

A Developmental Approach to the Use of Critical Thinking Skills in Writing: The Case of Moroccan EFL University Students

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Abstract

Training students to think critically is one of the most serious challenges that face Moroccan higher education, with experts being in unanimous agreement that critical thinking should be part of any instructional practice. In actual fact, a number of studies have come to the conclusion that students who have the ability to provide a critical assessment of the knowledge and information they receive—be they inside or outside of the classroom-- can become critical thinking individuals, successful professionals, and, in the long run, active citizens. Given the importance of critical thinking in EFL teaching, the present paper purports to investigate the extent to which academic level affects the development of critical thinking skills among Moroccan EFL learners. In order to come up with a developmental account of critical thinking among these learners, two tests were administered to 60 students that were divided into three groups of 20 students. The first test, the Ennis-Weir Critical Thinking Essay Test, targeted *argument evaluation* skills, while the second test, argumentative essay writing, targeted *argument construction* skills. The results have been quantitatively analyzed so as to (i) provide tentative understanding of the current state of critical thinking in Moroccan higher education in general and among Moroccan EFL students in particular, and (ii) examine the influence that academic level and language proficiency have on the progress of critical thinking. The analysis will help us draw implications for EFL teaching methods and curriculum development in Moroccan higher education. Suggestions are made with regard to the integration of critical thinking in EFL instruction.

Key words: argument evaluation, argument construction, Critical thinking, EFL students. Language proficiency

I. Introduction

Memorization and passive learning are no longer cited among the learning objectives of higher education as there is an increasing awareness that education should set critical thinking at its top priority. More educators consider that critical thinking is an “educational ideal” (Siegel, 1985) whose integration in higher education entitles students to “question, challenge, and to demand reasons and justifications for what is being taught” (Siegel, 1985, p. 71). Higher education is supposed to produce graduates who are able to think critically about the knowledge they have obtained along with the topics and issues they face in their everyday life (Schafersman, 1991). University graduates are expected to identify problems, suggest alternatives and solutions, and predict consequentiality of solutions with respect to personal, economic, and political issues (Lipman, 1985; Beyer, 1995; Andrews, 2010). Unfortunately, universities exhibit deficiency when it comes to instilling critical thinking into students. Pithers and Soden (1991, cited in Ozmen, 2008, p. 121) conducted a study to look into the difference between the critical thinking skills of graduate and non-graduate students; surprisingly, no significance difference between the two groups was observed.

Given the paramount significance of critical thinking in higher education, the present study aims to draw the attention of educators in general and Moroccan educators in particular to the current state of critical thinking and how academic levels affects its development.

II. Review of the Literature

A succinct review of the concept of critical thinking and its component is presented before introducing the methodology adopted in the present study and the results it yielded. It should be pointed out that there are a number of issues that are related to critical thinking; however, the scope of the article does not allow reviewing all these issues (e.g. critical thinking taxonomies, teachability of critical thinking etc.).

a. Definition of Critical Thinking:

John Dewey, who was among the leading theorists who paved the grounds for critical thinking in education, defined critical thinking as “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends” (Dewey, 1910, p. 2). Accordingly, a critical thinker is expected to make use of all the available evidence to test the credibility of a “belief” before accepting it as knowledge. After three decades, Benjamin Bloom and his colleagues (1956) elaborated on the concept of critical thinking by developing a taxonomy of six categories (i.e. knowledge, comprehension, application, analysis, synthesis, and evaluation) that acquaint educators with learning objectives they should foster in their classrooms. Bloom’s taxonomy is unanimously a major breakthrough in education as it contributed to pinpointing the importance of higher order thinking skills (i.e., analysis, synthesis, and evaluation) in education (Paul, 1985).

More contemporary scholars associate critical thinking with vital activities such as making reasoned judgments and decisions. On the one hand, critical thinking is considered to be the use of reasoning skills that yield reasoned judgments (Lipman, 1988; Beyer, 1995). On the other hand, Ennis’ oft-cited definition refers to reflective and focused thinking which allows thinkers to make decisions with respect to beliefs and actions (Ennis, 1996). In an attempt to embrace more conceptions of critical thinking, Halpern (2014) describes it as “the kind of thinking

involved in solving problems, formulating inferences, calculating likelihoods, and making decisions” (Halpern, 2014, p. 8).

Though there are dozens of definitions that have attempted to resolve the disagreement over the issue of defining such a pivotal concept, only few have been cited here as they summarize the fundamental aspects of the concept in question. It is worthwhile to conclude our attempt to define critical thinking with a working definition that the authors of this paper have put forth: *being an intellectual activity of reasoning, critical thinking is the use of the cognitive skills of analyzing, synthesizing, and evaluating information in order to get clear, precise, and consistent thinking. For critical thinking to operate, it relies on cognitive skills as well as dispositions. Finally, it is the type of thinking used in decision-making and problem-solving.*

b. Components of Critical Thinking

The need to integrate critical thinking across curricula led educators to operationalize the concept in terms of two components: cognitive skills and affective dispositions (Norris, 1989; Facione, 1990; Siegel, 2010; Ennis, 2011).

Being a common tradition among the experts of critical thinking, the development of CT skills has witnessed myriad inventories suggested by leading experts. Ennis (1996, 2011) identified (1) basic clarification, (2) bases for decision, (3) inference, (4) advanced clarification, and (5) supposition and integration as the component skills of reasoned thinking. Likewise, the Delphi report experts (Facione, 1990) developed a consensus on six cognitive skills that critical thinking involves: (1) interpretation, (2) analysis, (3) evaluation, (4) inference, (5) explanation, and (6) self-regulation. Each of these skills subsumes sub-skills. There are other inventories which the scope the present article does not allow (e.g., Brookfield, 1987; Paul, 1990; Wade, 1995). Though the inventories differ in labeling the skills composing critical thinking, analysis, evaluation and inference are the skills that are common to the inventories presented by critical thinking theorists. Finally, breaking down the abstract concept of critical thinking into identifiable skills helps theorists, educators and practitioners to teach these skills and assess students’ progress.

Though CT skills and dispositions stand in a strongly complementary relationship, the affective side of critical thinking has received meager attention in comparison to the cognitive side. One of the recent attempts to identify CT dispositions is achieved by Carroll (2007) who reported (1) intellectual humility, (2) confidence in reason, (3) intellectual curiosity, and (4) intellectual independence as the components that affect thinkers’ inclination to behave and think reasonably. Finally, research on methods for teaching and assessing CT dispositions is recommended since the teaching of the latter will guarantee a continuation of the use of reasonable thinking in non-instructional settings (Siegel, 1985, 2011; Facione, 1990).

Despite the importance of all the skills and dispositions that have been listed above, the present study is concerned with two major skills which are argument construction and argument evaluation which subsume sub-skills that will be presented in a section below (i.e. Section 3.6.).

III) Methodology

After succinctly stating the research objectives, questions, and hypotheses, the present section will provide a concise account of the research design adopted, the participants involved, the research instruments used, and the procedure followed.

3.1. Research Objectives:

This piece of research aims to:

1. To check whether students' academic level has any impact on the use of critical thinking skills in their argumentative writing;
2. To identify the extent to which Moroccan EFL learners use critical thinking skills in their argumentative writing.

3.2. Research Questions:

The present study aims to answer the following two research questions:

1. What, if any, is the impact of academic level on the development of critical thinking among Moroccan EFL learners?
2. What critical thinking skills do Moroccan EFL university students make use of in their argumentative writing?

3.3. Research Hypotheses:

Given the research questions that have been raised above, two pertinent hypotheses have been postulated:

1. Moroccan EFL learners with higher academic level use more critical thinking skills in argumentative writing than do EFL learners with a lower academic level.
2. Moroccan EFL learners perform better with respect to argument construction than they do with regard to argument evaluation.

3.4. Research Design:

To ensure that the research objectives and questions are soundly examined, the researchers have resorted to ex-post facto and cross-sectional design. To start with, since the aim of the study is to examine the cause-and-effect relationship between academic level (i.e., *independent variable*) and the use of critical thinking skills (i.e., *dependent variable*), the researchers have opted for ex-post facto design. This latter will entitle the researchers to ascribe the development of critical thinking skills to the development of students across different levels. In addition, a cross-sectional design has been adopted to provide an account of how critical thinking skills develop in the argumentative writing of EFL learners across three different academic levels.

3.5. Participants:

The total number of participants involved in this research is 60 students from the Department of English in Mohamed V University. The number of participants is evenly divided into three groups. The first group is composed of 20 students in Semester Two; the second group also consists of 20 students in Semester Six. Finally, the third group is made up of 20 students of a Master's program in Language and Linguistics. Hence, the highest academic level investigated in this piece of research is that of Master's students, while the lowest level is that of Semester-Two students.

3.6. Instruments:

The Ennis-Weir Critical Thinking Essay Test (Ennis & Weir, 1985) and an argumentative essay are the two tests that the researchers relied on to elicit data with regard to two different critical thinking skills. The first tests how students evaluate an argument and spot errors in reasoning. That is, it measures the critical thinking skills of test-takers since they have to apply critical thinking skills in order to critically appraise the quality of an argument. The main skills targeted in this test are:

- Getting a point and stating it clearly;
- Seeing the reasons and assumptions;
- Offering good reasons;
- Examining other possibilities and alternative explanations;
- Recognizing equivocation, irrelevance, circularity, the straw person fallacy, reversal of an if-then relationship, overgeneralization, credibility problems, use of emotive language to persuade, and excessive skepticism.

Conversely, the second task tests how learners construct an argument and avoid fallacious reasoning. In this task, participants were asked to write a short argumentative essay about their position regarding the legalization of abortion in Morocco. The test assesses the following skills:

- Succinct presentation of the writer's position and ideas;
- Credibility of evidence;
- Recognition of alternative points of view;
- Plausibility of generalizations and explanations;
- Avoiding fallacies.

3.7. Procedure:

Before handing out the tasks, the researchers explained to participants that their participation involves two tasks divided on two meetings. The researchers announced the amount of time assigned to each task so that participants know the amount of time required of them. Fortunately, students consented to take the tests. Afterwards, the researchers distributed the first task, the Ennis-Weir Critical Thinking Essay Test. To make sure that the instructions are clear to everyone, they read them aloud with further explanations, without disclosing the topic under study. Every now and then, the researchers would welcomingly answer students' questions. When time was over, the papers were collected. The following week, the second task, the argumentative essay writing, was administered to the same students with the same procedure. The only difference was that the researchers started the meeting with a brief discussion of the recent debate over the legalization of abortion in Morocco so that it provides students with a stimulus for the argumentation.

IV) Results

In order to make the examination of the two hypotheses feasible, the researchers have run the one-way ANOVA test and the Paired-Samples t-test. Hence, the following subsections will report and interpret the descriptive statistics as well as the inferential statistics.

4.1. Descriptive statistics

Table (1) presents the distribution of the means and standard deviations among the three groups.

Table 1 : *The distribution of scores among EFL learners.*

Group	N	Mean			Standard deviation		
		Argument Construction	Argument Evaluation	CT in general	Arg Const	Arg Eval	CT in general
S2 Students	20	32.77	26.71	29.74	10.64	6.97	6.48
S6 Students	20	48.60	31.89	40.24	16.18	16.81	15.55
MA Students	20	59.02	39.47	48.56	13.48	19.65	13.96

The descriptive statistics displayed in the table above reveals how the performance of the three groups differs with regard to *argument construction*, *argument evaluation*, and *critical thinking in general*. With regard to argument construction which is tested via argumentative essay writing, Semester-Two students obtained a mean score of (32.77), while Semester-Six and MA students obtained mean scores of (48.60) and (59.02), respectively. Likewise, Semester-Two students scored a mean of (26.71) in argument evaluation which is tested via the Ennis-Weir Critical Thinking Essay test. As expected, the two other groups scored higher since Semester-Six students scored a mean of (31.89) while MA students obtained a mean of (39.47). Finally, the same tendency of scoring higher as academic level goes high is noticed in students' performance in critical thinking in general; while MA students scored a mean of (48.56), Semester-Six students obtained a mean of (40.24). Finally, Semester-Two students scored a mean of (29.74).

Though the descriptive statistics indicates that the scores of the three groups do differ, testing the hypotheses postulated earlier requires the examination of the inferential statistics obtained via the operation of one-way ANOVA test and paired-samples t-test.

4.2. The Development of Critical Thinking in General

The one-way ANOVA test has been run in order to investigate whether academic level affects the development of critical thinking. It is noteworthy that the homogeneity of variance assumption has been warranted by the Welch and the Brown-Forsythe procedures.

Table 2: *Results of critical thinking level among EFL learners.*

Variable	df	F	Sig.
Level of CT	59	11.144	.000

p < .05

The results in table (2) indicate that the difference among the three groups is extremely significant. Hence, hypothesis (I) which claims that academic level affects the development of critical thinking is retained.

4.3. The Development of Argument Construction:

With regard to the development of the skill argument construction, the ANOVA test yielded the following results:

Table 3: Results of argument construction level among EFL learners.

Variable	Df	F	Sig.
Level of Arg. Const	59	18.814	.000

p < .05

The table above indicates that the difference among the three groups is extremely significant at (.00). Accordingly, the performance of EFL learners in argument construction is determined by academic level since the difference is far great.

Unlike the development of argument construction, argument evaluation takes a different developmental pattern as documented in table (4):

Table 4: Argument Evaluation among EFL learners.

(I) EFL Learners	(J) EFL Learners	Mean Difference (I-J)	Sig.
S2 Students	S6 Students	-5.173	.424
S6 Students	S2 Students	5.173	
S2 Students	MA Students	- 12.760	.030
MA Students	S2 Students	12.760	
S6 Students	MA Students	-7.587	.398
MA Students	S6 Students	7.587	

p < .05

The results of the table above reveal that there is a lack of noticeable development among the three groups. The difference between Semester-Six students and Semester-Two students is utterly insignificant at (.42). Similarly, the difference between Semester-Six students and MA students indicates an insignificant p-value at (.39). Exceptionally, the difference between MA students and Semester-Two students points to a moderately significant p-value at (.03).

4.6. Argument Construction and Argument Evaluation within Groups:

The paired-samples t-test was run in order to test the extent to which Hypothesis II holds. Within each group, the mean scored in argument construction will be compared to that scored in argument evaluation in order to determine whether argument construction is more developed and used than argument evaluation.

Table 5: The results of paired-samples test of Semester-Two students.

		t	df	Sig.
Pair 1	ArgConst-ArgEval	2.168	19	.043

p < .05

The results of table (5) indicate to a t-value that is moderately significant at (.04). Therefore, it is suggested that Semester-Two students' argument construction skill is more developed than their argument evaluation.

Concerning Semester-Six students, the results of table (6) points to a t-value (6.777) that is extremely significant at (.00). Akin to the previous pair, Semester-Six students improve their argument construction skills to the detriment of argument evaluation skills.

Table 6 : *The results of paired-samples test of Semester-Six students.*

		t	df	Sig.
Pair 2	ArgConst-ArgEval	6.777	19	.000

p < .05

Finally, table (7) presents the results of the third pair, MA students:

Table 7: *The results of paired-samples test of MA students.*

		t	df	Sig.
Pair 3	ArgConst-ArgEval	4.766	19	.000

p < .05

T-value is extremely significant at (.00). The results, consequently, reveal that argument construction exceeds argument evaluation.

A comparison of the results of the three groups shows that Hypothesis II is retained since EFL learners in the three academic levels develop their argument construction more than they do with argument evaluation.

The means of the three groups have been reported in order to account for the general trends that govern the development of critical thinking, argument construction and argument evaluation among Moroccan EFL university students. Reporting the descriptive statistics has shown that the level of critical thinking is extremely low. In addition, the first research hypothesis has been confirmed as critical thinking has been found to progress across the three academic levels. In other words, the results of the one-way ANOVA test have revealed that academic level does affect the progress of critical thinking among Moroccan EFL learners. Finally, the results of the paired-samples t-test have confirmed Hypothesis II. That is, students of the three groups have been found to do better in argument construction than they do in argument evaluation.

V) Discussion

The results reported in the previous section have proved that the two hypotheses are retained. Therefore, the following subsections will discuss (i) the level of critical thinking among university students, (ii) how academic level affects the development of critical thinking, and (iii) why there is a discrepancy between argument construction and argument evaluation.

5.1. The Current State of Critical Thinking in Moroccan Higher Education

The descriptive results reported in the previous section give insights into the level of critical thinking among EFL learners.

The means of the three groups in critical thinking in general, argument construction, and argument evaluation reveal a relatively low level of critical thinking abilities among EFL learners. The three groups have not been able to reach the average in critical thinking in general. With regard to argument construction, Semester-Two and Semester-Six students have not managed to score the average. In the same fashion, the three groups have scored less than the

average in argument evaluation. Accordingly, these results paint a gloomy picture of the current state of critical thinking among EFL learners in particular and Moroccan higher education in general.

A closer look at the findings can help educators to discern the critical thinking portrait of typical Moroccan university graduates. Semester-Six students who are only one month away from graduation do not live up to an average critical thinker; they can barely argue for a point adequately, but they are not capable of detecting problems contained in a line of reasoning. As a result, it can be suggested that Moroccan higher education fails to teach EFL learners to become critical thinkers as they are not able to detect fallacies, irrelevancy, and circularity in arguments.

However, a turning point in EFL learners' critical thinking level takes place when they move to the MA program. EFL learners' critical thinking improves by the time they finish their postgraduate studies since the findings indicate that they performed averagely in critical thinking in general and argument construction. Nevertheless, their argument evaluation skills are still poor. Given this, higher education can produce average critical thinkers only after five years of training. In other words, typical EFL postgraduates are able to construct arguments fairly adequately but they are not able to detect problems in argumentation.

The findings of the current state of critical thinking in higher education will be entirely understood if it is compared to the findings of other relevant studies. It is worthwhile to bring up to discussion Hatcher's longitudinal study (1999) where American university students took the Ennis-Weir Critical Thinking Essay test through different academic levels.

Table 8 : *The mean scores of Moroccan and American EFL learners.*

Mean scores in the E-W test	Moroccan EFL Ls	American Students
Freshmen	26.71	43.79
Seniors	31.89	55.17
Postgraduates	39.47	

A quick look at the means shows that there is a striking difference between Moroccan and American freshmen and seniors in argument evaluation ability. This difference is manifested in the fact that the means obtained by MA Moroccan students (39.47) could not even exceed the mean recorded by American freshmen (43.79). This comparison highlights the low level of Moroccan EFL learners in argument evaluation in particular and critical thinking in general.

To sum up, the level of critical thinking among Moroccan EFL learners is relatively low. Splitting critical thinking into two skills (i.e. argument evaluation and argument construction) shows that their argument construction skills are fairly average while their argument evaluation skills are strikingly low.

5.2. Developmental path of Critical Thinking among Moroccan EFL Learners:

The present subsection discusses how academic level affects learners' critical thinking ability (i.e., research question I) in the light of the results obtained from the one-way ANOVA test. Based on the findings presented above, academic level can be safely considered as a factor that determines the development of critical thinking.

The observed development across the three academic levels can be attributed to curriculum objectives and methods of teaching that students receive. Put simply, the difficulty of the courses

that EFL learners take increases as their academic level increases. In their first year of university, teachers focus on developing students' language proficiency as courses range from grammar, speaking, reading, and writing to listening. Focusing on developing EFL learners' language proficiency at the expense of their intellectual skills explains the low achievement of Semester-Two students in the two critical thinking tests.

Semester-Six students outperform Semester-Two students as the subjects are more challenging than the ones in the first year of university. Generally speaking, the tasks of final year students focus on summarizing, paraphrasing, and also analyzing data for those majoring in linguistics. Most importantly, the courses they take at this academic level are content courses (e.g., syntax, semantics, phonology and morphology etc.) and they are expected to write a paper (i.e. End of Study Project). It should be pointed out that we cannot claim with certainty that these tasks have been taught effectively; yet, what can be asserted here is that final year students use critical thinking skills more than do first year students since the findings indicate an extremely significant difference between these two academic levels.

The low performance of Semester-Two students can better be explained in the light of Bloom's taxonomy (1956). The tasks in which these students are involved are confined to lower learning objectives (i.e. knowledge, comprehension, and application). The focus on lower learning objectives, in fact, constitutes the conceptions of university teachers on teaching. In a study where Moroccan EFL university professors were interviewed about their conceptions of teaching, most of the interviewed teachers confirmed that their role as teachers is to transmit knowledge and focus on basic language skills and accuracy (Belghiti, 2012). Establishing a relation between critical thinking and teachers' conceptions of teaching also evokes Freire's concepts of banking education where teachers view that their major role is to fill students with knowledge and information (Freire, 1970).

Hitherto, the discussion has been revolving around how courses taught in an academic level and teachers' conceptions of teaching affect students' critical thinking development. Nevertheless, discussion at this point of analysis is bound to ponder over the effect of language proficiency from a learning point of view. The claim to be made here is that the significant difference of critical thinking ability from one academic level to another can be explained by students' language proficiency. Based on the findings reported earlier, MA students who have higher language proficiency obtained scores higher than Semester-Six and Semester-Two students. Besides, Semester-Six students scored higher than Semester-Two students. The fact that students with higher language proficiency perform better than do students with lower language proficiency indicates that language proficiency as a variable that is integral to academic level plays an essential role in determining the level of critical thinking among a group of EFL learners. The possible reason behind this correlation is that the less they feel anxious about correcting their language, the more they can think about assessing their ideas. A student with poor language proficiency will spend a great deal of time monitoring his/her language, looking for words, or correcting sentence structure instead of organizing his/her ideas, assessing his/her reasoning etc. Conversely, a student with advanced language proficiency uses English comfortably and consequently has enough room to think critically about the ideas s/he produces or receives.

In brief, the results of the present study suggest that academic level has a say about the development of students' critical thinking skills. However, when it comes to EFL university students, academic level involves further subordinate factors such as curriculum objectives, the nature of courses (i.e. content courses or language courses) and students' anxiety about language proficiency. For more robust results, future research is requested to investigate the effect of each factor separately.

5.3. Discrepancy between skills among Moroccan EFL learners

The present subsection aims to discuss why students fare better with respect to argument construction than they do with respect to argument evaluation (i.e. research question II). The results put forth by the paired-samples t-test have proved that Hypothesis II is retained since the scores obtained in argument construction test significantly differ from the ones obtained in argument evaluation.

An examination of the history of what learners have been taught justifies these results. Before going to university, Moroccan students learn how to write argumentative essays in high school in Arabic, French and English. When they go to university, they learn how to write cause-and-effect essays and simple five-paragraph argumentative essays in the first year. While in the second year they receive advanced instruction on argumentative essay writing, in the third year they get accustomed to reading and writing advanced types of essays and papers. The same goes for MA students who receive instruction on advanced academic writing where they learn how to write an MA dissertation. The fact that they receive explicit instruction on how to present arguments in the form of an essay has affected their performance in writing argumentatively in comparison to evaluating arguments. On the other hand, some EFL learners may have never received formal instruction on how to evaluate an argument and detect reasoning problems with argumentation. The lack of explicit instruction of evaluating arguments has given rise to low performance since none of the three groups reached the average in their argument evaluation test.

The effect of training on the gap between the evolution of argument construction and argument evaluation is endorsed by empirical research. In an experimental study conducted by Davidson and Dunham (1997), the experimental group that received additional training on evaluating arguments scored significantly higher than the control group which did not receive any critical thinking training. Hence, the poor scores obtained in argument evaluation by the three groups can be explained by the fact that they have never received instruction on how to critically evaluate arguments. Generally speaking, when there is an intervention of critical thinking, students perform better than those who do not receive critical thinking instruction (e.g. Zare, et al, 2013; Kamali and Fahim, 2011; Malmir & Shoorcheh, 2012).

Seeking further explanation to the difference between learners' performance in argument construction and argument evaluation is reminiscent of Bloom's hierarchy of critical thinking skills. In Bloom's taxonomy, evaluation is placed at the top of the taxonomy as being the most intricate skill, synthesis (i.e. argument construction) is placed at a lower position. As mentioned earlier, the hierarchy of the skills in the original taxonomy is based on their difficulty. Put simply, deconstructing an argument into its components, examining its skeleton, and exploring other alternatives are skills that cannot be exercised adequately unless they are learnt and

practiced. Therefore, the poor performance in argument evaluation can be attributed to the fact that it is more difficult than argument construction.

To bring the discussion to a close, the findings discussed above alarmingly indicate that Moroccan higher education fails to produce critical students as only MA students could approximate the average. In the present paper students' critical thinking level is related to their academic level. In this connection, the findings have shown that a number of issues are at work. Put simply, the type of courses and tasks they are involved and teachers' conceptions of teaching English as a foreign language are factors that affect the development of students' critical thinking skills.

VI) Conclusions and Implications

The analysis of the findings of the current study has yielded a number of conclusions that are worth stating in the last section of the paper.

To begin with, the scores of the participants in the two tests offered valuable information about the current state of Moroccan university students' reasoning skills. The findings point out that Moroccan university students perform poorly in critical thinking tests. In fact, even MA students (i.e. the highest academic level involved in this study) cannot catch up with American freshmen as the performance of the latter in the Ennis-Weir Critical Thinking Essay test exceeded the former. Therefore, these results should be taken into consideration by practitioners and curriculum developers in higher education.

In addition, the findings of the study have confirmed that academic level determines the development of critical thinking among Moroccan EFL university students. It is suggested through this study that the nature of the courses and tasks attributed to each academic level is more likely to shape the development of students' argument construction and evaluation. In other words, EFL learners at academic levels where they take only English language courses use critical thinking skills less than do EFL learners at academic levels where they take advanced language and content courses.

Finally, the results draw the attention to the discrepancy of the progress of argument construction at the expense of argument evaluation. In the three academic levels under study, the performance of students in argument evaluation test was low in comparison to their performance in argument construction test. Hence, it is suggested that the fact that Moroccan EFL learners receive instruction on writing argumentative writing puts their argument evaluation skills at a disadvantage in contrast to their argument construction skills. In a nutshell, this result suggests that students' level in a critical thinking skill is merely the output of the training they take.

The rationale behind conducting a study on the use of critical thinking skills in higher education is to come up with serious implications for curriculum development, syllabus design and future research.

With regard to implications for curriculum development, the study came up with findings that unveil the low level of higher order thinking skills among Moroccan university students. This finding conveys a serious message on the inability of Moroccan higher education to attain

the most important educational objective which is to instill critical thinking spirit in students. Accordingly, curriculum developers should start considering the integration of critical thinking courses throughout different academic levels in higher education. In addition, curriculum developers of EFL programs in higher education should consider introducing a course of the basic skills of critical thinking in the first year of university so as to avoid the critical thinking stagnancy experienced by First year students.

Speaking of implications for syllabus design, the present study recommends that EFL teachers should make use of teaching methods that take into consideration argumentation and reasoning skills. For instance, when teaching writing, EFL teachers should not focus only on language (e.g. punctuation, sentence structure etc.); rather, they are recommended to draw students' attention to the reasoning fallacies that they make. With respect to evaluation skills, EFL instructors can include activities where students are encouraged to assess statements in a text (e.g. in reading) or each others' statements (e.g. in speaking). In addition, EFL instructors are invited to make use of Socratic questioning (Paul, 1990) where students' thinking is stimulated by higher order questions that go beyond asking for information. Higher order questions seek to encourage students to analyze, synthesize, and evaluate information.

Finally, the study aims to put forth implications for future research. First and foremost, a longitudinal study is called upon where a small-sized sample of students is assessed across different academic levels so as to closely examine how they develop their critical thinking skills. A longitudinal study will provide an in-depth account of the development of critical thinking across academic levels so as to compensate for the limitations of the present cross-sectional study. Furthermore, in order to find out whether majoring in a foreign language hinders the normal development of critical thinking, future research is recommended to compare the level of EFL university students (and other language majors) with university students non-language majors (e.g. engineering, geography, medicine, history, psychology etc.).

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