

Investigating Moroccan EFL University Professors' Understanding of Critical Thinking Skills

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Abstract: This study examines Moroccan EFL university professors' understanding of critical thinking and their perceptions of its importance in higher education. Addressing a gap in existing research, the study explores how professors define CT and evaluate its role in the teaching-learning process. Data were collected from 100 professors through an open-ended questionnaire and analyzed using thematic analysis. The results show that professors view CT as vital for fostering independent thought, improving problem-solving skills, and preparing students for real-world challenges. The study highlights the importance of critical thinking in promoting active, reflective learning and concludes that it is a critical component of higher education, with implications for teaching practices and curriculum development.

Keywords: Critical Thinking Skills; Understanding; Definitions; Perceptions

1. Introduction

The twenty-first century has witnessed an unprecedented explosion of information accessibility and technological advancement. With the advent of the internet, social media, smartphones, and other digital technologies, information has become more accessible and abundant than ever before. This shift has generated considerable debate in the education sector about the importance of critical thinking. Numerous educationalists support the promotion of Critical Thinking (CT) in education (Facione, 1990), either by designing dedicated courses or by integrating CT teaching methods into existing subjects (Norris & Ennis, 1989). They consider it crucial for students to gain the knowledge and skills necessary to think critically, evaluate the information they are exposed to, ask questions, analyse information, and make decisions in various contexts. Additionally, educationalists claim that mastering such skills should extend beyond school settings, as the modern workplace demands effective critical thinking skills (Radzi et al., 2009, p. 2013). Accordingly, instilling critical thinking in university students has become a highly expected and desired outcome of higher education (Facione, 2011; Moore, 2013). Students need to acquire diverse skills that are indispensable in our challenging and ever-changing world. Schools and universities in the twenty-first century should prepare students for a new social and economic environment, as well as a more demanding and skill-oriented workplace. In an era of global communication, digital literacy, technical advancements, human mobility, social networking, innovations, and creativity, cultivating students' thinking skills, particularly critical thinking skills, is paramount in today's education.

to promote CT, one must first comprehend the meaning of critical thinking, which is often regarded as a confusing concept. According to Facione (2011), CT is frequently associated with good, rational thinking. However, delving deeper into the concept reveals its complexity, involving a range of cognitive skills and dispositions that go beyond merely avoiding irrationality. Teachers need to recognize the significance of Critical Thinking Skills, understand the methodologies for

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imparting them, and identify the most suitable classroom contexts for emphasizing and teaching these skills.

Despite the growing global emphasis on critical thinking in education, there is a notable lack of research focusing on university teachers' understanding and perceptions of CT within the Moroccan academic context. In particular, the perspectives of Moroccan university professors on how they define critical thinking and its role in higher education remain underexplored. This gap in the literature underscores the need for a focused investigation that can provide a more nuanced understanding of how critical thinking is conceptualized and valued by those who are directly involved in shaping the minds of future professionals and academics.

The present study seeks to fill this research gap by examining how Moroccan EFL university professors define critical thinking and how they perceive its importance in the educational process. By delving into their definitions, the study aims to reveal the professors' conceptual frameworks of CT—whether they view it as a set of cognitive skills, a mindset, or a combination of both—and how these definitions align with or diverge from established theories in the field. Investigating this aspect is critical, as it not only illuminates the educators' understanding of CT but also sheds light on how this understanding influences their teaching practices and the cultivation of critical thinking skills among students.

Moreover, by exploring professors' perceptions of the importance of critical thinking, the study provides insight into the role CT plays in the current educational landscape of Moroccan universities. It will examine whether professors consider critical thinking to be a central or peripheral aspect of their pedagogical approach and how they prioritize it in relation to other educational objectives. Understanding these perceptions is crucial for assessing the current state of critical thinking in Moroccan higher education and for identifying areas where further development or support may be needed to enhance the teaching and integration of critical thinking skills.

The study is guided by the following key research questions:

1. How do university professors define critical thinking?
2. How do university professors perceive the importance of critical thinking in the teaching and learning process?

By addressing these research questions, the study aims to contribute to the broader understanding of critical thinking in Moroccan higher education and provide a foundation for future studies that may further explore how CT can be effectively taught, promoted, and integrated across academic disciplines. The findings of this research could have implications for curriculum design, teacher training programs, and institutional policies that aim to foster critical thinking as a core component of university education.

2. Review of the Literature

2.1 A Historical Overview of Critical Thinking

Historically, scholars (Facione, 1990; Ennis, 1993) have agreed that critical thinking is an old discipline as it can be traced back to 2500 years ago, precisely to the Greek era. It first appeared with Socrates who discovered that people were unable to justify their claims to knowledge. Socrates demonstrated the importance of asking deep questions that lead to thinking before taking ideas at face value. In other words, he indicated the great importance of seeking evidence, examining assumptions and reasoning, analysing basic concepts, and finding out implications from what is said or done. His method of questioning or as it is known 'Socratic questioning' is considered as the best-known critical thinking strategy (Paul & Elder, 2007).

According to Paul and Elder (2007), the art of questioning is intricately connected to critical thinking, as it serves as a cornerstone for achieving excellence in thought. Socratic questioning, for them, is used to pursue thought for many purposes, including:

To explore complex ideas, to get to the truth of things, to open up issues and problems, to uncover assumptions, to analyse concepts, to distinguish what we know from what we do not know and to follow out logical implications of thought. (p.5)

In their view, the art of questioning is intricately connected to critical thinking because questioning serves as a cornerstone for achieving excellence in thought. Questioning stimulates deeper analysis, challenges assumptions, and encourages the exploration of new ideas, thereby fostering a more profound and rigorous intellectual process. This practice of questioning helps to refine and elevate thinking by promoting clarity, precision, relevance, and logical consistency, all of which are essential for high-quality, critical thought. Through questioning, individuals can uncover biases, evaluate evidence, and construct well-reasoned arguments, leading to a more thorough and insightful understanding of complex issues. Moreover, they considered that both critical thinking and Socratic questioning share a common end, that is, “Critical thinking provides the conceptual tools for understanding how the mind functions, and Socratic questioning employs those tools in framing questions essential to the pursuit of meaning and truth” (Paul & Elder, 2007, p. 5).

Lambright (1995), later, affirms that Socratic seminars aim to enlarge the understanding of ideas, issues, and values by fostering dialogues that encourage thorough thinking about possible meanings. The purpose of these seminars is to create an environment where participants engage in thoughtful discussion, asking and answering questions to deepen their comprehension and critically examine various perspectives. This process helps individuals explore the nuances of complex topics, challenge their assumptions, and develop a more profound and well-rounded understanding. Through these dialogues, participants collaboratively construct knowledge and refine their thinking, contributing to their overall intellectual growth. Plato and Aristotle followed Socratic practice and emphasized the need of using critical thinking. They stressed the fact that people need to think beneath the surface of things and not to accept ideas as worthy of belief without evidence. Thus, for them, to be able to understand the deeper realities of things, a person needs to resort to a mode of thinking that is thorough, logically sound, and responsive to objections (Paul & Elder, 2007).

Critical thinking became more prominent throughout the Renaissance (the 15th and 16th centuries). Several academics, such as Erasmus and Michel de Montaigne, started thinking critically about most of human life domains, such as religion, art, society, human nature, law, and freedom. Then, in the 17th century, Francis Bacon argued for the importance of studying the world empirically. He insisted on using critical thinking and making it the cornerstone of all scientific endeavour (Cohen et al., 2000). However, it was not until the nineteenth century that critical thinking began to be widely used and regarded as an independent academic field in many Western nations, including England and the United States.

In the 20th century, critical thinking became a significant topic in debates among educators about the future of education (Facione, 1990). Scholars like Dewey (1910) emphasized the necessity for both teachers and students to employ critical thinking skills in the educational process. He posited that education could either assist or impede development of problem solving and judgement. Dewey advocated an educational system that is based on scientific method, fulfilling students’ interests and integrating students’ experience with learning content (Kurfiss, 1988). The value of critical thinking in education grew significantly in the latter half of the twentieth century, particularly following the publication of Bloom’s 1956 Book *Taxonomy of Educational Objectives*.

In the 1980s, critical thinking was widely adopted in both and education. Numerous programs were developed to teach critical thinking across various age groups, alongside a variety of workshops for teachers and administrators. Additionally, a significant number of articles on teaching critical thinking were published in various journals. Thus, a new interest in implementing critical thinking in different curricula emerged in some developed countries in Europe and North America (Baron & Sternberg, 1987). As the twenty-first century commenced, critical thinking underwent a significant integration into educational frameworks globally. This integration extended across various educational programs, spanning different countries, even those considered developed. Scholars such as Inch and

Warnick (2011) noted this trend, emphasizing the widespread adoption of critical thinking practices at multiple levels of education.

2.2 Defining Critical Thinking

Critical thinking has been the concern of many researchers, scholars, educators, psychologists, and philosophers (Dewey 1910; Ennis, 1985; Facione, 1990). Scholars have attempted to provide an intelligible definition to the term. However, there is no agreement on one direct, clear, and comprehensible definition of what critical thinking really is, “only so long as theorists remain at the level of abstract discussion and permit their use of the term to remain vague. As soon as they interpret the term to provide a clear conception, agreement evaporates” (Bailin et al., 1999, p. 285).

Geng (2014) stresses that there is no universally agreed-upon definition of critical thinking. It varies depending on the perspective of different experts in the field, resulting in a multitude of definitions. Moreover, Geng mentioned that, from 1988 to 2013, every year at least has one definition of critical thinking. Despite the fact that there are many definitions, the term is difficult to define. For this, Atkinson (1997) stated that “because it is learned intuitively, critical thinking is easy for academics to recognize, like a face or personality, but it is not so easily defined, and it is not at all simple to explain” (p. 125). Put differently, academics, who are often seen as precise in their definitions, struggle to define critical thinking clearly. The term is, as the critical theorist Williams (1976) suggested, “the most difficult one” (p. 74); no definite definition could be provided to it. It would seem reasonable to assume that a term with such widespread usage would have developed a precise definition by now, but every attempt to define critical thinking results in a less precise definition (Capossela, 1998). Accordingly, many scholars today have referred to critical thinking as ‘a contentious skill’ (Bailin et al., 1999; Liu et al., 2014). In other words, it is a term that is characterized by controversy at the level of its definition, assessment, and effects on students’ life inside and outside educational institutions as has been clearly mentioned by Liu et al. (2014):

It [critical thinking] is also a highly contentious skill in that researchers debate about its definition; its amenability to assessment; its degree of generality and specificity; and the evidence of its practical impact on people’s academic achievements; career advancements; and personal life choices. (p.1)

Some academics (Ennis, 1993; Facione, 1990) set forth the variations among researchers concerning the definition of critical thinking. On the one hand, they have mentioned that scholars’ disciplinary background directly affects their opinion of critical thinking (Geng, 2014). Critical thinking has a direct relationship with disciplines. Every researcher tends to explain it according to his/her area of knowledge. In other words, the divergence in defining critical thinking stems from the varying perspectives from which disciplines like philosophy and psychology approach the concept. On the other hand, other researchers have explained that the controversial nature and the multiplicity of views of the concept are due to using it in isolation from its context and looking at it in a static way (Williams, 1978; Bailin et al., 1999). Wittgenstein (1958) used the word ‘games’ to describe how terms are polysemous in their meanings, he explains: “the phenomena [we call games] have no one thing in common which make us use the same word for all, but they are related to one another in many different ways” (p.31). He clarified that the concept of ‘game’ can be perceived differently depending on the context. For instance, some might define a game solely based on the presence of winning and losing. However, other valid uses of the term exist, such as observing a child playing with a ball against a wall, which does not necessarily involve winning or losing. He asserted that there is no universal characteristic shared by all conceptions of the term ‘game’.

In this regard, the understanding of the concept cannot be through analysing the word in isolation from its context, but rather through looking at how the term is used by practitioners in their teaching activities. To put the point another way, instead of making different meanings to the word from what one thinks, it is suggested that it should be viewed from how the term is utilized as an educational practice. For instance, Kadir (2007) argued that the definition of critical thinking can vary depending on the immediate context. If the focus is on analysing arguments in a newspaper editorial, critical thinking could be seen as “the construction and evaluation of argument” (Facione, 1984, p. 259). However, if the goal is to research a real-world issue for practical solutions, then critical thinking might be better defined as “reasonable reflective thinking that is based on deciding what to believe or do” (Ennis, 1985, p. 31). Similarly, Alston (1964) demonstrated that language is inherently social, and

meaning is shaped by how a term is used. Therefore, attempting to find a single, definitive definition of critical thinking remains elusive. Gee (2004) also expressed a similar idea: “Words do not have just general dictionary like meaning. They have different and specific meanings in different situations where they are used and in different specialist domains that recruit them” (p.36). Thus, according to the aforementioned researchers, the conception of critical thinking is dependent on its context and purpose, and these factors largely determine its definition.

In short, asserting that context and purpose are essential in defining critical thinking does not imply that these definitions contradict each other. On the contrary, Kadir (2007) stated that the various conceptions of critical thinking share a ‘family resemblance’, similar to Wittgenstein’s (1958) notion of the concepts ‘game’ and ‘numbers’. For Kadir, critical thinking should not and cannot be confined to a single definition that excludes others. Despite the lack of a clear-cut definition, it can, nevertheless, be used meaningfully and constructively. Although there is disagreement among scholars about one single and clear definition to critical thinking, most of them agree that the improvement of critical thinking is an important educational objective (Bensley, 1997). In this regard, a group of educational academics has devoted themselves to find an answer to that definitional question (Davies, 2006; Ennis, 1993; Facione, 1990). These scholars, primarily educational philosophers and psychologists, have aimed to develop a clear and distinct understanding of critical thinking.

2.2.1 Philosophical Conceptions of Critical Thinking

It is of paramount importance to highlight the apparent differences among some of the well-known positions on critical thinking within the philosophical field. To this end, it is valuable to consider the contributions of various philosophers who have developed definitions of critical thinking.

John Dewey (1859-1952), one of America’s foremost educators and philosophers, significantly transformed the concept of critical thinking and its role in education with the release of his book ‘How We Think’ in 1910. Though he did not use the term ‘critical thinking’, Dewey (1910) was among the first philosophers who viewed ‘reflective thinking’ as a major objective of education. He asserted that students need to learn how to think. He further pinpointed that learning arises out of the process of reflection. Considering this, he defined reflective thinking as follows an “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 conclusion to which it tends” (1910, p. 9). The process of reflection, according to Dewey, is a conscious and voluntary process that aims to establish belief upon solid reasons. According to him, reflection denotes that the belief of something cannot be without evidence or proof. Hence, to reflect or to turn the thing over in mind means that a thinker will use the available information and look for evidence to test the validity of a statement before accepting it as a form of knowledge. In brief, reflective thinking, for Dewey, means “judgement suspended for further inquiry” (1910, p.12).

Likewise, Papadimos (2009) conveyed the notion that reflective thinking prompts inquiry, aiding physicians and students in reaching specific conclusions. He suggested that, at its most basic level, reflective thinking involves being conscious of anything entering our awareness. Accordingly, reflection is primarily about a person’s ability to maintain the state of doubt and to continue systematic and ongoing inquiry. In line with the above, Rodgers (2002) demonstrated:

The function of reflection is to make meaning: to formulate the ‘relationship and continuities’ among the elements of an experience, between that experience and other experiences, between that experience and the knowledge that one carries, and between that knowledge and the knowledge produced by thinkers other than oneself. (p. 848)

Another prominent definition of CT is that of Ennis (1985). For him, CT refers to a higher level of thinking more than just thought. His first definition relates CT to the correct assessing of statement. He explained the correct assessment of statements by outlining a set of critical thinking sub-skills. These sub-skills include grasping the meaning of statements, identifying ambiguities, assumptions, or contradictions in reasoning, recognizing necessary conclusions, evaluating the appropriateness of definitions, and examining the acceptability of the supposed authority. Ennis (1989) first definition excluded the creative thinking from critical thinking which leads him to replace it by a broad definition: “reasonable reflective thinking that is focused on deciding what to believe and do” (p. 46). CT is associated with certain activities such as making reasoned judgements and decisions.

Moreover, it enables the person to understand the thoughts, make sense of ideas, and make logical decisions.

Considering this, Ennis (1993) connected critical thinking to particular skills, such as observing, inferring, generalizing, reasoning, and evaluating reasoning. Put differently, he emphasized the skill component of critical thinking. Besides, he asserted that these abilities can be acquired regardless of the discipline and are transferable across different fields. According to him, Thinking critically implies applying the principles and skills of critical thought to a specific discipline. Additionally, Ennis (1993) emphasized that for a person to be able to decide reasonably and reflectively what to believe or do, they need to perform several tasks:

Judge the credibility of sources, identify conclusions, reasons, and assumptions, judge the quality of an argument, including the acceptability of its reasons, assumptions, and evidence, develop and defend a position on an issue, ask appropriate clarifying questions, plan experiments and judge experimental designs, define terms in a way appropriate for the context, be open minded, try to be well-informed, and draw conclusions when warranted, but with caution. (p. 180)

In 1990, Facione outlined an approach in his seminal publication in Delphi Report. He developed a consensus on six cognitive skills that CT includes, namely interpretation, analysis, evaluation, inference, explanation, and self-regulation. Each of these skills subsumes sub-skills. Moreover, he stressed on a person disposition towards using critical thinking skills. In other words, in addition to thinking critically a person needs to be motivated and driven to think critically when appropriate. Furthermore, Facione and Facione (1996) indicated that critical thinking is crucial to knowledge development, professional practice, and the development of an educated practice. Put another way, CT is considered as the engine that guides knowledge development as well as professional growth in different professional situations.

Lipman (2003) defined critical thinking as the application of reasoning skills that result in well-thought-out judgments. He emphasized that CT is not merely a cognitive process leading to comprehension but also involves utilizing knowledge to enact change. In other words, the aim is not solely to form judgments but also to implement them. Lipman maintained that CT intertwined with every academic discipline, enhances the quality of meaning generated within those disciplines. In essence, he defined it as “thinking that facilitates judgement because it relies on criteria, is self-correcting, and is sensitive to context” (1991, p. 212). As for criterion, it is used as a rule to make judgments, which makes, in turn, critical thinking reliable thinking that can be assessed by appeal to criteria. Self-correcting is seen as equivalent to an inquiry that seeks to identify its own flaws and correct any errors. Describing critical thinking as being sensitive to context means that it is sensitive to particularities and uniqueness (Lipman, 2003).

Splitter (1990) promoted another prominent definition to CT. He posited that for CT to occur, there need to be a “community of enquiry” (p. 100). That is, an environment where thinking is valued and modelled. In such environment students are treated as thinkers and not just consumers of other people’s thoughts. They are inspired to think, talk, and write about issues that they find interesting and perplexing and for which there is not a simple answer easily available, whether in a textbook or simply in the teacher’s head (Splitter, 1990).

Moreover, Splitter (1990) affirmed that the members of such community provide value to both cognitive and affective strategies. The former is demonstrated in asking questions, finding assumptions, and searching for reasons and implications, whereas the latter is manifested in the development of intellectual courage, integrity, and persistence. He further explained that the likelihood of transferring skills to broader areas of the curriculum and beyond can be genuinely addressed when participants are committed to and take pride in the methodology of inquiry. Phrased differently, students will be more inclined to use inquiry than internalization as a way of learning, and this tendency will transcend subject matter to become a dimension of life. Accordingly, teachers’ role is to help students improve their thinking and encourage them to be more aware of how they do think in a given context. Following this, Splitter (1990) pinpointed that through interpersonal communication, a community openly reason its way to understanding and truth. That is, through conversation, students gain the necessary skills to successfully go from the world of their personal ideas and experiences to the more universal level of concepts, criteria, and principles at which greater comprehension and

reflection occur. Put another way, the verbal exchange that occurs in a classroom or outside does not just represent one's thoughts; it also influences students' thinking.

Paul (1991) viewed CT as an engagement in metacognition. Paul defined it as "the art of thinking about your thinking while you are thinking in order to make your thinking better: more clear, more accurate, more fair" (p. 18). He has further describes it as being disciplined and self-directed thinking. It is, for him, a distinct and intentional way of thinking in which the thinker systematically imposes intellectual standards and criteria on the thinking, taking control of its construction, directing it in accordance with standards, and evaluating its success in light of the purpose, standards, and criteria (Paul, 1991). Simply put, to think critically entails having control over certain intellectual standards which are manifested in clarity, accuracy, precision, relevance, depth, breadth, and logic. Additionally, it involves the ability to accurately assess one's own reasoning ability, that is, a person needs not just to reason, but also to be able to reason well.

Accordingly, Elder and Paul (1998) asserted the importance of evaluating student reasoning in a fair, justifiable, and objective manner. They highlighted the need to assess not only whether students are engaging in reasoning but also the quality of their reasoning. They proposed measuring this by consistently applying relevant intellectual standards to each aspect of their thinking process as they tackle problems or issues. In brief, Paul (1991) conceptualized critical thinking as closely tied to standards, which he referred to as intellectual standards. He defined these standards as the benchmarks for evaluating the quality of thinking. They encompass attributes such as clarity, precision, relevance, and logical coherence, all essential aspects of engaging in critical thinking.

McPeck (1981) presents a contrasting viewpoint to Paul and Ennis, challenging the notion of critical thinking as a generalized skill and a distinct subject of study. Instead, he argued that critical thinking should be viewed as a broad category that includes various modes of thought. Simply put, McPeck contended that the practice of critical thinking is inseparable from the specific domain to which it is applied. He explained that thinking cannot be about something in general but must always be about something in particular. In this respect, he explained critical thinking as "the appropriate use of *reflective skepticism* within the problem area under consideration" (1981, p.7). According to him, the teaching of critical thinking or the development of students' critical thinking abilities should occur within the context and disciplines of their study. He asserted that the term 'critical thinking' does not refer to any specific skill when isolated from a particular subject. Discussing critical thinking as a separate subject is, in his view, absurd, and it cannot be taught effectively in isolation. Critical thinking is both theoretically and practically meaningless if it is not focused on a specific subject (McPeck, 1981). This perspective is also supported by Brookfield (2003) who said that critical thinking is "irrevocably context bound as it can only be understood, and its development gauged, within a specific context" (p. 157). Similarly, many theorists (Brown et al., 1989) have stressed the point that the exercise of cognitive skills is often situation specific. In essence, this position implies that specific thinking skills are associated with each domain and that learning these thinking skills occurs through the accumulation of knowledge within that particular domain.

Although philosophical theorists of critical thinking have different perspectives, they all agree that critical thinking is a normative term. Accordingly, to describe thinking as being critical is to judge that it meets relevant standards or criteria of acceptability, and is, therefore, appropriately regarded as 'good' (Bailin & Siegel, 2003). In short, CT is a form of an intellectual activity of thinking that employs criteria and results in logical conclusions.

2.2.2 Psychological Conceptions of Critical Thinking

Regarding psychologists' perspectives on critical thinking, many offer various definitions of the term. Sigel (1984) perceived critical thinking as "an active process involving a number of denotable mental operations such as induction, deduction, reasoning, sequencing, classification, and definition of relationships" (p.18). In other words, CT for Sigel is a set of cognitive skills that the thinker applies while thinking. On their part, Mayer and Goodchild (1990) viewed it as "an active and systematic attempt to understand and validate arguments" (p. 4). Accordingly, students need to acquire certain skills that will enable them to analyze arguments, and hence be called critical thinkers (Jakoubek, 1993). As for the psychologists Ericson and Hastie (1994), they defined critical thinking as "a sequence of internal symbolic activities that leads to novel, productive ideas or conclusions" (p. 38). It refers to

the thinker's use of mental operation to reflect on external events, and thus come up with sound conclusions. Moreover, McBurney (1996) regarded it as "an attitude of asking why" (p.2). Put another way, critical thinking is perceived as a disposition or a tendency that drives the person to ask the question 'why?'. Likewise, Ritchhart (2002) shared the same dispositional perspective of CT. That is, he claimed that it is associated with the character and attitude of a person. Moreover, he asserted that a person's predisposition to think critically not only shapes but also motivates intellectual behaviour.

Bloom (1956) also provided a perspective on the concept of critical thinking. He developed a framework for classifying thinking behaviours important in the learning process, which evolved into a taxonomy consisting of three domains: cognitive, affective, and psychomotor, each with its own subcategories. The well-known taxonomy encompasses six categories within the cognitive domain. These categories help teachers identify the educational goals they should support in their classrooms. The categories are knowledge, comprehension, application, analysis, synthesis, and evaluation, ordered hierarchically from simple to complex. The top three categories -analysis, synthesis, and evaluation- are considered the skills that represent CT, while the remaining categories -knowledge, comprehension, and application- are simpler skills that a thinker progresses through. Later, the distinction between higher-order skills and lower-order skills emerged to differentiate these categories. In summary, Bloom's taxonomy includes six categories of cognitive skills, ranging from lower-order skills that require less cognitive processing to higher-order skills that demand deeper learning and more extensive cognitive processing (Krathwohl, 2002). Many educators agree that higher-order skills, such as analysis, synthesis, and evaluation, are associated with critical thinking (Krathwohl, 2002).

However, Anderson (2001), a former student of Bloom, brought a number of changes to the original taxonomy. Among these is the movement from one dimension to two dimensions. In other words, the separation of cognitive processes from the knowledge dimension. Hence, the revised knowledge dimension includes four instead of three main categories: factual, conceptual, procedural and metacognitive knowledge. Concerning the revised cognitive processes, they are organized as follows: remembering, understanding, applying, analyzing, synthesizing, evaluating, and creating (Anderson et al., 2001). Apart from the change of the cognitive processes from the noun to the verb, for instance 'evaluate' to 'evaluating', there are also the reordering and renaming of three cognitive processes. 'Knowledge', 'comprehension' and 'synthesis' were renamed 'remembering', 'understanding' and 'creating' respectively (Krathwohl, 2002).

Like the original taxonomy, the categories of the revision differ in complexity. That is, the six major categories of the cognitive processes dimension are believed to form a scale from simple to complex. However, because the revision stresses teacher usage, "the requirement of a strict hierarchy has been relaxed to allow the categories to overlap one another" (Krathwohl, 2002, p. 215). Phrased differently, the revised ordering of the cognitive processes aims to reflect the complexity of each cognitive process instead of their hierarchical order as in the original. Moreover, the order of the two categories was interchanged. Hence, 'evaluating' was replaced by 'creating', considering the latter as the cognitive process, which involves the greatest cognitive complexity. Like the old taxonomy, Anderson et al. (2001) indicated that critical thinking involves the cognitive processes of analyzing, evaluating, and creating. Hence, these highly complex cognitive processes reflect critical thinking.

3. Methodology

The primary objectives of this exploratory study are twofold: to explore Moroccan EFL university professors' understanding of critical thinking and to examine their perceptions of its significance within the educational sector. The study's sample comprises 100 Moroccan EFL university professors, selected from various universities across the country. The decision to include 100 participants was likely informed by several factors, such as ensuring sufficient representation across different institutions, achieving statistical power for meaningful analysis, maintaining feasibility, and ensuring contextual relevance. Additionally, this sample size aligns well with the study's research goals and methodological framework, providing a solid foundation for drawing reliable conclusions. The sample includes both male and female professors to capture diverse perspectives on the topic.

To collect data, a questionnaire was administered as the primary instrument. The questionnaire was designed with open-ended questions, allowing respondents the freedom to express

their views, experiences, and insights in their own words. Open-ended questions are particularly well-suited to the exploratory nature of this study, as they encourage in-depth responses and allow for a richer exploration of participants' conceptualizations of critical thinking.

The data obtained from the open-ended questionnaire responses were analysed using thematic analysis, a method particularly well-suited for identifying, analysing, and reporting patterns within qualitative data. Thematic analysis was selected because of its flexibility and its ability to reveal deep insights into complex qualitative data. This method aligns with Marshall and Rossman's (1999) six-phase developmental approach to data processing, which provides a structured framework for qualitative analysis.

To ensure reliability and validity in the thematic analysis, the researchers employed several strategies throughout the data analysis process. First, they engaged in data familiarization by thoroughly reading and re-reading the responses, ensuring a deep understanding of the content. This step ensured that no significant insights were overlooked and that the analysis was well-grounded in the participants' actual responses.

Next, the researchers generated initial codes systematically, labelling relevant segments of the text to ensure that the coding was consistent across the entire dataset. To enhance reliability, multiple rounds of coding were conducted, and the codes were reviewed and refined iteratively to eliminate inconsistencies and maintain focus on the research questions.

To strengthen inter-rater reliability, the research team employed a collaborative coding process. Multiple researchers independently reviewed portions of the data and cross-checked their coding schemes. Discrepancies were discussed and resolved through consensus, ensuring a more objective and reliable coding process.

In terms of validity, the researchers used triangulation by comparing the emerging themes with existing literature on critical thinking. This helped to ensure that the identified themes were not only grounded in the data but also aligned with established theoretical frameworks. Additionally, the research team reviewed and refined the themes multiple times, merging similar themes and discarding irrelevant ones to ensure they accurately represented the data.

Finally, the study incorporated participant validation by sharing the themes and interpretations with selected participants to confirm that the findings reflected their intended meanings. This step added another layer of validity by ensuring that the conclusions were credible and representative of the respondents' perspectives.

By employing these strategies, the researchers ensured that their thematic analysis was both reliable and valid, producing trustworthy and meaningful insights into professors' understanding and perceptions of critical thinking.

4. Results

4.1 University Professors' Understanding of Critical Thinking

To ascertain whether university professors are cognisant of what critical thinking is, how valuable it is, and its enormous significance, they were provided with two open-ended questions to answer. In this respect, the first question (what do you think CT entails?) revealed the informants' responses as far as their understanding of CT is concerned. Informants' responses to the second question (How important is CT in the teaching and learning process?) provided a clear idea and a thorough grasp of the participants' perceptions regarding the importance of CT in the teaching learning process.

The various definitions provided by the informants of the study offer a rich and multifaceted understanding of critical thinking. One definition emphasizes the educational aspect, stating that critical thinking involves guiding students to think, thus implying a focus on pedagogy and

instructional methods. Another definition designates critical thinking as the ability to evaluate information, ideas, and arguments logically, rationally, and objectively, underling the cognitive processes involved, including logical analysis and rational evaluation, and highlighting the importance of objectivity in assessing information and arguments.

Another definition expands the scope to include elements such as creativity, objective reasoning, curiosity, evaluating information, and making logical decisions, indicating that critical thinking involves not only analytical skills but also imaginative and exploratory thinking. Another definition emphasizes the role of critical thinking in analysing and interpreting various forms of communication, focusing on the intellectual ability to evaluate and assess discourse in its visual or textual forms. Another definition highlights the practical aspects of critical thinking, describing it as involving asking questions, gathering relevant information, thinking through potential solutions, and considering alternatives.

One definition states that critical thinking encompasses both knowledge acquisition and the ability to apply critical methods to assess and evaluate information effectively. Viewing critical thinking as a process of problem-solving, another definition involves analysing complex problems, breaking them down into manageable components, and evaluating possible solutions objectively. Another comprehensive definition depicts critical thinking as an approach to understanding and engaging with information, involving seeking the truth, asking questions, identifying potential problems and alternative solutions, evaluating multiple perspectives, and considering the implications of one's own beliefs and values.

Lastly, another definition highlights the scientific aspect of critical thinking. It describes it as a process in which individuals observe a phenomenon, make a hypothesis about it, collect data, and analyse it to come up with a description and explanation. This definition stresses hypothesis testing, data collection, and analysis to understand underlying principles and rules.

Overall, these definitions collectively portray critical thinking as a multifaceted cognitive process involving skills such as analysis, evaluation, creativity, inquiry, problem-solving, and reflection. They highlight the importance of critical thinking in education, decision-making, problem-solving, and knowledge creation.

4.2 University Professors Perceptions of the Importance of CT in the Teaching Learning Process

Regarding the second question that deals with university professors' opinion of the importance of CT in the teaching and learning process, all informants positively agreed that CT is extremely crucial. They offered several arguments to support their position. One respondent said that 'it helps learners learn independently and critically.' Another participant made it clear that it encourages students to think creatively and fully utilize their learning potential.

Likewise, an informant argued that the importance of CT lies in the fact that students are expected to do more than just repeat information; they are also expected to evaluate the relevance, usefulness, and applicability of any information they are exposed to. In the same vein, a university professor illustrated that CT is extremely important because 'it enables students to evaluate and analyse information, make informed decisions, and solve problems effectively'. He continued and explained that 'by teaching critical thinking skills, students are empowered to think independently and develop their own opinions based on evidence and logical reasoning, rather than simply accepting information without question'. According to him, this is essential for success in higher education and the workplace, as well as in everyday life.

Moreover, as some participants mentioned, critical thinking skills allow students to become active and engaged learners, fostering a deeper understanding of the material and an appreciation for lifelong learning. Seemingly, promoting students' cognitive abilities, namely analysing and evaluating information, solving problems, making informed decisions, and thinking independently are also among the arguments provided that indicate CT value in the teaching and learning process.

Additionally, an informant asserted that the benefits of CT include its capacity to produce diligent students with greater innovation, to give them a voice and allow them to express their worldview, and to help them gain understanding of a particular issue. One further argument is that 'CT paves the way

for students to observe, assess received data, and draw logical conclusions and innovative concepts, which helps them become thinkers rather than consumers of knowledge' a respondent said. Accordingly, the arguments presented by university professors for why critical thinking is crucial can be summarized as follows:

First, critical thinking encourages active participation in the learning process. It moves students beyond passive reception of information to questioning, analysing, and evaluating concepts. This active engagement enhances comprehension, retention, and application of knowledge.

Second, critical thinking equips students with the skills to evaluate the reliability, applicability, and accuracy of sources in an age of abundant information. This promotes information literacy and helps students make informed decisions both inside and outside the classroom.

Third, critical thinking nurtures analytical abilities, allowing learners to break down complex issues into smaller parts and analyse them systematically. This fosters skills in identifying patterns, recognizing cause-and-effect relationships, and formulating logical arguments.

Fourth, critical thinking is essential for effective problem-solving, enabling students to approach issues from multiple perspectives, consider alternative viewpoints, and assess potential solutions using logic and evidence. It promotes creative and analytical thinking, preparing students to tackle real-world challenges.

Fifth, critical thinking develops a passion for learning by encouraging students to research different viewpoints, ask questions, and seek answers. By nurturing curiosity and inquiry, it enhances lifelong learning and ongoing intellectual and personal development.

Finally, critical thinking equips students with transferable abilities highly valued in today's professions, such as flexibility, problem-solving, and effective communication. By cultivating critical thinking skills, students become lifelong learners capable of overcoming complex obstacles and making meaningful contributions to society.

In summary, university professors believe that CT is essential to the teaching and learning process because it empowers students with the skills to analyse information critically, challenge assumptions, and think independently. It cultivates essential skills necessary for success in academia, career, and life, fostering intellectual growth, and preparing students to be active, informed participants in a rapidly evolving world.

5. Discussion

The informants' responses to the questionnaire's questions provide valuable insights into Moroccan EFL university professors' perceptions of critical thinking. The findings denote that university professors offer a diverse range of definitions for critical thinking. This diversity stems from the contentious nature of the concept. As Abrami et al. (2008) pointed out, both practitioners and researchers encounter a significant challenge in the field of critical thinking, primarily due to the complexity and controversy surrounding its definition and study. Moreover, the variation of how CT was defined confirms its abstract and elusive nature. Accordingly, university professors surveyed, in this study, presented a partial understanding of CT. The provided definitions focus on four key aspects of critical thinking: its nature, function, components, and features.

The findings suggest a diverse understanding of CT among respondents. Firstly, some respondents highlighted the cognitive nature of CT, emphasizing mental processes and thinking patterns. These informants perceive CT primarily as a cognitive activity that involves analysing, synthesizing, and evaluating information to form a reasoned judgment.

Secondly, others emphasized the functional aspect of CT. They noted that CT is instrumental in enhancing understanding, improving decision-making, and broadening perspectives. This functional view underlines CT's practical applications in real-life situations and problem-solving.

Thirdly, a group of respondents focused on the components of CT, identifying it as a collection of skills and dispositions. They broke down CT into specific abilities such as analysis, inference, evaluation, and explanation, along with attitudes like open-mindedness and scepticism.

Finally, some participants mentioned the characteristics of CT, describing it as complex and dynamic. These university professors pointed out that CT is not a static ability but involves continuous development and adaptation to new information and contexts.

Overall, the definitions provided by informants tended to concentrate on one or two aspects of CT rather than offering a comprehensive view. This indicates a multifaceted perception of CT, with different informants prioritizing different elements based on their understanding and experiences.

These results align with the study conducted by Zhang et al. (2020). In other words, Zhang et al. discovered that EFL teachers could not provide a comprehensive definition of CT that considered all its dimensions, which led to an incomplete understanding of the concept. Further, the findings indicate that there is a lack of professional knowledge of how to implement it among EFL teachers.

The results of Marin and Pava's (2017) study also support the current research findings. While it is generally agreed upon that critical thinking is a set of cognitive skills for problem solving and reflective learning, EFL teachers have admitted to lacking a thorough understanding of what CT really entails. Similar to this, teachers' knowledge of CT was found to be limited in Stapleton's (2011) study, and their comprehension was ambiguous.

It is important to mention that despite potential variations in Moroccan EFL university professors understanding of critical thinking, most of them in the study recognize its significance in the teaching-learning process and hold a positive attitude towards its incorporation into their teaching practices. Put differently, all participants hold the opinion that critical thinking is crucial to the teaching and learning process because it equips students with the ability to critically analyse information, question assumptions, and think independently. These abilities, according to them, have a significant impact on students' academic achievement, career readiness, and civics education. This acknowledgment of its importance implies a readiness to engage with and promote critical thinking skills among students, which could have significant implications for enhancing educational outcomes and fostering deeper learning experiences. This result is in line with the research findings particularly conducted by Asgharheidari and Tahri (2015). The teachers surveyed in their study acknowledge CT as a salient educational and life skill and indicated that it is a crucial aspect of their job as language teachers.

In a similar vein, Piedade et al. (2020) study's results showed that all participants believed that CT skills are crucial in contemporary societies. According to the respondents, individuals are constantly inundated with vast amounts of information, much of which requires verification and critical examination. Additionally, the participants emphasized the importance of schools prioritizing the teaching of these critical thinking skills. They argued that such skills are not only essential for academic success but also for being an engaged and responsible citizen. Belghiti et al. (2016) also found that professors agreed that teaching CT to students is highly relevant, indicating that they are fully cognizant of the role that CT plays in the modern era.

On the whole, the study's findings show a somewhat paradoxical situation among the teachers surveyed. While they demonstrate an awareness of the significance of critical thinking in the teaching and learning process, the majority of them have a relatively insufficient understanding of CT itself. This discrepancy between recognition of importance and understanding of the concept implies a potential gap in teachers' knowledge regarding how to effectively incorporate CT into their teaching practices. It indicates that although teachers recognize the value of CT, they may not have been adequately equipped with the necessary tools or strategies to integrate it into their curriculum or instructional methods. This claim will be further explored.

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