| **RESEARCH ARTICLE**

Moroccan CPGE Students' Critical Thinking Skills and Learning Approaches: The Case of Moulay Ismail CPGE Classes

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| **ABSTRACT**

Critical thinking is one of the core soft skills required and highly appreciated to integrate into the job market. Moroccan preparatory classes (henceforth CPGE) are considered one of the educational institutions that aim to train future managers and engineers by boosting students' cognitive abilities, notably critical thinking. However, an appropriate approach to learning is necessary for efficient critical thinking-based instruction; effective development of students learning approach certainly can contribute to the development of students' cognitive abilities. Accordingly, this study aims at examining learning approaches and critical thinking skills levels from the CPGE teachers' and students' perspectives. It also tries to investigate the relationship between CPGE students' critical thinking skills level and their use of different approaches to learning. Finally, the study considers some techniques and methods used by CPGE teachers to improve students' learning approaches and, by extension, their critical thinking skills level. The study includes 60 students studying at Moulay Ismail CPGE Center, Meknes, and 32 teachers from different Moroccan CPGE centers. The concept of triangulation is used in this paper to cross-examine the findings and increase their reliability and credibility. The results yield that CPGE students learning approaches and critical thinking are mediocre; as for the relationship between the two variables, the analysis of the findings revealed a positive significant correlation between critical thinking learning and a deep approach to learning; the more CPGE students tend to rely on deep approaches to learning, the more they manage to improve their level of critical thinking skills.

| **KEYWORDS**

Critical thinking skills, deep learning approach, surface learning approach, CPGE classes

| **ARTICLE INFORMATION**

1. Introduction

Over the past decades, there has been a growing academic interest in students learning approaches. Several studies have stressed the importance of the appropriate approach to learning for academic achievements (Marton & Säljö, 1976). The importance of learning approaches lies basically in the learners' ability to process and deal with the newly acquired information. This is the first step towards enhancing one's soft skills, namely critical thinking skills. In Morocco, better learning approaches and critical thinking skills are stressed by the Strategic Vision of the Education System Reform (2015-2030): "*to switch from a logic of linear transmission of knowledge and memorization to that of learning and developing critical thinking, engaging in personal growth and development*" (le Conseil Supérieur de L'Education de la Formation et de la Recherche Scientifique, p. 6)".

In-depth learning approaches and high-order thinking skills are essential for employability. Since one of the objectives of CPGE classes is to train future engineers and managers, students have no choice but to be equipped with such competencies and skills. Especially since the 21st-century economy is marked by innovation and competition where knowledge is constantly changing, this requires employees to be equipped with the necessary learning approaches and cognitive skills. Hard skills, on the other hand, are

no longer necessary and sufficient to guarantee a position in a highly demanding and competitive world.

2. Literature Review
2.1 Critical Thinking and Learning Approaches In the Moroccan CPGE Classes
Several recent attempts to reform the Moroccan education system have tried to improve the quality of education and, more particularly, to train students with high critical thinking skills and adequate learning approaches. Since CPGE students are future engineers and managers, CPGE classes are one of the Moroccan institutions that have committed to improving the learning quality by boosting students' cognitive abilities and helping them be more autonomous in their learning.

CPGE ELT guidelines (2007) clearly and explicitly emphasize that the teaching and learning of the English language can "*reinforce* [...] *creative and critical thinking skills*" (ELT guidelines for CPGE, 2007, p.1). Likewise, ELT CPGE guidelines also urge teachers to help students adopt a learning approach where students "*are learning well; they are employing the logic of their own thinking as a tool in learning. They are reasoning their way into the logic of the content. They are getting their minds into the logic of a somewhat new system, a somewhat new way of thinking*" (p. 6).

2.2 Students' Learning Approaches
The relationship between the students' learning approaches and their academic achievement has been investigated since the 70s by researchers like Marton and Säljö (1976), who later on developed the 'student approaches to learning' (SAL) theory (Biggs et al., 2001; Valadas et al., 2010; Biggs, 1993).

According to these studies, the ways students approach their learning affect their learning outcomes. Educators identify two types of learning approaches: the deep approach and the surface approach (Biggs, 1993, 2011; Entwistle, 2001). In deep learning, the student deploys several cognitive strategies in the process of learning (Biggs, 1993). Mcinerney et al. (2012) contended that students who use deep strategies: try to understand the key concepts and the underlying meaning of the materials and relate new learning with previous relevant knowledge and personal experiences. They are interested in the tasks and would like to achieve mastery of the knowledge (p.251). So, deep learning produces students who are able "*to organize new information, relate ideas and monitor their understanding of learning materials and therefore, perform better on academic tasks*" (Mcinerney et al. 2012, p. 252). Moreover, as Kabeel and Eisa (2016) put it, echoing Biggs et al. (2001), "*deep processing, also labeled elaboration or critical thinking, involves challenging the veracity of information encountered and attempting to integrate new information with prior knowledge and experience*" (p. 93). The deep approach to learning is more appreciated and encouraged than the surface approach to learning (Biggs,1993, 1999). Deep learning is appropriated to a high cognitive level; students engage in deep learning as they learn, which eventually affects their learning outcomes.

However, in the surface approach, the student focuses on the given facts or information. This category of students tries to memorize, recall and reproduce the details and information without actually understanding them. Mcinerney et al. (2012) described the surface learners by saying:

> *Students who adopt surface strategies pay attention to bare essentials through rote learning without devoting effort to reach an understanding. They do not attempt to organize the learning materials or relate them to personal experiences. Their goal of studying is simply to fulfill situational demands, such as getting the assignments done and the courses passed* (p. 252).

Students using the surface approach try to survive the situation they face with minimum effort. This category of students tries to memorize, recall and reproduce the details and information without actually understanding them; in the surface approach, the student does not make use or deploy any cognitive efforts. This eventually affects the learning outcomes because it leads to rote learning, low cognitive levels, and low-quality learning (Mcinerney et al., 2012; Biggs, 1993).

2.3 Learning Approaches and Critical Thinking
The relationship between students' learning approaches and critical thinking has also been a subject of several studies; these studies have highlighted the interconnectedness between critical thinking and students' approaches to learning (Hasnor et al., 2013; Phan, 2007; Klinger, 2006; Hall et al., 2004; Zhang & Stenberg, 2000). Students who are considered high critical thinkers use deep learning approaches (Halpern, 1998; Magno, 2010). Zhang and Stenberg (2000), for instance, found that there is a positive correlation between the surface approach and low performance in class; Phan (2007) argued for supporting the possibility that "*learning approaches and reflective thinking are predictive of performance outcomes*" (p.802); that is, the student's use of the deep or the surface approach can predict his/ her performance outcome. In the same vein, after analyzing their students' essays, Thompson et al. (2012) found a relationship between their students' learning approaches and their level of critical thinking; for them, "*deep and strategic approaches were associated with higher performance on critical thinking and demonstration of conceptual understanding*" (p.4). Likewise, Gadzella et al.'s (1997) study indicated a significant correlation between deep-processing learning and critical thinking skills. The aforementioned studies have all revealed the relationship between the students' choice of learning

approaches and both their critical thinking and learning outcomes. Similarly, in the Moroccan context, Belghiti (2012), in her dissertation, revealed the correlation between university students' argumentation and analysis skills and their learning approaches.

It is hypothesized in this study that CPGE teachers' teaching methods and techniques have a positive impact on CPGE students' learning approaches, which in turn affect the students' level of critical thinking skills. Accordingly, this study tries to answer the following research questions:

1. To what extent do CPGE students exhibit critical thinking skills?
2. What are the learning approaches CPGE students adopt in their learning?
3. Is there a significant correlation between students' learning approaches and critical thinking skills?
4. What are the methods and techniques CPGE teachers use to improve students' learning approaches and critical thinking?

3. Method
Mixed method approach where both quantitative and qualitative approaches are deployed. Triangulation has been adopted in this study in order to crosscheck the results and ensure the reliability and credibility of data and, therefore, the quality of interpretation.

3.1 Instruments
To investigate the learning approach of the CPGE students, this study uses Biggs et al. (2001) Revised Two Factor Study Process Questionnaire (R-SPQ- 2F). The questionnaire is intended for CPGE students. The items target two main approaches: Deep Approach (DA) and Surface Approach (SA).

The study also uses semi-structured interviews as a complementary qualitative data collection tool. CPGE teachers with a minimum of two years of teaching experience in CPGE classes and who teach in different CPGE centers have been interviewed; the objective of the interviews is to get more insights into teachers' views about CPGE students learning approaches.

To collect data on critical thinking levels in CPGE classes, the students took an oral test to assess their level of critical thinking skills. The oral test was adopted and adapted from Bloom's *Taxonomy of Educational Objectives, the Classification of Educational Goals* (1956). Each of the questions in the oral tests tried to target and assess one level of Bloom's cognitive taxonomy: knowledge, comprehension, application, analysis, synthesis and evaluation.

Finally, observation is another method adopted in this study in order to collect data. It was used to investigate the teacher-student interaction in class and identify some in-class methods and techniques used by CPGE teachers to boost students learning approaches and critical thinking.

3.2 Participants
The main targeted population in this study is CPGE students and teachers. The study adopted non-random purposeful sampling for both groups of participants: students and teachers. The former are Moroccan first-year students who study at Moulay Ismail CPGE center, Meknes; the total number of the selected students is 60 (see table 01 below). As for the teachers, the total number of the participating teachers included in this study is 32 (see table 01 below); the participating teachers are purposefully selected, they should have at least 2 years of experience in teaching in CPGE classes, and they teach in different CPGE classes around the country. The following table (01) gives information about the participants:

Table 01: *Number of Participants and Tools Used*

Population Sample	Tools	Males	Females	Total
Students	Questionnaire/ CT Test	16	44	60
CPGE Teachers	Interview	03	02	05
	Questionnaire	26	06	32

3.3 Data processing

The quantitative related tools were coded, processed, and analyzed using SPSS software. It helps process data in the form of descriptive and inferential statistics. As far as the critical thinking skills test, the students' recorded oral performances were transcribed and assessed by using an analytic band score. The analysis of the test's results was used through FAMU Critical Thinking Rubrics (2009) to gauge students' critical thinking levels.

4. Results Discussion

4.1 CPGE Students' Learning Approaches

CPGE students, as future managers and engineers, are supposed to adopt complex ways of learning (deep approach) when dealing with the acquired information. CPGE teachers were surveyed to get their insights on the learning approaches their students adopted. The following Table (03) reveals the teachers-related findings:

Table 1: *The Students' Learning Approaches According to the Teachers*

Statements	Strongly agree (5)	Agree (4)	Uncertain (3)	Disagree (2)	Strongly Disagree (1)
Students expect that each question has a right answer.	3.1	90.6	00	6.3	00
Students perceive the teacher as an authority.	9.4	53.1	18.8	18.8	00
Students perceive the text as an authority.	9.4	53.1	18.8	18.8	00
Students are impatient with the difficulty of thinking.	3.1	46.9	31.3	15.6	3.1
Students lack experience in improving thinking skills in school.	6.3	71.9	15.6	6.3	00
Students prefer activities and assignments with simple factual questions and answers.	21.9	59.4	3.1	15.6	00

When CPGE teachers were asked about the students' learning approaches, 62.5% of them reported that CPGE students perceive both their teachers and the text as being the main authority and source of knowledge in class. Almost the majority of CPGE teachers (81.3%) stated that their students prefer activities and assignments with simple factual questions and answers, while 93.7 % of the teachers reported that their students expect that each question has one right answer.

To compare and contrast the teachers' views and students' learning approaches, descriptive statistics were conducted to measure the students' levels of deep and surface approaches to learning. The students' approaches' mean scores in Table (04) below indicate the average of the maximum score they should obtain in each approach.

Table 2: *CPGE Students' Learning Approaches: The Mean Scores and Standard Deviation*

Approaches	N	Mean	SD	Minimum	Maximum
Deep	60	29.86	6.58	19	43
Surface	60	25.35	6.98	13	43

The Table above provides information on the learning approaches adopted and used by students. The results in Table (04) show that the participants tend to adopt the deep learning approach more than the surface learning approach. The results of the survey revealed that the surveyed students scored (M=29.86, SD=6.58) in the deep approach and in the surface approach they got (M=25.35, SD=6.98).

4.2 CPGE Students' Critical Thinking and Learning Approaches

In addition to analyzing the mean scores of the students' learning approaches, exploring the relationship between the students' obtained level of critical thinking and their learning approaches were necessary to understand the strength of the relationship between the two variables.

To gauge CPGE students' level of critical thinking, the students took a test on critical thinking based on Bloom's taxonomy (1956). The students' scores are presented in Table (05) below.

Table 05: *Students' Critical Thinking Test Mean Scores*

Critical thinking skills	N	Mean	SD
	60	14.00	2.30

The analysis of the students' critical thinking skills scores shows that they obtained M=14.00 and SD=2.30, which is relatively higher than the average. These figures, though they remain descriptive, provide us with an idea about the level of CPGE students' critical thinking skills.

To determine the relationship between CPGE students' critical thinking level and their learning approaches, inferential statistics are essential. Accordingly, Pearson Correlation Coefficient was used to find out whether the students' level of critical thinking skills correlates positively or negatively with either the deep or surface learning approach. Table (06) below presents the obtained results.

Table 3: *Correlation between Critical Thinking Skills and the Deep and Surface Learning Approaches*

Learning Approaches		General Critical Thinking Skills
Deep Approach	Pearson Correlation	.093
	Sig. (2-tailed)	.022
Surface Approach	Pearson Correlation	-.160
	Sig. (2-tailed)	.200

The results of the correlation between students' critical thinking and the deep learning approach exhibited a significant positive correlation *(r = .093, n = 60, p < .01)*; however, there is a non-significant negative correlation between students' critical thinking skills and their surface learning approach *(r= -.160, n = 60, p > .05)*.

Throughout this section, it has been demonstrated that the students tend to fairly deploy the deep approach to learning more than the surface one. Additionally, this section has shown the interconnectedness between students' learning approaches, more particularly the deep approach, and their critical thinking skills level.

4.3 CPGE Teachers' Attempt to Enhance Students' Learning Approaches
CPGE teachers were surveyed on the in-class methods and techniques they use to boost students learning approaches, especially deep approaches. The following Table (07) details the teachers' views on the learning approaches teaching methods, and techniques

Table 07. *Teachers' Attitudes towards Improving Students' Learning Approaches*

Statements	Strongly agree (5)	Agree (4)	Uncertain (3)	Disagree (2)	Strongly Disagree (1)
I teach what to think and not how to think.	3.1	6.3	18.8	56.3	15.6
Critical thinking should be a case of teaching learners to think critically rather than instructing them.	21.9	65.6	6.3	3.1	3.1
I use a variety of materials and activities to instruct learners.	28.1	71.9	00	00	00
I use a variety of teaching methods in the classroom.	28.1	68.8	3.1	00	00
I ask open-ended questions that do not assume the "one right answer".	28.1	71.9	00	00	00

Group work and co-operative learning is an important method to encourage critical thinking.	43.8	56.3	00	00	00

The results in the Table above yielded that almost the majority of teachers both strongly disagree (15.6%) and disagree (56.3%) with the statement saying that they guide their students on what to think. Moreover, the majority of CPGE teachers both strongly agree (21.9) and agree (65.6%) that teachers should focus on teaching learners how to think critically instead of instructing them and telling them what to think or spoon-feeding them. Moreover, all teachers stated that they either strongly agree (28.1%) or agree (71.9%) that they use a variety of materials and activities to teach learners. Likewise, a large majority of teachers either strongly agree (28.1%) or agree (68.8%) that they use different teaching methods in developing the students' thinking skills. Concerning questioning methods, the large majority of teachers either strongly agree (28.1%) or agree (71.9%) that they ask their students open-ended questions that do not assume the "one right answer". Similarly, 43.8% strongly agree, and 56.3% agree that group work and cooperative learning are important methods to encourage critical thinking.

Student-centered learning is another approach to encourage students to be self-dependent and responsible for their learning, thus improving their learning approach and critical thinking skills. The surveyed teachers were asked to express their attitude toward student-centered learning, as shown in Table (08) below.

Table 08: *Teachers' Attitudes towards Teacher-Student Interaction*

Statements	Strongly agree (5)	Agree (4)	Uncertain (3)	Disagree (2)	Strongly Disagree (1)
I dominate classroom interaction. Too much time is devoted to instruction	00	12.5	6.3	53.1	28.1
I allow my learners to ask me questions	50.	50.	00	00	00
I allow sufficient time for learners to reflect on the questions asked or problems posed.	40.6	56.3	00	3.1	00
I seldom create a climate for thinking during my courses.	00	00	00	59.4	40.6

The Table above illustrates teachers' views about their interaction with their students. All teachers either strongly agree (50%) or agree (50%) with allowing their students to ask them questions. Similarly, 66.0% of teachers confirm allowing sufficient time for their students to reflect on the questions asked or problems posed. However, almost the majority of teachers either strongly disagree (28.1%) or disagree (53.1%) with dominating classroom interaction and devoting too much time to instruction. Likewise, the vast majority of teachers either strongly disagree (40.6%) or disagree (59.4%) with creating a climate and atmosphere where critical thinking is absent.

However, it is worth mentioning that the structure of the different courses observed revealed limitations concerning the teachers' attempts to encourage their students' cognitive skills; As far as Bloom's levels of critical thinking skills, some teachers seemed to focus more on the lower skills namely recalling and understanding. In a speaking activity, for example, when students delivered a presentation, the teacher reacted by evaluating the students on the content and the format of the presentation; the students' opinions were ignored and not encouraged. Another example is a pre-reading activity in which the teacher asked the students direct questions like "*define the term personality*" and then invited some students to write their answers on the board while the rest of the class was asked to vote on the definition they agreed with the most. This activity revealed the teachers' focus on low-order thinking skills rather than high-order skills. The last example is a writing activity in which the students were asked to work in pairs and to evaluate their peers' paragraphs form like grammar, spelling, topic sentences...etc.

Moreover, the analysis of the questions used by the teacher in the classroom revealed that the teacher would at times use direct questions rather than open-ended questions such as "*are you sure...?*" "*would you accept...?*" and "*do you have any remarks?*"; such questions do not trigger or develop the students' critical thinking level. Moreover, the observation sessions revealed that there are some recurrent verbs in the teacher's questions; such verbs are "define", "summarize," and "explain". Verbs like "agree" or "think" were rarely used, and when they were used, they were not followed by the teacher's feedback. The use of the questions did not follow a systematic pattern that starts from low order thinking and then gradually achieves high order thinking, which can affect the students' critical thinking level, especially since the focus was not on high order thinking.

The qualitative and quantitative results echo Stiggins et al. (1989) and Apsari's (2016) findings who claimed that "*despite* [*the teachers'*] *understanding of the importance of teaching students to think and problem-solve, teachers still tend to use and create questions that merely require their students to reproduce facts and information*" (p. 19).

5. Discussion

The analysis of the teachers' survey revealed that the majority of the students usually opt for the surface learning approach instead of the deep approach to learning. Likewise, the quantitative analysis of students' learning approaches indicated that their deep approach to learning remains above the average. This can be explained by the fact that the majority of students had not benefited from critical thinking-based instruction before joining CPGE classes (Es-Salhi & Elfatihi, 2019). Tarik B., from CPGE Taza, for instance, said that students are used to rote learning and memorization in primary and middle schools, and this hinders the teacher's efforts to introduce critical thinking to the students. Moreover, according to the teachers, more than half of the students perceive critical thinking as a complex, difficult and time-consuming process about which the majority of them feel anxious; Hayat K., from CPGE Fes, stated that her students get anxious, especially during the oral exams where they have to sit for individual interviews.

The correlation analysis revealed a positive correlation between critical thinking and the deep approach to learning on one side and a negative correlation with surface learning on the other side. This indicates that there is a link between the students' learning approaches and their critical thinking levels. This indicates that the more students' level of critical thinking skills improves, the more they tend to adopt the deep learning approach; conversely, as the students' level of critical thinking decreases, their tendency to adopt a surface approach to learning is more likely to increase. The relationship between critical thinking and the two types of learning approaches is supported by studies like Thompson et al. (2012), Belghiti (2012), and Gadzella et al. (1997); these studies found that the deep approach to learning is highly associated with high performance in critical thinking. Moreover, Magno (2010) found a significant correlation between her students' surface learning approach and their critical thinking level because they were not introduced to critical thinking. This explains the students' tendency to rely more on surface learning instead of deep learning when they are not trained in critical thinking.

The teachers' answers to the best method to enhance students' deep learning approaches and, by extension, their critical thinking skills reflect their conviction and awareness of their roles as facilitators who are supposed to help their students develop critical thinking by teaching them how to think instead of dictating or telling them what to think through lecturing, for instance. The teachers' in-class techniques and methods to boost students' learning approaches and critical thinking show that most CPGE teachers tend to favor student-centeredness. The teachers' answers seem to demystify the role of the teacher as a source of knowledge and students as passive learners, and more importantly, they reflect the role of the teacher as a moderator and facilitator who tends to allow students to use their cognitive abilities.

It seems that creating a positive learning environment and adopting a student-centered teaching approach plays a crucial role in helping students adopt a deeper approach to learning; this learning environment encourages students to work together and help each other while using different tools and information resources. So, an appropriate learning environment creates an atmosphere where students, either in pairs or in groups, are engaged in activities that involve challenging the veracity of information encountered and attempting to integrate new information with their prior knowledge and experience (Lee & Hannafin, 2016; Ding & Li, 2014; Biggs et al., 2001).

However, the classroom observation revealed that the CPGE teachers' attempts to boost their students' learning approaches and critical thinking are ineffective. The teachers' efforts tend to make students reproduce facts instead of checking and challenging them. Despite their conviction on the importance of creating a positive learning atmosphere, the teachers' attempts are mainly based on personal initiatives because most of them lack pedagogical training in learning approaches and critical thinking improvement (Belghiti, El Kirat & Chana, 2016).

6. Conclusions and Implications

Based on the quantitative and qualitative findings, CPGE students' critical thinking skills and learning approaches remain mediocre. Moreover, the relationship between CPGE students' learning approaches and critical thinking skills level showed that there is a significant positive correlation between the two variables; this indicates that the more students adopt a deep learning approach to learning, the higher their critical thinking skills become and vice versa for the surface approach to learning. Finally, the teachers' efforts to enhance the students' both critical thinking and learning approaches remain insufficient and ineffective because of the absence of any pedagogical training.

This study provides important implications for educational practices to improve both learning approaches and critical thinking teaching and learning in CPGE classes. First, teacher training (pre-service and in-service) is of paramount importance because it is the key to the successful improvement of students' critical thinking and learning approaches. Well-trained teachers are equipped

with suitable and effective methods and techniques to encourage students to adopt deep approaches to learning, which in turn would enhance students' high order thinking skills.

Critical thinking based-instruction encourages students to use the deep learning approach. In a context where critical thinking-based instruction as a methodology is used, CPGE students work together and use different tools and information resources while learning and working on activities that require problem-solving. A deep approach to learning can be improved through a learning environment that creates a positive atmosphere where students, either in pairs or groups, are engaged, for example, in activities that involve challenging the veracity of information encountered. However, if students are not exposed to critical thinking, they tend to rely on the surface learning approach, in which students can only manifest low-order thinking skills.

CPGE administration should capitalize on the teachers' effort to enhance students' learning approaches and critical thinking. This can be done by reconsidering CPGE national exams; the current exams' questions do not assess all levels of thinking skills but low order thinking skills (Chana et al., 2021). This can have a negative washback on the teachers' in-class practices.

Finally, enhancing students' learning approaches and critical thinking should not be exclusively limited to CPGE classes. It should be an objective that concerns, in addition to teachers, government officials, and parents. It is a process that does not officially start and end at the tertiary level, but since kindergarten, it should be part and parcel of students' learning journey.

References

[1]   Apsari, N. P. A. N. (2016). Teacher's Way to Foster Critical Thinking in The Classroom: A Case Study of a Senior High School in Bandung. *Journal of English and Education*, *4*(1), 51-72.

[2]   Belghiti, K., EL Kirat El Allame, Y., & Chana, M. (2016). Critical Thinking Development: The Case of the English Course in the CPGE Classes in Meknes, Fes, and Kenitra. *Arab World English Journal, December 2016 ASELS Annual Conference Proceedings*.

[3]   Belghiti, K. (2012). *Critical Thinking Skills in Reading and Writing: The Case of Moroccan EFL University Students.* (Unpublished Doctoral Dissertation). Mohammed V University, Rabat, Morocco.

[4]   Biggs, J. (1999). What the Student Does: Teaching for Enhanced Learning. *Higher Education Research & Development*, *18*(1), 57-75.

[5]   Biggs, J. B. (1993). From theory to practice: A cognitive systems approach. *Higher Education research and development*, *12*(1), 73-85.

[6]   Biggs, J. B. (2011). *Teaching for quality learning at university: What the student does*. UK: McGraw-hill Education.

[7]   Biggs, J., Kember, D., & Leung, D. Y. (2001). The Revised Two-factor Study Process Questionnaire: R-SPQ-2F. *British journal of educational psychology*, *71*(1), 133-149.

[8]   Bloom, B. (ed.). (1956). *A Taxonomy of Educational Objectives. Handbook I: Cognitive Domain*. New York: McKay

[9]   Centre Nationale et de la Formation Professionnelle (2007). CPGE ELT Guidelines.

[10] Chana, S. M., EL Kirat El Allame, Y & Belghiti. K. (2021). Evaluation of Preparatory Classes (CPGE) Final Written Examinations According to Bloom's Taxonomy. *International Journal of Language and Literary Studies*, *3*(1), 75-86.

[11] Conseil Superieur de L' Edudcation, de la Formation et de la Recherche Scientifique. (N, D.) *For a School of equity, Quality, and Promotion: A Strategique Vision of Reform 2015-2030*. https://www.csefrs.ma/wpcontent/uploads/2015/05/Re%CC%81sume%CC%81-vision-Anglais.pdf

[12] Ding, M., & Li, X. (2014). Facilitating and Direct Guidance in Student-Centered Classrooms: Addressing "Lines or Pieces" Difficulty. *Mathematics Education Research Journal*, *26*(2), 353-376.

[13] Entwistle, N. (2001). Styles of Learning and Approaches to Studying in Higher Education. *Kybernetes 30*(5/6), *593-603*.

[14] Es-Salhi, A., & Elfatihi, M. (2019). Evaluating Critical Thinking Skills in Moroccan EFL textbooks: Gateway to English 2 as a Case. Higher Education of Social Science, 17(1), 13-22.

[15] Gadzella, B. M., Ginther, D. W., & Bryant, G. W. (1997). Prediction of Performance in an Academic Course by Scores on Measures of Learning Style and Critical Thinking. *Psychological Reports*, *81*(2), 595-602.

[16] Gibbs, G., & Coffey, M. (2004). The Impact of Training of University Teachers on Their Teaching Skills, Their Approach to Teaching and the Approach to Learning of Their Students. *Active learning in higher education*, *5*(1), 87-100.

[17] Gow, L., & Kember, D. (1993). Conceptions of Teaching and Their Relationship to Student Learning. *British Journal of Educational Psychology*, *63*(1), 20-23.

[18] Hall, M., Ramsay, A., & Raven, J. (2004). Changing the Learning Environment to Promote Deep Learning Approaches in First-Year Accounting Students. *Accounting Education*, *13*(4), 489-505.

[19] Halpern, D. F. (1998). Teaching for Critical Thinking: Helping College Students Develop the Skills and Dispositions of a Critical Thinker. *New Directions for Teaching and Learning*, *1999* (88), 69-74.

[20] Hasnor, H. N., Ahmad, Z., & Nordin, N. (2013). The Relationship Between Learning Approaches and Academic Achievement Among Intec Students, Uitm Shah Alam. *Procedia-Social and Behavioral Sciences*, *90*, 178-186.

[21] Kabeel, A. R., & Eisa, S. A. E. M. M. (2016). The Correlation of Critical Thinking Disposition and Approaches to Learning among Baccalaureate Nursing Students. *Journal of Education and Practice*, *7*(32), 91-103.

[22] Klinger, T. H. (2006). Learning Approach, Thinking Style and Critical Inquiry: The Online Community. *Korean Journal of Thinking & Problem Solving, 16* (1), 91–113.

[23] Lee, E., & Hannafin, M. J. (2016). A Design Framework for Enhancing Engagement in Student-Centered Learning: Own It, Learn It, And Share It. *Educational Technology Research and Development*, *64*(4), 707-734.

[24] Magno, C. (2010). The Role of Metacognitive Skills in Developing Critical Thinking. *Metacognition and Learning, 5*(2), 137-156.

[25] Marton, F., & Säljö, R. (1976). On Qualitative Differences in Learning: I—Outcome and process. *British Journal of Educational Psychology*, *46*(1), 4-11.

[26] Mayers, A. (2013). *Introduction to Statistics and SPSS in Psychology*. Harlow: Pearson Education Limited.

[27] Mcinerney, D. M., Cheng, R. W., Mok, M. M., & Lam, A. K. (2012). Academic SelfConcept and Learning Strategies. *Journal of Advanced Academics, 23*(3), 249- 269.

[28] Phan, H. P. (2007). An Examination of Reflective Thinking, Learning Approaches, and Self-Efficacy Beliefs at the University of the South Pacific: A Path Analysis Approach. *Educational Psychology, 27*(6), 789-806.

[29] Posten, H. O. (1984). Robustness of the Two-Sample T-Test. In D. Rasch & M. L. Tiku (Eds.), *Robustness of Statistical Methods and Nonparametric Statistics* (pp. 92-99). Dordrecht: D. Reidel.

[30] Stiggins, R. J., Griswold, M. M., & Wikelund, K. R. (1989). Measuring Thinking Skills through Classroom Assessment. *Journal of Educational Measurement*, *26*(3), 233-246.

[31] Thompson, R. M., Irmer, B. E., & Tang, T. (2012). *Teaching and assessing critical thinking: The interaction of student approaches to learning and teaching approaches*. In Mortimer, R. (Ed.) 15th International First Year in Higher Education Conference: New Horizons*,* 26-29 June 2012, Sofitel Brisbane Central, Brisbane, QLD.

[32] Valadas, S. C. A., Gonçalves, F. R., & Faísca, L. M. (2010). Approaches to Studying In Higher Education Portuguese Students: A Portuguese Version of the Approaches and Study Skills Inventory for Students. *Higher Education*, *59*(3), 259-275.

[33] Zhang, L., & Stenberg, R. J. (2000). Are learning Approaches and Thinking Styles Related? A Study in Two Chinese Populations. *The Journal of Psychology, 134* (5), 469- 89.