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| RESEARCH ARTICLE

Evaluating Moroccan University Open and Restricted-Access Institutions Students' Critical Thinking Skills

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| ABSTRACT
In tandem with developing students' skills in various fields, university aims to contribute to shaping active citizens possessing transferable power skills useful in both their personal and professional lives. Preparing young people for their future professional lives entails catering to a job market increasingly prioritizing highly sought-after power skills, beyond the mere knowledge and skills necessary for the job. Hence, power skills instruction has been incorporated into tertiary education curricula. Yet, research exploring to what extent higher education institutions in Morocco have been successful in developing these skills in students remains scarce. This study aims to contribute to filling this void through a comparative study of critical thinking skills among students in the final semester of a bachelor's degree program at an open-access faculty and a restricted-access school within a public university. An argument evaluation through a reasoning fallacy identification test was administered to semester six students at both the Department of English Studies at the Faculty of Languages, Letters, and Arts (FLLA) and the Higher School for Education and Training (HSET) at Ibn Tofail University. The students' scores were analyzed and compared. The results indicate that there were no significant differences between the scores of the two institutions' students and that the overall low scores reflect a critical thinking deficiency at the end of a three-year higher education academic journey. The implications of this study's findings are that more emphasis should be put on critical thinking skills instruction and that better means of enhancing these skills should be developed and implemented in higher education institutions in Morocco.

| KEYWORDS
Critical thinking; argument evaluation; logical fallacies; open-access; restricted access; higher education.

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1. Introduction

The concept of higher education combining research and studies was advanced by Wilhelm von Humboldt in the early 19th century. While the transmission of knowledge is an aim of university, knowledge is never final nor complete. Hence, knowledge is continuously advanced through research. In endeavoring to advance knowledge, we seek, through research, to persuade the academic community of the validity of claims through evidence and arguments. The academic community, in turn, critically evaluates the arguments, and, if acceptable, the claims are incorporated into the collective knowledge. Argument construction and evaluation is, therefore, central in university instruction aiming to develop students' critical thinking skills. It is along this studies-research taxonomy that higher education endeavors to foster learning of technical skills and power skills, chief among which is critical thinking (CT).

The literature abounds with definitions of CT. Consider how the American Philosophical Association (APA) pertinently defines critical thinking as "the process of purposeful, self-regulatory judgment. This process gives reasoned consideration to evidence, context, conceptualizations, methods, and criteria." (Facione, 1990). Let's also consider Burns and Sinfield's (2016) definition:

"Critical thinking is the art of making clear, reasoned judgments based on interpreting, understanding, applying and synthesising evidence gathered from observation, reading and experimentation." Dwyer and Walch (2019) define CT as "a metacognitive process—consisting of a number of skills and dispositions—that, through purposeful, self-regulatory reflective judgment, increases the chances of producing a logical solution to a problem or a valid conclusion." We note that evidence, reasoning, and judgment constitute an overlap of CT definitions.

The endeavor in tertiary education is to shape critical thinkers rather than passive learners. These learners would be able to navigate their way through the abundance of information that characterizes today's digital world, make reasoned judgments, and establish their own views and stances. This entails students developing the skills of not only knowing, remembering, and understanding, but also applying, analyzing, synthesizing, and evaluating. The students are, therefore, enabled to move along Bloom's taxonomy of higher-order thinking skills. In addition, universities ought to produce graduates that are better prepared for a job market that is departing from the paradigm exclusively prioritizing technical skills to one that emphasizes transferable power skills. It seems, thus, imperative to assess whether higher education institutions succeed in achieving this goal.

Such is the aim of this study within the Moroccan context. To this end, this investigation aims to evaluate critical thinking skills among students in the terminal semester of a B.A. degree program. An argument evaluation test was administered to semester six students at both the department of English studies at the faculty of letters, languages, and arts (FLLA) and at the higher school for education and training (HSET). The results were analyzed and compared to determine whether the students are able to use critical thinking skills to evaluate arguments and whether there are any significant differences between open-access and regulated-access institutions students' critical thinking skills. This study attempts to answer the following questions:

1. To what extent are semester six students affiliated with higher education open-access and restricted-access institutions in Morocco able to use critical thinking skills to evaluate arguments?
2. Are there any differences in argument evaluation abilities between open-access and restricted-access institutions semester six students affiliated with higher education institutions in Morocco?

2. Literature review

2.1. Related work

Enhancing CT skills is one of the outcomes sought in higher education (Dwyer, 2017; Ennis, 2016), and research has shown that instruction can enhance these skills (Hitchcock, 2004; Dwyer et al., 2012). A body of research has explored CT teaching at the university level and indicated that, in addition to being useful during the students' academic careers, it equips them with invaluable skills for real life beyond university (Ku, 2009). Dwyer (2023) discusses the barriers that impede critical thinking application. The comprehensive CT barriers taxonomy Dwyer advances includes (1) epistemological engagement or understanding, (2) heuristic-based thinking and intuitive judgment, and (3) emotional and biased thinking. This entails that, first, CT be understood not only as dispositions and working skills but also as reflective judgment. Second, fast and lazy intuitive thinking, which aims to conserve cognitive effort, is an impediment to CT. Third, emotion and bias may cloud judgment and negatively affect decision-making through cognitive resistance to evidence and argument.

Let's now turn to the finite literature on critical thinking at the tertiary level in the Moroccan context. It includes research on teachers' and students' perception of CT (Chouari, 2016; Merabti & Benmhammed, 2024), CT and academic writing (Amrouss & Nejmaoui, 2017; Hellalet, 2021), CT and argumentative writing (Benich et al., 2021), the effect of reasoning fallacies training on CT ability (Khartite & Hellalet, 2021), and a literature review of CT research (Ouhani & Hiba, 2023).

Chouari (2016) explored university students' perceptions and attitudes with regard to a CT course. The data collected from ten students pointed towards a lack of students' needs consideration and a theory-practice gap. Investigating university professors' perceptions of CT, its definition, and evaluation of its role was the objective of Mrabti and Benmhamed's (2024) study. Despite the consensus among professors on the importance and role of CT in higher education, a variation in their conception of CT was identified, which might result in a variation in their CT instruction. Amrous and Nejmaoui (2017), on the other hand, investigated, through the Ennis-Weir Critical Thinking Essay Test and argumentative essay writing, whether and to what extent academic level affects the development of critical thinking skills among higher education students. The researchers found that, on the whole, the students displayed poor critical thinking skills and that academic level correlates positively with critical thinking skills. Yet, they note that students' argument construction skills progressed slower than argument evaluation skills.

Assessing argument construction to gain insight into university students' CT ability was the focus in Hellalet's (2021) investigation. This study, too, indicated low CT skills among the students, as they failed to express a stance and support it with arguments. Benich et al. (2021) is another study that explored higher education students' CT skills' impact on their argumentative essay writing. A CT test (Assessment Day Practice Test Experts, 2018) and argumentative essay writing indicated a positive

correlation between CT skills and argumentative essay writing proficiency. A different approach was adopted in Khartite and Hellalet's (2021) investigation of CT skills—reasoning fallacy instruction as treatment. It revealed a positive effect of reasoning fallacies instruction on CT skills development.

Ouhani and Hiba's (2023) review of the literature seems to indicate an absence of studies that map the general status of the teaching and learning of CT in higher education in Morocco. They concluded that, beyond the recent increased attention to CT, its instruction and learning in higher education in the Moroccan context appear to be under-researched. Besides, tertiary education institutions tend to overlook the "how" in favor of an emphasis on the "what" due, according to the researchers, to large class size and summative written assessment. They also point out that most students who participated in the studies surveyed did not exhibit higher CT skills and that there is a stark lack of contextualized CT instruction material suitable for the Moroccan context.

The literature review presented thus far points to a paucity of research assessing students' CT skills at the end of a university education journey (B.A. program) and a lack of focus on argument evaluation as a central element of critical thinking. It also indicates a lack of research comparing the critical thinking skills of students affiliated with different types of higher education institutions. The present study aims, consequently, to assess higher education students' CT skills as they are completing the final semester of a B.A. degree program at open-access and restricted-access institutions, through assessing their argument evaluation abilities. To pursue these aims, a theoretical underpinning has been adopted.

2.2. Theoretical framework

Critical thinking has been defined and explored on the premise of two major and contrasting theories—the philosophical and the cognitive psychological views (Lai, 2011). The philosophical view focuses on the ideal critical thinker and their qualities and characteristics (Lewis & Smith, 1993; Thayer-Bacon, 2000). Within this framework, CT is conceptualized in terms of what an ideal critical thinker is capable of doing (Sternberg, 1986). This is echoed, for example, in Paul's (1992) view of CT as "disciplined, self-directed thinking that exemplifies the perfections of thinking." We would realize here the shortcoming of not emphasizing the cognitive processes involved in CT.

Conversely, defining CT according to the cognitive psychological framework is premised on cognitive principles. Seen in this way, CT is defined based on the skills or procedures performed by critical thinkers (Lewis & Smith, 1993), such as analysis, interpretation, and evaluation. This view is reflected in CT definitions; namely, "the mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts" (Sternberg, 1986, p. 3) and "the use of those cognitive skills or strategies that increase the probability of a desirable outcome" (Halpern, 1998, p. 450). The present study was conducted within the latter framework, and the participants' critical thinking skills were assessed based on a cognitive task they performed.

3. Methodology

3.1. Participants

100 semester six students participated in this study. 50 participants were the Department of English Studies students at the Faculty of Letters, Language, and Arts (FLLA). These students study common core subjects in semester one through semester four before they go into a linguistics or literature stream for the final two semesters. The other 50 participants were students at the Higher School of Education and Training (HSET). Students at HSET are prepared to become English language teachers. They study, in addition to the same common core subjects as FLLA students, education-geared subjects. While a high school diploma is the sole requisite to enroll in a B.A. course at FLLA, enrolling at HSET requires additional pre-screening based on high school grades and passing an entry exam with a grade within a pre-established quota.

3.2. Data collection

The data was collected through a yes-no acceptability judgment task. The participants were asked to read 14 short statements and indicate whether the argument in each statement is acceptable to them by checking *Yes* or *No*. This entailed the participants performing the cognitive task of analyzing and evaluating each argument. The language of the statements was of a level that is easily intelligible to a semester six student, and the participants were given ample time to complete the task, as no time limit was set. The language level and time constraint variables were, thus, controlled. Two among the 14 arguments were strong, as they were based on evidence and data. The other 12 arguments were based, each, on one of the common reasoning fallacies. Reasoning fallacies, while appearing convincing, are mistakes in reasoning, making an argument weak or misleading. In more tangible terms, emotion, authority, or other irrelevant or inappropriate techniques are used to persuade instead of clear and sound logic. Types and definitions of common reasoning fallacies are shown in table 1.

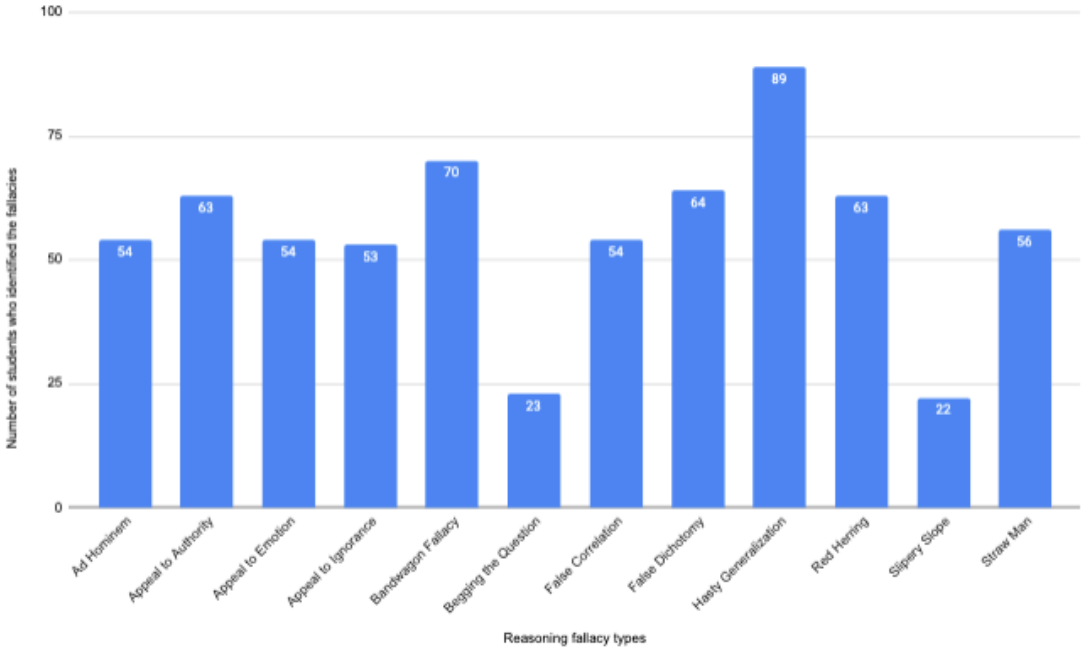
Table 1: Reasoning fallacies types and definitions.

Reasoning fallacy type	Definition
Ad Hominem	. Attacking the person instead of addressing the argument.
False appeal to Authority	. Using an important or famous person's opinion as evidence, even if they lack knowledge or expertise on the topic. They are not expert in the field under discussion.
Appeal to Emotion	. Using emotional arguments instead of facts.
Appeal to Ignorance	. Declaring that something is true because it has not been proven to be false.
Bandwagon Fallacy	. Arguing that something is true or right because everyone agrees to it or does it.
Begging the Question	. Circular reasoning: Stating that something is true without proving evidence, often just by repeating the same idea in different words.
False Correlation	. Assuming that because one event follows or precedes another, the two events must have a cause-effect relationship.
False Dichotomy	. False dilemma (either-or situation): Presenting two options as the only possibilities when other options exist.
Hasty Generalization	. Making an inference or a broad conclusion based on limited or inappropriate evidence.
Red Herring	. Introducing irrelevant information to distract from the main argument.
Slippery Slope	. Claiming that one action will lead to another more extreme consequence or a series of negative consequences.
Straw Man	. Misrepresenting someone's argument to make it easy to attack.

4. Results

Taken together, the results from the two groups (figure 1) indicate that fewer than 25% of the participants identified the two types of reasoning fallacies, begging the question (9 out of 50 FLLA students and 14 out of 50 HSET students) and slippery slope (10 out of the 50 FLLA students and 12 out of the 50 HSET students), as shown in table 2. Also, about 55% of the sample identified ad hominem (FLLA: 28/50 - HSET: 26/50), appeal to emotion (FLLA: 28/50 - HSET: 26/50), appeal to ignorance (FLLA: 31/50 - HSET: 22/50), false correlation (FLLA: 26/50 - HSET: 28/50), and straw man (FLLA: 28/50 - HSET: 28/50). 60% to 70% of the participants identified four types of reasoning fallacies. These were appeal to authority (FLLA: 31/50 - HSET: 32/50), bandwagon (FLLA: 32/50 - HSET: 38/50), false dichotomy (FLLA: 28/50 - HSET: 36/50), and red herring (FLLA: 29/50 - HSET: 34/50). The percentage of students who identified the hasty generalization fallacy was the highest (89%), with 39/50 of FLLA students and 50/50 of HSET students.

Figure 1: Percentages of overall students (FLLA and HSET) who identified the reasoning fallacies



With respect to comparison, figure 2 shows that the two groups' scores were either identical or very similar regarding six types of reasoning fallacies: ad hominem (FLLA: 28 and HSET: 26), appeal to authority (FLLA: 31 and HSET: 32), appeal to emotion (FLLA: 28 and HSET: 26), false correlation (FLLA: 26 and HSET: 28), slippery slope (FLLA: 10 and HSET: 12), and straw man (FLLA: 28 and HSET: 28). One group slightly outperformed the other regarding five of the fallacies: appeal to ignorance (FLLA: 31 and HSET: 22), bandwagon fallacy (FLLA: 32 and HSET: 38), begging the question (FLLA: 9 and HSET: 14), false dichotomy (FLLA: 28 and HSET: 36), and red herring (FLLA: 29 and HSET: 34). Only in identifying the hasty generalization fallacy was the difference stark between the two groups (FLLA: 39 and HSET: 50).

Table 2: Number of FLLA and HSET students who identified the reasoning fallacies.

Reasoning Fallacy Type	Number of FLLA students who identified the fallacy	Number of HSET students who identified the fallacy
Ad Hominem	28	26
Appeal to Authority	31	32
Appeal to Emotion	28	26
Appeal to Ignorance	31	22
Bandwagon Fallacy	32	38
Begging the Question	9	14
False Correlation	26	28
False Dichotomy	28	36
Hasty Generalization	39	50
Red Herring	29	34
Slippery Slope	10	12
Straw Man	28	28

Figure 2: Comparison of the number of FLLA and HSET students who identified the fallacies

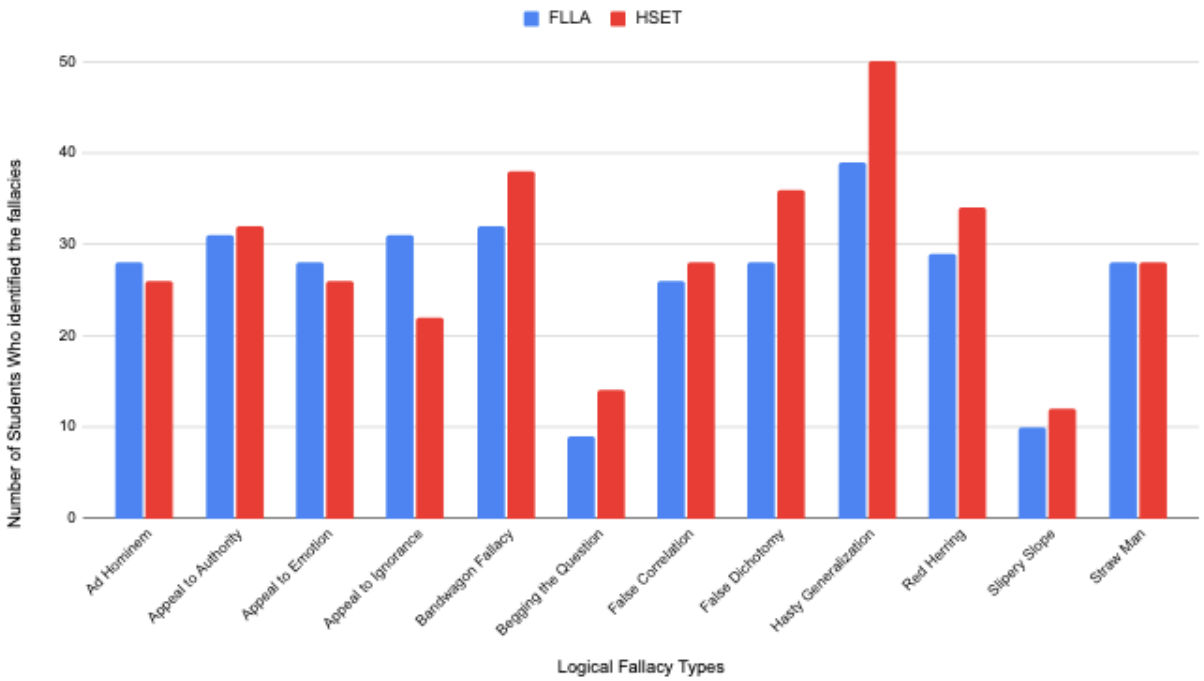


Table 3 displays the descriptive statistics with regard to the two groups. The mean for reasoning fallacy identification among FLLA students was 26.58 with a standard deviation of 8.64. The mean for reasoning fallacy identification among HSET students, on the other hand, was 28.83, and the standard deviation was 10.39.

Table 3: Descriptive statistics

		Frequency	Mean	Std. Deviation
Fallacy Identification	**FLLA**	12	26.58	8.64
	HSET	12	28.83	10.39

5. Discussion

While earlier studies have explored university students' critical thinking skills, a comparison between open-access and regulated-access institutions students in this regard has not been addressed. This study aimed to investigate the extent to which bachelor's degree final semester students affiliated with higher education open-access and regulated-access institutions are able to use critical thinking skills to evaluate arguments. On the basis of this aim, an argument evaluation task was administered to students from the two higher education institution types. We can see that the results indicate limited argument evaluation scores among both groups and non-significant variation between the two samples.

The limited argument evaluation scores imply lower critical thinking skills. Higher critical thinking skills would equate to as close to 100% identification of reasoning fallacy arguments by the students as not acceptable. It is apparent from the analysis of the results that a significant number of students considered arguments that are based on reasoning fallacies as acceptable, therefore strong. This is most pronounced with respect to slippery slope and begging the question (78% and 77%, respectively). Equally, just under half of the participants accepted arguments based on ad hominem, appeal to emotion, appeal to ignorance, false correlation, and straw man fallacies as logical. Along the same pattern, 30 to 40 percent of the students could not identify weak and unacceptable arguments built on false appeal to authority, false dichotomy, bandwagon, and red herring fallacies. Only 11% of the students not having identified a hasty generalization fallacy may be considered as the best critical thinking performance

by the participants. Accordingly, in answering research question 1, the argument evaluation skills of students at both open-access and regulated-access institutions appear to be limited.

What is more, the difference between the two groups regarding argument evaluation suggests under-developed critical thinking skills among students regardless of the type of institution with which they are affiliated. An independent samples t-test was conducted to answer research question 2 through comparison of reasoning fallacy identification by students in the two groups. There was no significant difference in the argument evaluation by FLLA students (M = 26.28, SD = 8.64) and HSET students (M = 28.83, SD = 10.39); t(22) = -0.58, p = .57 (two-tailed). The magnitude of the differences in the means (mean difference = -2.25, 95% CI: [-10.34 , 5.84]) was small, with a Cohen's d of 0.24 (Table 4; Table 5).

Table 4: t-Test for independent samples

		t	df	p	Cohen's d
Fallacy Identification	Equal variances	-0.58	22	.57	0.24
	Unequal variances	-0.58	21.29	.57	0.24

Table 5: 95% confidence interval of the difference

		Mean difference	Std. error of difference	Lower limit	Upper limit
Fallacy identification	**Equal variances**	-2.25	3.9	-10.34	5.84
	Unequal variances	-2.25	3.9	-10.36	5.86

We can infer that these findings indicate that the critical thinking skills of these university students appear to be low even after three years of higher education. This accords with previous research (Amrouss & Nejmaoui, 2017; Hallelat, 2021). The study also emphasizes the importance of reasoning fallacies instruction invoked by Khartite and Hellalet (2021). Furthermore, the results contribute insights with regard to the argument evaluation aspect of critical thinking deficiency among these students and underscore the prevalence of this deficiency regardless of the open or restricted access status of the educational institution. This study was conducted with participants affiliated with two types of institutions. Future research should confirm the findings and extend this research by applying it to a larger number and other types of higher education institutions.

6. Conclusion

While one of the aims of university is to foster critical thinking and to build and enhance students' critical thinking skills, this aim might not have been reached to a good extent. The results of this study suggest that, on the whole, argument evaluation as a central critical thinking skill remains low at a landmark of the students' academic journey: at the completion of a B.A. degree program. This deficiency among both open-access and regulated-access higher education institutions students highlights the need for reevaluation of the conceptualization of critical thinking, the approach to its instruction, and the methodologies, material, and assessment used. More research is recommended and welcomed in order to shed more light on each of these aspects and to advance the collective knowledge with respect to improving university students' critical thinking skills.

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References

[1] Amrous, N., & Nejmaoui, N. (2017). A developmental approach to the use of critical thinking skills in writing: The case of Moroccan EFL university students. ASELS Annual Conference Proceedings, *Arab World English Journal*, 142-156. https://doi.org/10.2139/ssrn.2895546.

[2] Beniche, M., Larouz, M., & Anasse, K. (2021). Examining the relationship between critical thinking skills and argumentative writing skills in Moroccan preparatory classes of higher engineering schools (CPGE). *International Journal of Linguistics, Literature and Translation, 4(*9), 194-201. https://doi.org/10.32996/ijllt.2021.4.9.19.

[3] Burns, T., & Sinfield, S. (2016). Essential study skills: The complete guide to success at university (4th ed.). Sage.

[4] Chouari, A. (2016). Teaching critical thinking in Moroccan higher education: Challenges and opportunities. *Arab World English Journal*, 7(2), 457-467. https://doi.org/10.24093/awej/vol7no2.31.
[5] Dwyer, C. P. (2017). *Critical thinking: Conceptual perspectives and practical guidelines*. Cambridge University Press.
[6] Dwyer, C. P. (2023). An evaluative review of barriers to critical thinking in educational and real-world settings. *Journal of Intelligence*, 11(6), 105. https://doi.org/10.3390/jintelligence11060105.
[7] Dwyer, C. P., Hogan, M. J. & Stewart, I. (2012). An evaluation of argument mapping as a method of enhancing critical thinking performance in e-learning environments. *Metacognition and Learning,* 7(3), 219-244. https://doi.org/10.1007/s11409-012-9092-1.
[8] Ennis, R. H. (2016). Critical thinking across the curriculum: a vision. *Topoi*, *37*(1), 165–184. https://doi.org/10.1007/s11245-016-9401-4.
[9] Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction—The Delphi report*. California Academic Press.
[10] Halpern, D. F. (1998). Teaching critical thinking for transfer across domains: Dispositions, skills, structure training, and metacognitive monitoring. *American Psychologist, 53*(4),449–455. DOI:10.1037/0003-066X.53.4.449.
[11] Hellalet, N. (2021). Critical thinking in Moroccan university students' writing: The case of Chouaib Doukkali University. *Journal of Applied Language and Culture Studies, 4*, 179-194.
[12] Hitchcock, D. (2004). The effectiveness of computer-assisted instruction in critical thinking. *Informal Logic,* 24(3), 183–218. https://doi.org/10.22329/il.v24i3.2145.
[13] Khartite, B., Hellalet, N. (2021). The impact of teaching reasoning fallacies on the critical thinking ability of Moroccan engineering students: The case of ENSAM Meknes. *International Journal of Linguistics, Literature and Translation, 4*(9), 222-232. https://doi.org/10.32996/ijllt.2021.4.9.23.
[14] Ku, K. Y. L. (2009). Assessing students' critical thinking performance: Urging for measurements using multi-response format. *Thinking Skills and Creativity,* 4(1), 70–76. https://doi.org/10.1016/j.tsc.2009.02.001.
[15] Lai, E. R. (2011). Critical thinking: A literature review. *Pearson's Research Reports*, *6*(1), 40-41.
[16] Lewis, A., & Smith, D. (1993). Defining higher order thinking. *Theory into Practice, 32*(3), 131–137. https://doi.org/10.1080/00405849309543588.
[17] Merabti , M. & Benmhamed, M. (2024). Investigating Moroccan EFL university professors' understanding of critical thinking skills . *Studies in Humanities and Education*, 5(2), 37–51. https://doi.org/10.48185/she.v5i2.1360.
[18] Ouhani, N. & Hiba, B. (2023). Critical thinking practice in Moroccan higher education: An evaluation. *International Journal of Linguistics, Literature and Translation, 1(1), 100-100.* https://doi.org/10.32996/ijllt.2023.6.1.12.
[19] Paul, R. W. (1992). Critical thinking: What, why, and how? *New Directions for Community Colleges, 1992*(77), 3–24. https://doi.org/10.1002/cc.36819927703.
[20] Sternberg, R. J. (1986). *Critical thinking: Its nature, measurement, and improvement.* National Institute of Education.
[21] Thayer-Bacon, B. J. (2000). *Transforming critical thinking: Thinking constructively*. Teachers College Press.