,5409
	16-20 years	,45126*	,10696	,000	,1450	,7575
	21-25 years	,31021	,10882	,052	-,0013	,6218

*. The mean difference is significant at the level 0.05 level.

Discussion

Although there is a special importance that is given to the critical thinking issue as the aim of educational systems, there is no motivation to assess learners think critically and make use of this ability in their lives (Maleki, 2007). Many institutions neglect the teaching experience of teachers and concentrate on transferring information. Therefore, this study tends to uncover the impact of teaching experience on teachers' level of use critical thinking in teaching practice. Critical thinking is one of the skills people might own to enhance lifelong active learning roles (Gibby, 2013). Jackson, (2006) confirmed that critical thinking ''implies we are open to all aspects, and willing to see issues from a multitude of views, always questioning and challenging the current state'' (p.3).

This part will discuss the findings obtained from the research question and connect it with literature in an attempt to reveal how and why the results present new understandings about critical thinking practice in Moroccan high schools. A one-way ANOVA was conducted in order to find out whether teaching experience affects teachers' level of use of critical thinking. The findings revealed that the Sig.value is (P=0.000) which is less than 0.05 (P=0.003<0.05). Hence, there was a statistically significant difference in the mean of participants' teaching experience with respect to their level of use of critical thinking. Effectively, the null hypothesis indicating that there is no statistically significant differences between teachers' level of use of critical thinking and teaching experience was rejected because the Sig.value (P=0.000) is less than 0.05. To determine the effect size for this result, the Eta squared should be calculated. Cohen (1988) proposed the following measures to interpret the strength of Eta squared : 0.01=Small effect ; 0,06=Moderate effect, 0.14=Large effect. The magnitude of the differences in the means was a moderate effect (Eta squared=0.12).

Teacher experience significantly correlated with the actual use of critical thinking. Obviously, experienced teachers are usually less ready to integrate critical thinking into their teaching. Several studies have been carried out with experienced and inexperienced teachers in order to see from what perspectives there are some differences between these two groups of teachers with regard to the use of critical thinking in their classes. As discussed before, the results of this work revealed that teaching experience affects teachers' use of critical thinking in their classes. This finding is parallel to a study by Palmer, Stough, Burdenski, & Gonzales (2005). They reported that differences do occur between novice instructors and those instructors who are more experienced with reference to pedagogical knowledge, classroom management, problem solving, decision making, and sensitivity to classroom affairs. Indeed, teaching experience is developed over time and educators who have taught for a long time are knowledgeable about various teaching issues. This is simply because they can relate prior knowledge to new experiences. Contrary to the findings of the current study, Semmar, and Fakhro's (2009) research examined how elementary school educators in Qatar could strengthen learners' critical thinking skills in their classrooms. The results showed no significant differences were discovered between the two types of instructors, based on years of teaching experience.

It is worth stating that many researchers content that only practice in critical thinking is not enough in becoming experienced teachers. The idea of experienced and inexperienced teacher should be examined in terms of motivation, cognitive

structure, personal point of views, and mecognition (Ge & Hadre, 2010). Metacognition, for instance, is one of the most important variables influencing learning and teaching. There has been much debate about the concepts metacognition and critical thinking. The primary aim here is to examine the possible relationship between the two terms. According to Van der Stel and Veenman (2010), metacognition has been conceptualized as one of the most pertinent predictors of achieving complex higher order thinking processes. In fact, Kuhn and Dean (2004) emphasized that metacognition is what allows a learner who has been taught a specific strategy in a specific problem situation to get back and use that strategy in similar but new circumstances. It is essential to teach metacognitive skills in the educational system, because they assist learners, enhance higher order thinking process and boost their academic success (Larkin, 2009).

This study contributed to the existing body of research regarding the use of critical thinking in Moroccan high schools. Also, will lay the ground for further research on critical thinking and will contribute to the literature on critical thinking implementation in Moroccan high schools. This type of research is pertinent to teachers and students in that the results could be used to enhance teachers' teaching practices and students learning. Similarly, this research sought to contribute to the knowledge base on critical thinking in Morocco by attempting to examine teachers' practice of this important notion in their classes.

Recommendations for future research

Based on the results of this study, and taking into account the strengths and limitations of this work, the need for additional research is necessary. The suggested ideas for future studies include:

1. The target population for this study are teachers working in public schools. Conducting a comparative study to examine the differences or similarities among teachers teaching critical thinking at private and public schools is useful. Such research could help to discover if one group of teachers would be more open to the use of critical thinking in the institution where they work than another.
2. The period of training could be an essential variable in determining the effective implementation of critical thinking in education. Hence, the determination of an ideal length of the course is necessqry. Indeed, a study should be conducted to explore the question of how long it would take to train teachers to use critical thinking in their teaching.
3. The Ministry of Education should set up a committee concerned with assessing the level of use of critical thinking in education.
4. In order to understand the development of critical thinking over the three years in high school, a longitudinal study would be effetive for investigqting the performance of teachers in classrooms and difficulties hindering their use of critical thinking over the different years from Common Core to second year Baccalaureate.

Conclusion

This study contributed to the existing body of research regarding the use of critical thinking in Moroccan high schools. It studied teachers' level of use of

critical thinking in their classes. Besides, it examined the impact of teaching experience on their level of use of critical thinking in education. The findings of this research showed clearly that teaching experience significantly impacts teachers' level of use of critical thinking.

Based on the results of this research, it is necessary to mention that participants should be provided with teaching materials to teach critical thinking. However, it should be noted here that simply providing critical thinking resources does not ensure satisfactory use of this important skill in education. Thus, it is highly recommended to inform teachers about the significance of critical thinking in teaching and learning in addition to offering them adequate training. Besides, training needs to be an ongoing process, not a one-off event. Through the continuing training sessions, teachers will surely be more conscious of the advantages of critical thinking in students' learning. Also, this ongoing training will speed up the rate of teachers' level of use of critical thinking in their classes.

The study carries several important theoretical implications related to the integration of critical thinking in Moroccan high schools including:

1. Teachers need to be trained in how to integrate critical thinking in their classes. Good training is required to help educators broaden their knowledge of their students as learners and help them think critically.
2. The curriculum cannot stand in isolation of learners' needs. Hence, it must reflect all the changes. In other words, curriculum developers should bear in mind that all learners are unique and they come from different backgrounds. This means that when designing learning programs, these professionals need to make sure they take into account numerous elements about students including their needs.
3. Another essential implication is that teachers should avoid the view that only specific learners are able to think critically. Admittedly, teachers' negative views towards students' ability to think critically can hinder their motivation, achievement and might impact their academic performance. Teachers must know that emotional support plays a pivotal role in helping students learn academic knowledge and skills.

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