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Assessing Analytical Thinking in the Algerian First Year Secondary School Textbook <u>At the Crossroads</u>: An Evaluation

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Dedications

To my beloved family,

My father Fatah, my mother Sadia

To my beautiful daughter Melissa

To my husband Mourad

To my brothers Ghilas and Hamid

To my second family,

To my uncles and their wives and their children

Tazga Hamida

To my beloved family,

My father Akli, my mother Ourdia

To my sisters: Dalila, Malia, Nedjma.

To my brothers: El hocine, Nabil, Bilal.

To my friends

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Abstract

The present work is an attempt to examine the implementation and the assessment of analytical thinking skill in the Algerian secondary school. Throughout the study, this issue is examined with reference to the first year secondary school textbook <u>At the Crossroads</u> (Rich, B. 2014)and the teachers' views about the assessment parts of the aforementioned textbook. This research is based on the theory of Bloom's Revised Taxonomy (2001) in order to categorize the action verbs of the assessment parts in "Check your Progress". The research data are brought out from two main sources: a corpus of the tasks and activities provided in the assessment parts of the first year secondary school textbook <u>At the Crossroads</u> and a questionnaire which was submitted to secondary school teachers of English at Makouda and Timizart in (Tiziouzou). The latter helped us to evaluate the textbook content from teachers' perspective. The gathered data were analyzed by using a computer program called Social Package for Social Sciences (SPSS), and the qualitative data were presented referring to content analysis (CA). Using all these tools, results were reached related to the questions asked in the General Introduction: the assessment parts of the textbook <u>At the Crossroads</u> provide activities targeting analytical thinking and deal with lower and higher order thinking skills. However, the evaluation also demonstrates that analytical thinking is not adequately covered within the textbook. That is, the findings make it clear that the textbook is shallow and superficial with respect to its assessment of analytical thinking. As a result, secondary school teachers of English hold negative oppinions towards the assessment parts "Check your Progress".

Key words: Analytical thinking, Assessment, <u>At the Crossroads</u>, Higher Order Thinking Skills, Lower Order Thinking Skills.

List of Abbreviations

CA: Content Analysis

HOTS:Higher Order Thinking Skills

KSA: Knowledge, Skills and Abilities

OT:Original Taxonomy

RT:Revised Taxonomy

SPSS: Statistical Package for Social Sciences

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General Introduction

- **Statement of The Problem**

The need to translate learning experiences into significant skills and transferable competencies is one of the major goals of the Competency-Based Approach (CBA). The role of teachers as well as textbooks' designers becomes more challenging since teaching is no longer conceived as a matter of transmitting knowledge but rather to develop competencies and implement cognitive and higher order thinking skills such as analytical thinking.

To have an analytic mind is to possess the ability to analyze; that is to logically compose and decompose information. Both the details are as much important as the whole in the process of analysis. Belonging to higher order thinking, analytical thinking is seen as one of the most crucial skills in both educational and professional levels.

It is important to acknowledge that analytical thinking is necessary in both academic and professional settings. Such skill helps learners to be self reliant and develop their own learning strategies. It also prepares them to manage in their daily lives and be active doers. Therefore, the role of teachers and educators should no longer be limited to providing students with useful content knowledge but also to strive and help them in developing their analytical thinking abilities in every field including language learning.

Most educational approaches including (CBA) agree that language learning is a process of problem solving. Analytical thinking as the ability to separate the whole into parts and at the same time establish connections between the parts and the whole is an effective skill in problem solving situations. Such skill is thus, of crucial importance in developing any language learning efficiency.

In addition, one should know that analytical skills are taught using appropriate materials and strategies. The school textbook can be an effective material to use for this sake because it accompanies the students in their learning process and provides both

content knowledge and adequate assessment. Since Language textbooks are often seen as facilitators and sources for most language input, the Reform in Algerian educational system following the Competency-Based Approach, resulted in the introduction of new textbooks targeting the new objectives of CBA among which encouraging students to think and discover knowledge by them. The First year secondary school textbook <u>At the Crossroads</u> is one of these and it is the subject of this study.

Analytical thinking has been widely investigated during the last two decades. Indeed, many researchers investigated the issue from educational and psychological perspectives. The American psychologists Sternberg (1985) and Heuer (1999) put stress on defining analytical thinking as one type of intelligence. Other researchers took a more practical approach, dealing with its application in the field of teaching such as Benjamin Bloom (1956) and Anderson and Krathwohl (2001). In addition to this, an academic research has been conducted at the level of the English Department of Tizi Ouzou in Algeria about oral assessment of analytical thinking skill in language classrooms at the level of MMUTO (2016). As far as this study is concerned with higher education, no investigation has been conducted about this matter in the Algerian school education and more precisely the implementation of analytical skills this skill at the level of school's textbooks which are essential sources and guides in the teaching and learning process. This current study, we hope will bring some light into the matter.

- **Aims and Significance of the Study**

Many researchers agree on the assumption that analytical thinking can be implemented in educational systems through practical assessment which is an effective strategy in developing learners' analytical thinking skills, *"Analysts learn by doing"* (Heuer, R. 1999: 02). Elder and Paul (2007) also stress the importance of practice in monitoring thinking and developing analytic mind.

The present study addresses the issue of teaching analytical thinking in the Algerian educational system through examining the assessment parts provided in one of its secondary school textbooks namely the first year textbook At the Crossroads. Our main concern is to assess whether the material provides practice targeting the implementation of analytical thinking skill, more precisely to explore how analytical thinking strategies are covered and assessed in the textbook. We have opted for this research because of the importance of Analytical thinking in the teaching learning process as well as its considerable contribution in daily and professional life. We hope that this study will be beneficial for the Secondary School textbook designers to give more attention to analytical thinking.

- **Research Questions and Hypotheses**

Our work addresses a practical gap by investigating the implementation of analytical thinking at the level of first year secondary school textbook At the Crossroads focusing on the provided assessment parts. Our analysis is meant to answer the following questions:

Q1: Do the assessment parts of the textbook At the Crossroads include activities targeting analytical thinking skill?

Q2: What kind of activities do the assessment parts provide?

Q3: What are the teachers' attitudes towards these assessment parts?

To answer these questions we suggest the following hypotheses:

H1) The assessment parts provide activities targeting analytical thinking skill.

H2) The assessment parts do not provide activities targeting analytical thinking skill.

H3) The assessment parts provide activities which deal with both lower and higher order thinking skills.

H4) The teachers hold a positive attitude towards the assessment parts of the textbook.

H5) The teachers hold negative attitude towards the assessment parts of the textbook.

- **Research Techniques and Methodology**

This work adopts the mixed method approach, that is both qualitative and quantitative methods are to be used for data collection and data analysis. The research data are brought out from two main sources: a corpus of the tasks and activities provided in the assessment parts of the first year secondary school textbook <u>At the Crossroads</u> and a questionnaire for secondary school teachers of English. The latter will help us to evaluate the textbook content from teachers' perspective as its main users. As for the theory and the approach to follow in doing our research, we shall adopt Bloom's Revised Taxonomy(2001) that we judge relevant to our issue. Choosing the first year secondary school level is not done randomly; it is selected taking into account that it is the starting level from which students are necessarily required to achieve some degree of higher order thinking skills preparing them for higher education.

- **Structure of The Dissertation**

The present dissertation follows the traditional-complex model. It is divided into four chapters, in addition to a General Introduction and a General conclusion. The General Introduction states the general topic of the work. The first chapter is named Review of the Literature and it deals with the definition of the main concepts and key terms related to this research from different theoretical approaches. The second chapter, Research Design includes a description of the corpus as well as the data collection and data analysis tools that are used in the study. The third chapter, named Results presents the research findings following a descriptive statistical method. The last chapter Discussion involves the discussion and interpretation of the research findings. The General Conclusion provides a summary of the main points and suggestions for further research.

Chapter One: Review of the Literature

Introduction

Investigations on analytical thinking skill have gained the interest of many researchers and educators. This chapter reviews the literature related to this matter. It aims at exploring, more precisely, analytical thinking in relation to education and its assessment tools. It highlights some major key concepts about the thinking skill as well as assessment. This review is divided into three sections the first section deals with some definitions of thinking and analytical thinking. The second one is concerned with the definition of assessment and its different types as well as the assessment tools for analytical thinking. The third and last section is devoted to the description of Bloom's Original Taxonomy (1956) on the classification of educational objectives and its revised version by Anderson and Krathwohl (2001).

I: Theoretical Considerations

1. Definitions of Thinking

Despite the fact that thinking is a fundamental human activity which is familiar to everyone, there is no generally accepted agreement as to what this term exactly refers to. Defining "thinking" was the subject of study over the decades. Many researchers attempted to define "thinking" as a concept and a phenomenon from different perspectives. Aebli (cited in Frensch, P et al., 2005: 2) defines thinking as *"bringing order into one's doing"*. This means that thinking is used for planning and ordering ones deeds. For Dewey (2001: 152), thinking is a creative and clever translation of our experiences; *"Thinking is thus equivalent to an explicit rendering of the intelligent element in our experience"*. Whenever we think whether to solve problems or make decisions we always rely on our previous experiences. The definitions are different but they all imply the idea that thinking is active and it is a cognitive process that can make new connections and create meaning,

as Cruickshank (1986: 82) argues "*thinking enables us to know and understand objects, events and ourselves.*"

Because "thinking" is a natural process that happens simultaneously, there was a considerable debate as to the possibility of teaching thinking using specific instructional guidelines. The question is no longer what thinking is but rather whether thinking can be taught and how can it be.

1.2. Teaching Thinking as a Skill

There was a considerable disagreement between scholars as to the use of the term 'skill' when referring to thinking because of the mental nature of the thinking process that cannot be so limited to the word "skill". One of the advocators of teaching thinking skill is Dr McGuinness, a cognitive psychologist and Professor of Psychology at Queen's University who introduced an influential report entitled 'From Thinking Skills to Thinking Classrooms'(1999), in which she acknowledged that some people are skeptical about the term skill being applied to thinking:

> Some writers express reservations about using the term 'skill' to refer to the mental processes involved in thinking preferring to confine the term to forms of cognition such as perceptual-motor skills, reading skills or numeracy skills … Although there are theoretical distinctions between the meaning of these terms … the idea of thinking- as- a -skill continues to have both theoretical and instructional force (McGuinness, 1999: 04).

As the above quotation shows, McGuinness believes that thinking is a skill in its own. She further denounces the limited approach for the term "skill" that is centered only on precise cognitive activities such as reading. In addition, to support her position she argues th+at many strategies to apply for skill learning can be successfully applied for developing thinking among which *"learning by observation and modeling, the importance of practice, feedback and transfer of learning"*(ibid: 5). This is strictly McGuiness' argument in supporting teaching thinking as any other skill. In an attempt to make her vision clearer,

she (1999) illustrates some skill criteria and claims their applicability for Thinking. Thinking can be learnt through observation being exposed for example to dialogues and discussions with others as it can be developed through practice implying problem solving situations. Thus, thinking can be thaught and improved through learning how to think more effectively following a set of strategies.

Another advocator for teaching thinking is Benjamin Bloom through his work Taxonomy of Educational Objectives (1956) in which he focuses on classifying and assessing levels of thinking for educational objectives. For him, students learn to think more effectively following a range of hierarchically organized cognitive levels namely: knowledge, comprehension, application, analysis, synthesis and evaluation.

2. Analytical Thinking Skill

Analytical skill is recognized as a crucial skill for all students to master, as claimed by Carol McGuiness (2014: 08) *"There is not any one type of thinking activity that we do that counts as analysis"* It is defined in online Free Dictionary as *"the abstract separation of a whole into its constituent parts in order to study the parts and their relations"* (2003). Another definition is provided by the Oxford Advanced Learner's Dictionary: *"using a logical method of thinking about something in order to understand it, especially by looking at all the parts separately."*(2017). Both definitions emphasize the decompositional aspect of analysis and they provide a close insight to understanding what analysis is in a very simpler way.

2.1. Analytical Thinking as a Component of Critical thinking

Analytical thinking is one essential component of critical thinking. This is obviously shown in the definition provided by Chance (1986: 06 cited in Amer, A. 2005: 11)*"The critical thinking is the ability to analyze facts, generate and organize ideas, defend opinions, make comparisons, draw inferences, evaluate arguments and solve problems"*.

Simply put, critical thinking is a process of making judgments and solving problems following an analytic approach. For example, one cannot make judgments about an article or any piece of information without studying it in depth, exploring its organization and implications and comparing it to other articles or information

Once again, analytical thinking is conceived as one component of critical thinking in Scriven and Paul's definition (1992)

> It is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and /or evaluating information gathered from or generate by observation, experience, reflection, reasoning, or communication, as a guide to belief and action. (Cited in Snyder, M. et al. 2008: 90).

This definition indicates that critical thinking requires an interactive operation between four thinking activities: conceptualizing, applying, analyzing and evaluating. Hickey *(*1990: 175) identifies analytical thinking as the basic and purely fundamental skill in critical thinking that he defines as *"Involving analytical thinking for the purpose of evaluating what is read."*

Basing on theses references, it is logical to conclude that analytical thinking is one important component and a necessary skill in critical thinking process. This skill in its own has received much attention from scholars in different domains. Researchers adopt different perspectives and suggest different definitions for this skill.

2.2. Analytical Thinking from Philosophical Perspective

According to Beaney (2016), the term analysis was conceived differently throughout the history of philosophy. For him, this fact is shown through a close study of some philosophers' works. Beaney (ibid) distinguishes three main conceptions for analysis which are the basic cognitive activity in analytical thinking. Analysis as a decompositional activity, analysis as a regressive activity, and analysis as a transformative activity.

2.2.1. The Decompositional Conception of Analysis

It is the modern conception based on the principle of breaking down something into its simpler parts as defined by the Oxford Dictionary of Philosophy *"the process of breaking a concept down into simpler parts so that its logical structure is displayed"* (Blachburn, S.1996: 17). Descartes believed analysis is decompositional in its core nature as did John Locke*(1836: 189)* who emphasized the decompositional aspect of analysis stating that *"all our complex ideas are ultimately resolvable into simple ideas, of which they are compounded..."*

2.2.2. The Regressive Conception of Analysis

It is also called *"solution backwards"*, and refers to the process of *"working back to first principles by means of which something could then be demonstrated"* (Beaney, M. 2003: 56). The enquiry, thus starts from the final results of an issue or conclusions and goes deeper seeking for basic fundamentals which are first in order. This type is widely conducted in mathematics and held by the ancient Greeks (ibid).

2.2.3. The Transformative or Interpretive Conception of Analysis

Before the process of decomposition could take place, the statements to be analyzed had first to be translated into their 'correct' logical form. The best illustration of this type is geometry, where the geometrical problem is first translated or transformed into the language of algebra and arithmetic in order to solve it more easily (Beaney, 2003).

In fact, analytical thinking went through different stages throughout philosophy's history. These conceptions are different, however; they all emphasize analysis as a problem solving activity that is guided by rules and logic. Psychology instead takes a less rigid view to analytical thinking and relates it to intelligence rather than systematic logic.

2.3. Analytical Thinking as a Style

Analytical thinking is considered as being a style as critical and creative styles. As Amer *(2005*: 21) argues: *"There are general styles of behavior common to individuals, and understanding them maximizes the ability to achieve results with others. One such style is that of approaching the world with an analytical slant"*. In fact, many researchers and scholars try to determine the characteristics of analytical thinking as well as analytical persons. For instance, Amer (ibid) states *"analytical persons approach problems based on facts and logic rather than emotions"*. This quotation illustrates one characteristic of analytical persons as they are logical and realistic.

It is worth pointing at the fact that analytical thinking as a sign of intelligence or as a style is very important for self development. The two former scholars offer quite similar approaches for analysis and their works seem to address professional analysts at first place rather than school learners.

2.4. Analytical Thinking from an Educational Perspective

Integrating higher order thinking skills in educational curriculum became the concern of many educational committees, commissions, and educators. As argued by Williams's et.al (1994 cited in Kang, S. 1999: 37) *"a lot of language educators recently suggested to shift our focus to the upper half of the hierarchy to provide more classroom time for higher –level thinking skills"*.

Elder and Paul are two main advocators of the teaching of critical thinking and analytical thinking. This is clearly reflected in their collaborative work <u>The Thinker's Guide to Analytic Thinking</u> published in (2007). They claimed that "*Analysis and evaluation are recognized as crucial skills for all students to master*". (Elder, L. and Paul, R. 2007: 04). They support their view by providing this argument *"These skills are required in learning any significant body of content in a non-trivial way* (ibid). This

quotation shows clearly the importance of incorporating higher level thinking skills in language classrooms.

Bloom is another advocator of teaching cognitive skills whose main concern is to develop and enhance students' higher order thinking skills. This led him to the elaboration of his influential work entitled <u>Taxonomy of Educational Objectives</u> (1956) which was intended to provide a classification of the goals of the educational system. He divided the cognitive domain into six major categories. The categories were Knowledge, comprehension, Application, Analysis, Synthesis, and Evaluation and each of these was broken into sub-categories. The categories were ordered from simple to more complex and from concrete to abstract to facilitate the learning process.

In addition, many educators go beyond the teaching of higher order thinking skills to the assessment of these skills and they criticize traditional tests as they neglect these crucial skills. Wiggins(1992) agrees that *"Typical tests, even demanding-ones, tend to over assess students 'knowledge' and under assess students 'know-how with knowledge' this is, intellectual performance"*(cited in Bell, et al. 2001: 27).

2.4.1. Levels of Analytical Thinking

Bloom (1956) distinguishes between three levels of analysis which are analysis of elements, analysis of relationships, and analysis of organizational principles.

1- **Analysis of Elements:** that is to recognize and identify both implicit and explicit components of a communication (Bloom, 1956: 146). Examples about this type include distinguishing facts from hypotheses and recognizing unstated assumptions.

2- **Analysis of Relationship:** which is concerned with determining the relationships among different elements in a communication as including for example the relationship between ideas, *"Much of analysis of relationships may deal with the consistency of part to part, or element to element; or the relevance of elements or parts to the central*

idea or thesis in the communication"(Bloom: 147). This includes for example checking the consistency of a hypothesis with given information and assumption or the ability to understand interrelationship among the ideas in a passage.

3- **Analysis of Organizational Principles:** which deals with the analysis of the structure and organization of a communication for the purpose of comprehension and evaluation of the latter (ibid: 148). For example the ability to recognize the organization of a given text in terms of form and pattern in order to interpret it or to recognize the techniques that are used in texts which are meant to persuade, explain, describe, etc.

Though teaching analytical thinking is important in education, valid assessment of teaching and learning outcomes is of crucial importance as well. Many types of assessment can be used for this sake and analytical thinking seems to have its specific assessment requirements.

II: ASSESSMENT

1. Definition of Assessment

The term assessment has been defined differently; no agreement has been made upon its meaning as claimed by Cizek (1997: 08). *"There is certainly no standard usage of the term: it is used in so many different ways, in so many different contexts, and for so many different purposes"*. This means that there is a disagreement among scholars as to what the term "assessment" refers to. In this respect, this term is used in so many fields and refers to different meanings such as: "methods and procedures" used by teachers for gathering information about students' performance. It can also refer to a "medical instrument" used by physicians to diagnose patients' situations.

In education, the term assessment refers to a wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning,

progress, skill acquisition, or educational needs of students. This clearly reflected by Brown.

> Assessment is an ongoing process that encompasses a much wider domain, whenever a student responds to a question, offers a comment, or tries out a new word or structure; the teacher subconsciously makes an assessment of the student's performance. (Brown, D. 2004: 04)

According to the Assessment Reform Group (ARG) *"Assessment is the process of seeking and interpreting evidence for use by learners and teachers, to identify where the learners are in their learning, where they need to go and how best to get there."* (ARG, 2002, cited in Gardner, 2006: 02). In other words assessment is a two side process that is used by both teachers and students. It helps teachers to determine their methods of teaching and students to evaluate their learning progress. From these definitions we may infer that assessment is both a process and a tool for evaluation.

2. Types of Assessment

A distinction should be made between the different types of assessment, Formative and Summative assessment:

2.1. Formative Assessment

The concept of formative assessment or as called by Bloom "Formative Evaluation" attained a great interest when it was popularized by him and his associates in his book entitled The Handbook of Formative and Summative Evaluation of Students Learning (Bloom, et al. 1971). Bloom confirms (Bloom et al. 1971: 118) *"Although that volume is perhaps most well known for its elaboration of educational objectives introduced previously by Bloom (1956), its explication of the distinction between two concepts-Formative and Summative evaluations-is considered foundational"*.

Bloom and his colleagues defined Formative Assessment as *"the use of systematic evaluation in the process of curriculum construction, teaching and learning for the purpose of improving any of these three processes..."* (ibid: 118). Formative assessment

aims at checking the student's understanding on the relevant time i.e. during the teaching and learning process which allows teachers to meet the standard of good instruction.

2.2.   Summative Assessment

According to Cizek (2010: 03) Summative assessment is:

> Any test or other system of gathering information about the student's achievements if it meet two criteria (1)it is administered at the end of some unit of instruction (e.g. :unit, semester, school year); and (2) its purpose is primarily to categorize the performance of a student system.

Summative assessments are used to evaluate student learning at the conclusion of a specific instructional period, they are typically scored and used to determine whether learners have learned what they are expected to learn during a precise instructional period. As claimed by Brown (2004: 6) *"Summative assessment aims to measure, or summarize, what a student has grasped, and typically occurs at the end of a course or unit of instruction"*.

According to Bloom (1971: 118) *"Summative assessment is the type of evaluation used at the end of a term, course or program for purposes of grading, certification, evaluation of progress, or research in the effectiveness of a curriculum, course of study, or educational plan..."*. Summative assessments are typically scored and graded tests, assignments, or projects therefore they are related to marks and grades.

3. Assessing Higher Order Thinking Skill (HOTS)

Many educators go beyond the teaching of HOTS to the assessment of these skills and they criticize traditional tests as they neglect these crucial skills. Wiggins(1992) has argued that *"Typical tests, even demanding-ones, tend to over assess students 'knowledge' and under assess students 'know-how with knowledge' this is, intellectual performance"*(cited

in Bell, E. et al. 2001: 27). So, it is important to develop higher order thinking skills but it is even more important to know how to appropriately assess these acquired skills.

> Valid assessment of higher order thinking skills requires that students be unfamiliar with the questions or tasks they are asked to answer or perform and that they have sufficient prior knowledge to enable them to use their higher order thinking skills in answering questions or performing tasks. (King, F.J. et al. 1998: 02).

The above quotation best illustrate the criteria of a good assessment as questions should be worth asking and challenging and students should have prior knowledge that enables them to answer the questions.

3.1. Assessing Analytical Thinking

Appropriate assessment of analytical thinking is one major factor in developing this intellectual skill. Many techniques can be used to evaluate learners' analytical thinking abilities among which we can distinguish questioning strategies. According to Bloom (1956), asking questions to students activate and increase their analytical abilities as they allow them to analyse information, establish connections, and express their thoughts. In this case their answers are the final product of a whole analytical process and the primary one in the process of assessment. Indeed, the questions should be significant, worth asking, and stimulate students' deeper thinking. Bloom suggests a series of questions that can help in stimulating and thus assessing students' analytical thinking while performing tasks. Hence, as analysis is the basic level in higher order thinking, Bloom specifies the following questions:

- Which events could not have happened?
- If...happened, what might the ending have been?
- How is...similar to...?
- What do you see as other possible outcomes?

- Why did...changes occur?

- Explain what must have happened when...

- What are some or the problems of...?

- Distinguish between...

- What were some of the motives behind..?

- What was the turning point?

- What was the problem with...?

<div align="right">(Bloom, cited in Pohl, 2000: 13)</div>

The action verbs that can be used in instructional questions are: analyse, compare, probe, inquire, examine, contrast, categorize, differentiate, investigate, detect, survey, classify, deduce, experiment, scrutinize, discover, inspect, dissect, discriminate, and separate. (Bloom, 1956 cited in Wilson, O. L. 2016).

III: Bloom's Revised Taxonomy

1. Bloom's Original Taxonomy (OT)

The American educational psychologist Benjamin Samuel Bloom and his colleagues made a significant contribution to the field of education through the work Taxonomy of Educational Objectives: The Classification of Educational Goals published in (1956). The taxonomy is meant to guide the teaching and learning processes towards clearer and selected objectives and assessment targets, Bloom (1956: 02) confirms*"Curriculum builders should find the taxonomy helps them to specify objectives so that it becomes easier to plan learning experiences and prepare evaluation devices"*. Clearly this Taxonomy is meant to help educators in selecting most appropriate learning objectives right from the beginning in order to be able to design suitable instructions and assessment tools.

The taxonomy basically addresses three major domains: the cognitive, the affective and the psychomotor domains, also known as KSA which refer to Knowledge, Skills and Abilities (Bloom, 1956), but focuses more on the cognitive level which is also our concern in this study. The cognitive domain as the first addressed domain in Bloom's taxonomy is defined by him as *"the recall or recognition of knowledge and the development of intellectual abilities and skills"* (1956: 7) that is the ability to identify, use, process and measure information in a meaningful way. The second domain called the affective domain, is defined as including *"objectives which describe changes in interest, attitudes and values, and the development of appreciations and adequate adjustment"* (ibid: 07); in other words; the attitudes and feelings related to the learning process. The third and last domain, psychomotor domain, is *"the manipulative or motor-skill area"* (ibid: 07) which is related thus to manual and physical skills. Each domain is divided into further sub-domains.

1.1. The Cognitive Domain in Bloom's Taxonomy

Bloom classifies thinking into six cognitive levels ranging from simpler levels of thinking: (knowledge, comprehension, and application) to more complex levels (analysis, synthesis, and evaluation). In order for students to progress from one level to another they should be able to perform at the preceding level that is students cannot evaluate or analyze information unless they comprehend it and apply it. The Cognitive Taxonomy is illustrated in the figure below:
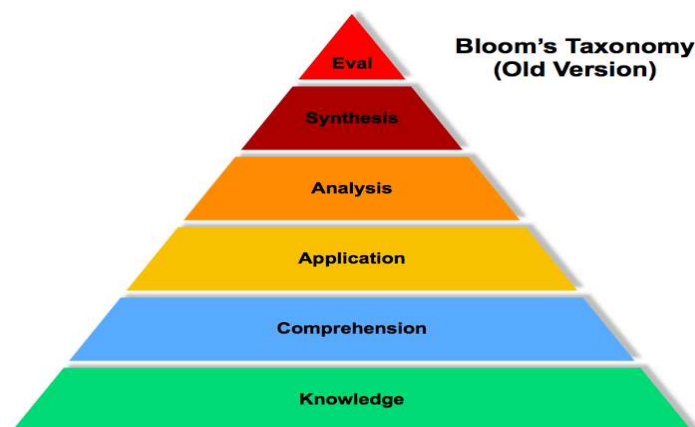
(Munzenmaier, C. and Rubin, N. 2013: 18)

Figure1: Bloom's Taxonomy of the Cognitive Domain (1956)

The lowest and basic level in the taxonomy is **Knowledge**, at this level learners are able to remember, identify and acquire knowledge. The next cognitive level is **Comprehension** in which students can understand, define, and interpret the acquired knowledge. The third and last lower order thinking level is **Application** which is concerned with the use or application of knowledge in new situations in which it was taught. At this level, there is a transition from lower order thinking to higher order thinking initiated with analysis. **Analysis** as the first basic higher order thinking level requires the possession of a certain ability to relate, organize, compose and decompose information. The fifth level is **Synthesis** that is the ability to manipulate information in a way that results in building up new patterns or knowledge. The sixth and sum level in the Taxonomy is **Evaluation** which implies a quantitative or a qualitative judgment of ideas, works, materials, etc. by following some criteria for a given purpose (Bloom, 1956).

2. Anderson and Krathwohl's Revision of Bloom's Taxonomy (RT)

Following the development of learning theories, a group of researchers among which Anderson and Krathwohl provided a revised version for Bloom's Taxonomy (2001). According to Anderson the revision was needed to update the framework in terms of the advances in cognitive psychology since its edition and to use a more "common language" with more "realistic examples" (Anderson, 2001 cited in Marzano, R. 2004: 09). According to Forehand, M (2005) this revised version targets a broader audience (teachers, educators and textbook designers). It further brings some changes at the level of terminology and structure.

a) Changes at the Level of Terminology

The changes in terminology between the two versions are probably the most obvious differences. Bloom's six major categories are changed from noun to verb forms. In addition the lowest and basic cognitive level in the original taxonomy "knowledge" is renamed to become "remembering", the second level "comprehension" becomes "understanding" and the fifth level synthesis is renamed "creating".

b) Changes at the Level of Structure

Bloom's original cognitive taxonomy is a "one-dimensional" while the revised version adopts a "two-dimensional structure"; the first dimension is The Knowledge Dimension which identifies the kind of knowledge to be learned. This dimension is divided into four categories of knowledge namely (Factual, Conceptual, Procedural and Meta-Cognitive knowledge). The second dimension is the Cognitive Process Dimension that includes the process to follow in learning this knowledge; it is divided also into six cognitive levels following a hierarchical order: remembering, understanding, applying, analyzing,

evaluating, and creating. Furthermore each category or level in both dimensions is subdivided into further subcategories. Another area of change affects the order of cognitive levels in which the two final levels in the original taxonomy, synthesis and evaluation, are reversed in their order allowing "synthesis" renamed "creating" to be the sum level of the revised cognitive taxonomy.

The figure below illustrates some of the basic changes in the Cognitive Revised Taxonomy:
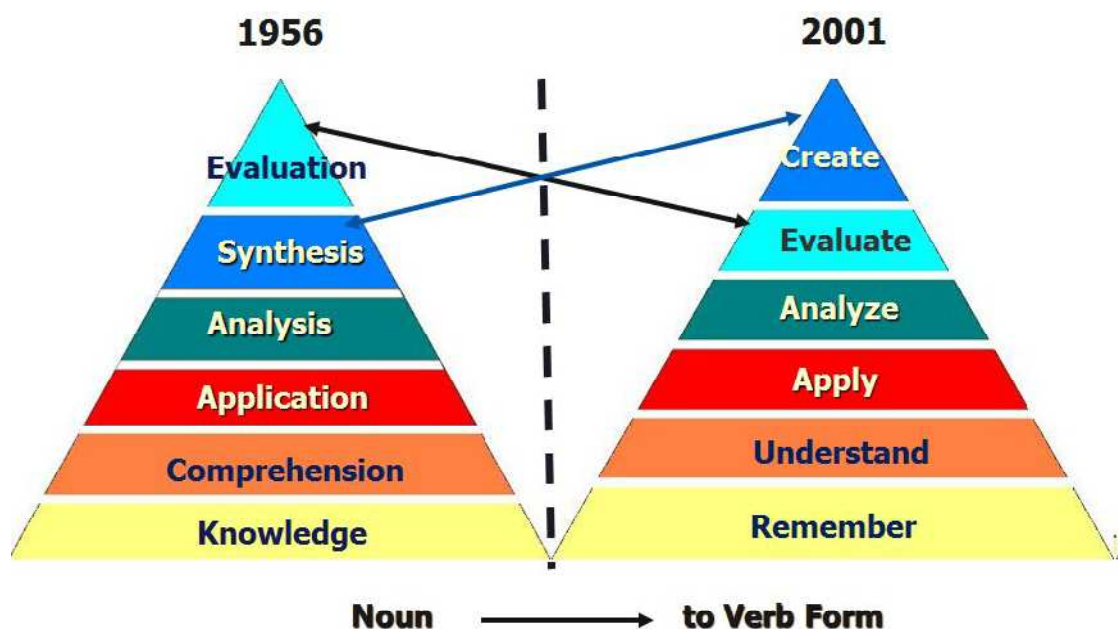
(Wilson, L. O. 2001)

Figure 2: Bloom's Original and Revised Taxonomies

2.1. The Cognitive Domain in the Revised Taxonomy (2001)

The Bloom's Revised Taxonomy by Anderson et al. is maintained as closer as possible from the tradition of the original version although some elaborative changes are operated. Apart from The Knowledge Dimension which is more theoretical in its nature The

Cognitive Process Dimension of the Revised Taxonomy is rather practical. It consists of six cognitive categories namely Remembering, Understanding, Applying, which are labeled under the category of lower order thinking skills that require students to reproduce and Analyzing, Evaluating, Creating that fall in the higher order thinking category that requires students to produce. (Krathwohl, 2002: 213).

2.1.1. The Reproductive Skills

A. Remembering

Remembering is the first and basic cognitive category in the Revised Taxonomy. It is defined by Anderson and Krathwohl as *"Retrieving relevant knowledge from long-term memory"*. (Krathwohl, 2002: 215). In other words remembering is when memory is used to retrieve knowledge like definitions, facts, etc. and recite or reproduce this knowledge when necessary. This skill involves activities that require recognizing and recalling. For instance, answering true or false or multiple choice questions.

B. Understanding

The second cognitive category is understanding. It is defined as *"determining the meaning of instructional messages, including oral, written, and graphic"* (ibid: 215); that is constructing meaning from different types of messages such as oral, written or graphic messages. This may involve activities such as interpreting, exemplifying, classifying, summarizing, inferring, comparing, or explaining. As an example, answering comprehension questions.

C. Applying

It is defined as *"Carrying out or using a procedure in a given situation"* (ibid: 215). Applying relates or refers to the translation of learned materials into their appropriate usage that are limited and governed by a specific situation. It is used through products like

models, presentations, interviews or simulations. That is, learners use their previously learned rules in a specific situation. For instance, grammar tasks in which learners are asked to practise previously studied rules.

2.1.2. The Productive Skills

D. Analyzing

Analyzing is *"breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose"*(Krathwohl, 2002: 215);that is logically dividing or selecting parts from wholes and determining the relationship between them. Mental actions included in this function are differentiating, organizing, and attributing. For instance, using sequencers to establish coherence or listing items according to their appropriate categories.

E. Evaluating

Evaluating is *"Making judgments based on criteria and standards"* (ibid: 215). Making judgments based on criteria and standards through checking and critiquing.

"Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation" (Anderson, et al. cited in Wilson, L. 2016). In RT, creating is largely based on evaluating. As an example, to self assess and evaluate learners' drafts.

F. Creating

Creating is *"Putting elements together to form a novel, coherent whole or make an original product"* (ibid: 215)); this means recognizing elements in a way that permits the production of a new pattern or product. This involves: generating, planning, and producing. This process is the most complex cognitive activity that is why it is placed at the sum level of HOTS in RT. As an example, to write a composition (paragraph essay).

Example about the application of Bloom's Revised Taxonomy in education

A very simple example about the application of Bloom's revised version is adapted from the Omaha Public Schools Teacher's Corner. Students are presented to a lesson objective based upon the story of Goldilocks and the Three Bears.

Remember: describe where Goldilocks lived.

Understand: summarize what Goldilocks story was about.

Apply: construct a theory as to why Goldilocks went into the house.

Analyze: differentiate between how Goldilocks reacted and how you react in each event.

Evaluate: assess whether or not you think this really happened to Goldilocks

Create: compose a song, skit, poem, or rap to convey the Goldilocks story in a new form.

(Cited in Forehand, M. 2011: 06)

3. Analytical Thinking in the RT

The first higher order cognitive category "Analysis" maintained its original order in the hierarchical organization of the Revised Cognitive Taxonomy. Although, just as all the other cognitive categories of Bloom's Taxonomy, it has been revised by Anderson and Krathwohl (2001) by reversing its name from noun into verb form "Analyzing". This thinking level involves three major cognitive processes namely "Differentiating, Organizing, and Attributing" (Krathwohk, 2002: 215). "Analyzing" category is the main focus of the present study, official textbooks are expected to use appropriate activities and tasks in order to implement and assess learners' analytical skill.

Differentiating implies discriminating, distinguishing, focusing and selecting. For instance, to distinguish between correct (appropriate) forms from incorrect (inappropriate) forms of verbs, sentences, etc.

Organizing includes finding coherence, integrating, outlining, parsing and structuring. As an example, to supply a text with logical connectors and sequencers.

Attributing involves deconstructing. For instance, to pick out information and use them in completing a diagram.

Conclusion

This chapter has reviewed the important notions related to our research. It consists of three sections. The first section has dealt with the definition of thinking as well as analytical thinking from different views and perspectives. The second section has reviewed the concept of assessment, its different types, as well as assessment requirements and strategies for analytical thinking. The third and the last section has provided a detailed presentation of our theoretical framework: Bloom's Revised Taxonomy (2001).

Research Design

Introduction

This chapter is devoted to the research design. It clarifies the methodology which is used to investigate issues related to teaching analytical thinking in the Algerian secondary school English textbook At the Crossroads. This chapter deals with two main procedures, namely procedures for data collection and procedures for data analysis. Data collection is devoted to the description of the corpus that is the textbook At the Crossroads as well as the questionnaire designed for secondary school teachers. Data analysis explains the mixed method approach that is adopted in the investigation, emphasizing both qualitative and quantitative methods.

1. Data Collection Methods

The data are collected relying on a quantitative and qualitative evaluation of the textbook At the Crossroads. The evaluation focuses mainly on the assessment parts provided in the textbook and which are meant for checking learning progress.

Another tool for data collection is a questionnaire designed for nine secondary school teachers of English at Makouda and Timizart. The questionnaire is divided into three sections. The first section relates to collecting some demographic information about the participants and the second section is meant to discover the secondary school teachers' attitudes towards analytical thinking. The third section is devoted to teachers' attitudes towards the textbook assessment parts in relation to analytical skill development.

1.2. Description of the Textbook At the Crossroads

"At the Crossroads" (SE1) is the official textbook designed to teach English for first year secondary school pupils in Algeria. It is designed by the National Committee of the Ministry of National Education for learners aged between15 to 16, who have already four

years' tuition in English at Middle School level. It is the first part of a series of three textbooks including Getting through (SE2) and New Prospects (SE3). At the Crossroads emphasizes three main principles. First, the Communicative Language Teaching (CLT) that targets learners' use of language fluently and accurately in authentic communicative situations. Second, the Competency- Based Approach (CBA) which stresses learners' communicative competencies. Third, the Learner Centered Approach, which encourages learners to develop their own learning strategies and become independent in their learning.

The textbook contains five themes which are classified into five units. Each unit comprises four sequences and includes, series of guidelines for the realization of a project called **Project Workshop** and an evaluation section entitled **check your Progress.**

By analyzing the organization of the units, each one of them follows the same organization. The first two sequences are **Listening and Speaking** and **Reading and Writing**; these sequences follow the same pattern each according to its own specificity. They aim to encourage students to anticipate before listening and reading, check out their predictions, stress, intonation, and practice language functions before producing a reasonable stretch of oral or written discourse. The third sequence is called **Developing Skills**; it aims to get the students to combine the four language skills. The **Stop and Consider** section that follows provides training in the use of English based on the implementation of rules of grammar, syntax, and phonology that illuminate aspects of the language which the learners have come across either in the unit under study or even in the Middle School curriculum. The fourth sequence which comes is called **Consolidation and Extension**; it consists of two rubrics, Write it out and Work it out. Its aim is to elaborate and expand on the functions, language, and social skills acquired earlier. At the end of each unit there are the **Project Workshop** and **Check your Progress** sections. The former assigns to the students to use their acquired skills to complete projects. The latter provides

the students with the opportunity to assess their learning progress through a series of exercises.

At the crossroads contains two assessment sections. The first section is called "Developing Skills" which aims at getting the students to perform with a purpose, to mention: writing a letter of application, making a group presentation, telephoning…etc. The second section which is the concern of our study is called "Check your Progress"; this section provides a series of tasks about the thematic and didactic components of the unit as a whole.

Figure 3: Organization of the unit's content in the textbook At the Crossroads
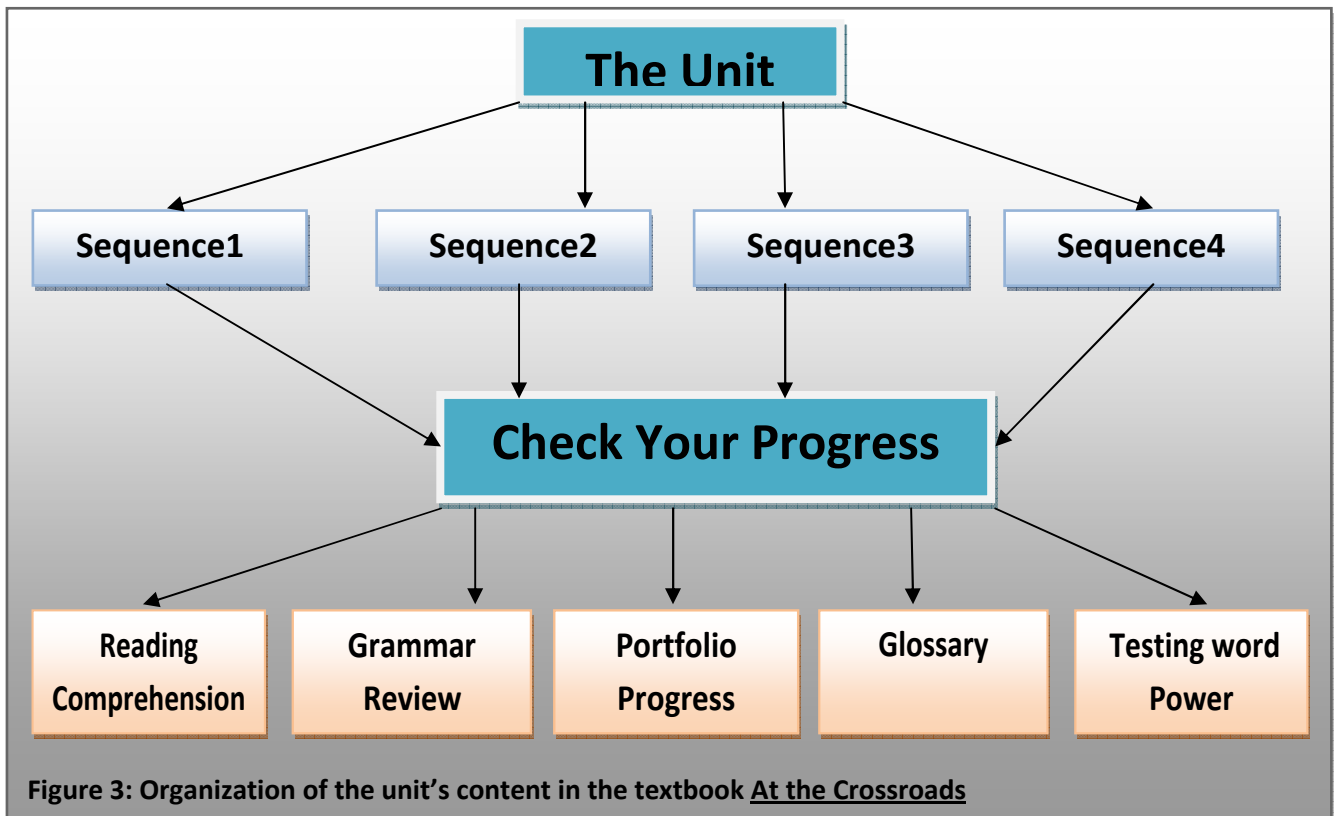
1.3. Questionnaire

The questionnaire is one of the most common methods of data collection in second language research. It is defined by Collins dictionary (2014) as *"a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents"*. Many researchers try to define what the questionnaire is, among them Brown (2001: 06 cited in Dornyei, Z. 2010: 04) claims that "*questionnaires are any written instrument that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from existing answers"*.

Burns and Grove (1993: 426) agree that *"a questionnaire is among the best instruments that best fit a descriptive method because it is easy to carry on and analyze"*. Dornyei (2010: 4) agrees and he confirms that *"Questionnaires are certainly the most often employed data collection devices in statistical work"*, he adds *"the main strength of questionnaires is the ease of their construction"*. Both researchers have a similar view about the questionnaire as it fits the descriptive statistical method and as it is easy to construct.

A questionnaire in one hand could be open-ended format question in which the participants are asked to answer the questions in a free way using their own words. In the other hand it could be close-ended question which takes the form of a multiple-choice question where the teachers are expected to choose one of the responses that have been suggested.

In this study, we have used a questionnaire which is divided into three sections. The first section relates to collecting background information about the participants and the second section is meant to discover the secondary school teachers' attitudes towards

analytical thinking. The third section is devoted to teachers' attitudes towards the textbook assessment parts in relation to analytical skill development. The questionnaire was submitted to nine (09) English language teachers in secondary school, four in Diouani Med Said (Makouda) and five in At Bata (Timizart).

2. Data Analysis Methods

The present work relies basically on a mixed method approach for data analysis that is; it involves both quantitative and qualitative analysis of the research data. There are two main procedures to account for in data analysis section. The first procedure involves a descriptive statistical method of the corpus under study as well as the questionnaire's data. The second, accounts for a content analysis and interpretation of research data with reference to the relevant theoretical framework.

2.1. The Descriptive Statistical Method and Content Analysis

In order to analyze the data obtained from the corpus and the questionnaire administered to Secondary school teachers of English, we have opted for the choice of the descriptive statistical method to deal with the quantitative data and content analysis for the qualitative data.

2.1.1. Descriptive statistical Method

This choice of methodology is affected by many factors. A descriptive method is considered to be the easiest way of gathering data when time is not sufficient. According to Polit et al. (2001: 223) *the research methodology refers to the different techniques and procedures used to gain data by describing a situation*". A descriptive methodology is defined by Burns and Grove as the way that helps to identify problems of certain situations and obtain data from them.

A Descriptive Statistical Method is used to calculate the frequency of distribution of action verbs in the six categories. Trochim (2006: 57) claims that "*Descriptive Statistics are used to describe the basic features of the data in a study; they provide summaries about the sample and measurement*". This operation is made using a computer program called (SPSS): Statistical Package for Social Sciences. In this respect, the results are presented in percentage and they are expressed through tables, pie charts, and histograms.

2.1.2. Content Analysis

Holsti offers a broad definition of content analysis as "*any technique for making inferences by objectively and systematically identified specified characteristics of messages*". (1969: 14). So, according to him this technique can be used by researchers to analyze the content of different messages by identifying their durable features. A similar definition is offered by a group of other researchers; they defined content analysis as being "*a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding*" (Berelson, 1941: 02 et. al cited in Berelson, 1952: 14). That is content analysis allows researchers to sift through large volumes of data to small ones on the basis of selected categories. Content analysis is defined as a replicable technique; researchers must get the same result for the same message content.

Many researchers in this domain offer different definitions, these definitions may be classified according to two approaches. The question is whether content analysis can be quantitative or qualitative and some others try to sort out similarities and differences between the two as Berelson did. He (1952: 114) maintains "*let us inquire into the similarities and differences between such "qualitative" studies and the quantitative analyses*".

However, other researchers as Mayring and Flich (1952) suggest a mixed method as a solution. The former argued for a triangulation of qualitative and quantitative research, where each approach follows its own "method-appropriate criteria" (P.175 cited in Myring, 1952: 8).

Our investigation adopts this analytical tool. It accounts for both quantitative and qualitative approaches. Mayring define it as *"the model starts from traditional research processes of quantitative approaches and reformulate and expands them for qualitative approaches"* (Mayring, 2001: 10).

a. Units and Categories of (CA)

In content analysis, researchers examine artifacts of social communication. Typically, these are written documents or transcription of recorded verbal communication. Researchers when opting for the choice of content analysis strategy to assess written documents, they must first decide what units of analysis will be counted. Seven major elements in written messages can be counted: words or terms, themes, characters, paragraphs, items, concepts, and semantics (Berelson, 1952; Berg, 1983; Merton, 1968; Sellitz et al., 1959). Then, content analysis involves also the aspect of categories.

Berelson confirms *"Content analysis should employ the categories most meaningful for the particular problem at hand; and relatively specific and concrete categories are often the most meaningful"*. (1952: 148). Moreover, the categories should be specific for each topic.

In this investigation, the textbook At the Crossroads includes a set of tasks. Each task involves at least one or two action verbs that ask learners to interact in some way. In our research the different action verbs will be classified and categorized following the Bloom's Revised Taxonomy (2001).

Conclusion

This chapter has focused on the methodological moves of our research work. It has first introduced the procedures for data collection; that is the tools used to gather data needed for conducting this research. Indeed, it has provided a description of the corpus under investigation. At last, it has presented the data analysis procedures that are adopted to fulfill this research.

Chapter Two: Results

Introduction

This chapter is devoted to the practical side of the study. It is concerned with the findings of our investigation about the assessment of analytical thinking in the textbook <u>At the Crossroads</u>. This chapter accounts for the results obtained from the analysis of "Check your Progress" which is an assessment section in the textbook mentioned above. It also presents the data collected from the questionnaires that were administered to nine teachers of English at the level of secondary school.

This chapter is divided into two sections. The first section covers the presentation of the results obtained from the analysis of the corpus. The second one comprises the results obtained from the questionnaires. The descriptive statistical method is adopted and the data are calculated using SPSS. The final outcomes are presented in a form of tables, pie charts, and bar charts.

I: Presentation of the Results from the Analysis of "Check your Progress"

The current analysis takes into account the assessment sections "Check your Progress" included at the end of each unit of study in the textbook <u>At the Crossroads</u>. The core of this study is to deal with the analysis of the assessment tasks that are provided in "Check your Progress" and the use of action verbs within the latter. The data are generated with reference to the six cognitive categories in Bloom's RT, however; the emphasis will be on the fourth category *"analyzing"*.

1. The Number of Tasks Contained in "Check Your Progress"

Unit	Number of tasks in 'Check your progress'	Percentage
Unit 1	16	25%
Unit 2	12	19%
Unit 3	10	16%
Unit 4	13	21%
Unit 5	12	19%
Total	63	100%

Table 1: The Number of tasks in "Check Your Progress"

Table 1 reveals that the whole assessment parts "Check your Progress" contain 63 assessment tasks. The first unit includes 16 tasks; that is the majority of tasks with the percentage of 25%. The fourth unit comes in the second position with 13 tasks which is also a considerable percentage (21%) compared with the other units. The latter posses almost the same numbers of tasks as it appears in unit 2, 5, and 3.

2. The Number of Action Verbs Provided in the Assessment Parts "Check your Progress"

Units	Number of action verbs in 'check your progress'	Percentage
Unit 1	22	27%
Unit 2	21	26%
Unit 3	11	13%
Unit 4	19	23%
Unit 5	9	11 %
Total	82	100%

Table 2: Action Verbs in "Check your Progress".

Table 2 above shows that the number of action verbs included in the assessment parts is 82. Unit 1 and unit 2 contain the highest number of action verbs with the percentages 27% and 26%. The other units namely unit 3 and 5 involve only few action verbs with reference to these percentages: 13% and 11% respectively.

3. The classification of Action Verbs in "Check your Progress"

Cognitive categories	Number of action verbs	Percentage
Remembering	11	13%
Understanding	25	30%
Applying	14	16%
Analyzing	16	19%
Evaluating	8	09%
Creating	8	09%
Total	82	100%

Table 3: The Cognitive Categories in "Check your Progress"

The total number of action verbs in "Check your Progress" can be categorized into the six cognitive levels. Table 3 above reveals that action verbs related to the "understanding" category occupies the highest percentage 30%. Analyzing comes in the second position with 14 action verbs that represents the percentage of 16%. The least percentage (9%) is devoted to "creating" and "evaluating".

3.1. The Classification of Action Verbs into the Cognitive Category "Remembering"

Remembering action verbs	The number of action verbs	Percentage
Recognizing	6	51%
Recalling	5	49%
Total	11	100%

Table 4: Remembering in "Check your Progress"

The first category "remembering" involves two cognitive processes namely "recognizing" and "recalling". As it is highlighted in table 4, the two cognitive processes share approximately the same percentage 51% for recognizing and 49% for recalling. Some verbs which are used are fill, supply, put, and find.

3.2. The Classification of Action Verbs into the Cognitive Category "Understanding"

Understanding category	Number of action verbs	Percentage
Interpreting	10	40%
Exemplifying	2	8%
Classifying	4	16%
Summarizing	1	4%
Inferring	2	8%
Comparing	1	4%
Explaining	5	20%
Total	25	100%

Table 5: Understanding in "Check your Progress"

Table (5) illustrates the seven cognitive processes that constitute the cognitive category "understanding". The results reveal that interpreting got the highest number of action verbs 10 that refer to the percentage of 40%. Explaining comes in the second position with 20% of action verbs that are present in the assessment parts "Check your Progress". The least percentage is devoted to comparing with only 4%.

3.3. The Classification of Action Verbs into the Cognitive Category "Applying"

Applying category	Number of action verbs	Percentage
Executing	8	51%
Implementing	6	49%
Total	14	100%

Table 6: Applying in "Check your Progress"

Applying involves two main cognitive processes: executing and implementing. As the table shows both of them have approximately the same number of action verbs in the assessment section "Check your Progress". Executing refers to the percentage 51% and implementing occupies 49%.

3.4. The Classification of Action Verbs into the Cognitive Category "Analyzing"
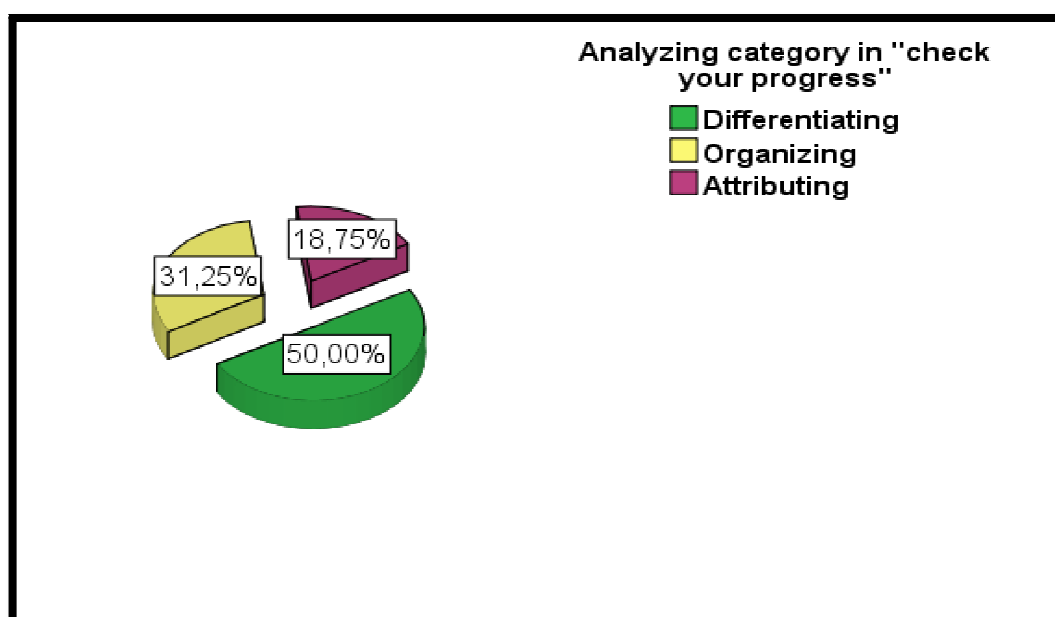
Diagram 1: Analyzing in "Check your Progress"

Analyzing implies three cognitive processes namely differentiating, organizing, and attributing. Diagram (1) shows that differentiating owns 8 action verbs with the highest percentage of 50% while organizing represents also a considerable percentage 31.25%. The least number of action verbs is devoted to attributing with 18.75%.

3.5. The Classification of Action Verbs into the Cognitive Category "Evaluating"

Evaluating category	Number of action verbs	Percentage
Checking	8	100%
Critiquing	0	0%
Total	8	100%

Table 7: Evaluating in "Check your Progress"

This table highlights the two cognitive processes that are involved in "Evaluating" that are: checking and critiquing. The results reveals that all the action verbs related in evaluating are related to checking which is labeled under the percentage 100%. In contrast no action verb relating to critiquing is included in "Check your Progress".

II: Presentations of the Results of the Teachers' Questionnaire

II. 1. The Results of Section One: Background Information

The first section of the questionnaire deals with the information concerning the respondents. The first question is about the teachers' work and the second one is concerned with the teachers' professional training.

1.1. Teaching Experience

The work experience of those teachers varies from one teacher to another starting with teachers experience from less than five years to 10 years of work experience in teaching English language in secondary school. That is to say, one (1) teacher representing (11.1%) has less than five years experience, two teachers (22.2%) have between five and ten years experience and finally six teachers (66.7%) have more than ten years experience.
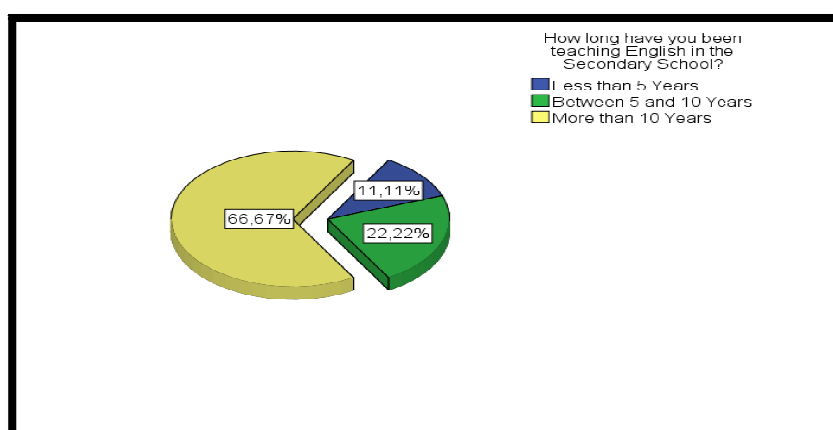
Diagram 02: Teaching Experience

1.2. Teachers' Professional Training in English Language Teaching
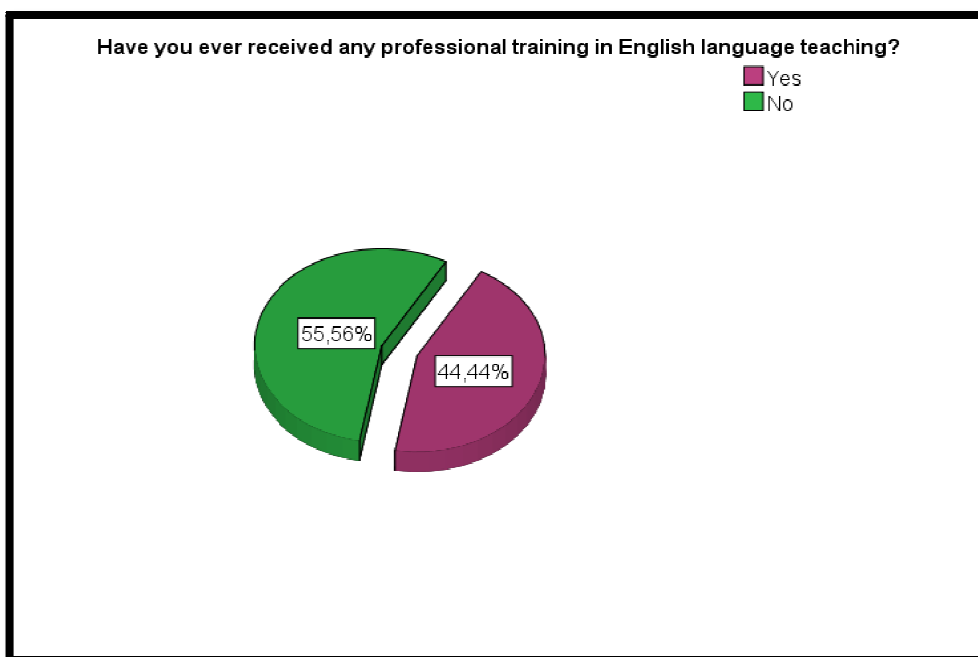
Diagram 03: Professional Training in Teaching

The pie chart indicates that four teachers (44.4%) have received training in English, whereas five teachers (55.5%) have not.

II. 2. The Result of Section Two: Teachers' Opinions about Analytical Thinking

Q3: According to you, what is analytical thinking?

This question is an open-ended question which aims at collecting teachers' knowledge about analytical thinking. It reveals that the majority of our participants have an idea about its meaning. Most of them have given a correct and clear definition of analytical thinking that corresponds to Anderson and Krathwohl's definition of this cognitive skill. For instance one of teacher's definitions is: "analytical thinking is a cognitive activity which involves the analysis of data or information including comparing, selecting, and rejecting".

Q4: Do you think that analytical thinking is:

Important   very important   not important

Options	Number of teachers	Percentages
Important	1	11.1%
Very important	8	88.9%
Not important	0	0%
Total	9	100%

Table 08: The Importance of Analytical Thinking

Most of teachers (8) representing (88.9%) have answered that analytical thinking is very important while 11.1% consider it as being important. In contrast, no teacher chooses the option (not important). No doubt, all the teachers are aware about the importance of analytical thinking.

Q5: Do you think that pupils should be taught how to be good analysts?

Option	Number of teachers	Percentage
Yes, certainly	9	100%
No, not necessarily	0	0%
Total	9	100%

Table 09: Teaching Analytical Thinking

It is not surprising that all teachers (9) are for the teaching of analytical thinking in secondary school level. No teacher accounts for the option (no, not necessarily). **Q6:** In your opinion, what kind of practice stimulates pupils' analytical thinking?

a- Recognize and recall.

b- Differentiate, organize, and attribute.

c- Generate, plan, and produce.

d- Others, please specify
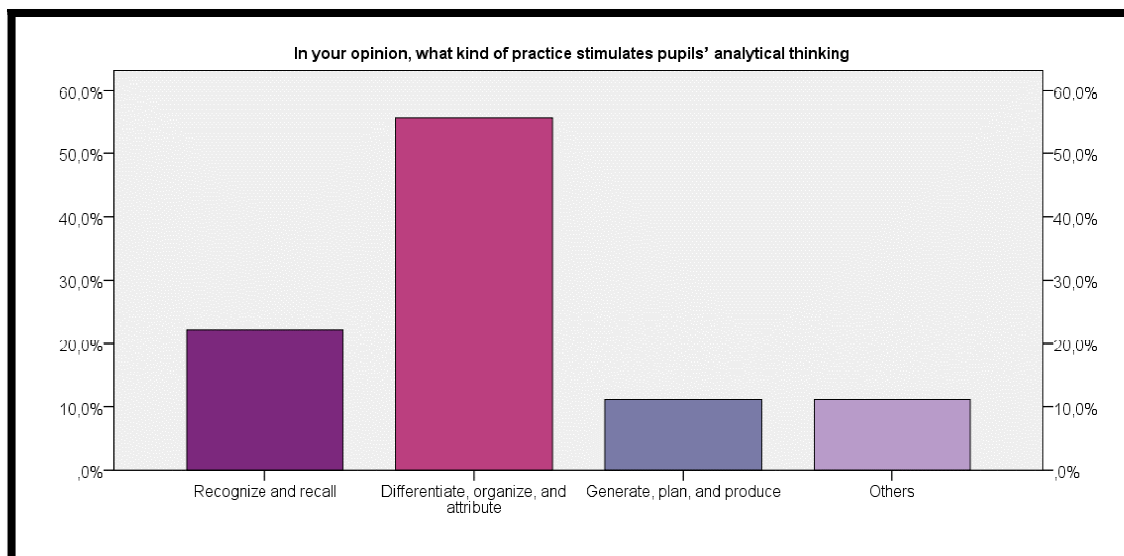
Diagram 04: Practices that Stimulate Analytical Thinking

The results show that four (4) teachers representing (44. 4%) claim that the activities that stimulate analytical thinking involve differentiating, organizing, and attributing. Two (2) teachers representing (22.2%) have chosen activities concerned with recognizing and recalling. Finally, two (2) teachers representing (22.2%) for generating, planning, and producing. In contrast, only one teacher has opted for the option (others).

III. Section 3:

Q7: Do you use the textbook assessment parts to evaluate your pupils' learning progress?

Options	Number of teachers	Percentages
Yes	8	88.9%
No	1	11.1%
Total	9	100%

Table 10: Teachers' Use of the Assessment Parts "Check your progress".

In accordance with table (10) 88.9% of the teachers use the textbook assessment section to assess their learners' progress while only 11. 1% of them do not use it. These results reflect that the textbook is the most used teaching material since teachers depend on it for teaching and assessing their learners' achievements**.**

Q8: How often do you rely on these assessment parts?

Always   Often   Sometimes   Rarely   Never

Options	Number of teachers	Percentages
Always	0	0%
Often	6	66.7%
Sometimes	3	33.3%
Rarely	0	0%
Never	0	0%
Total	9	100%

Table 11: Degree of Frequency in the Use of "Check your Progress" Sections

It seems from table (11) that most of teachers (6) representing (66. 7%) have claimed that they often use the assessment parts of the textbook and only 3 of them (33.3%) have asserted that they use it sometimes.

Q9: The assessment parts of the textbook evaluate the students' higher- order thinking skills.

Agree   Strongly agree

Disagree   Strongly disagree

Options	Number of teachers	Percentages
Agree	7	77.8%
Strongly agree	1	11.1%
Disagree	1	11.1%
Strongly disagree	0	0%
Total	9	100%

Table 12: Assessing HOTS in "Check Your Progress"

The outcomes show that the high percentage 77.8 % is devoted to (agree) with seven (7) answers and only one (1) teacher (11.1%) disagree with the statement "The assessment parts of the textbook evaluate the students' higher- order thinking skills".

Q10: The activities of the assessment section "Check Your Progress" are:

a- Reproductive (remembering, understanding, applying)

b- Productive (analyzing, evaluating, creating)

c- Both
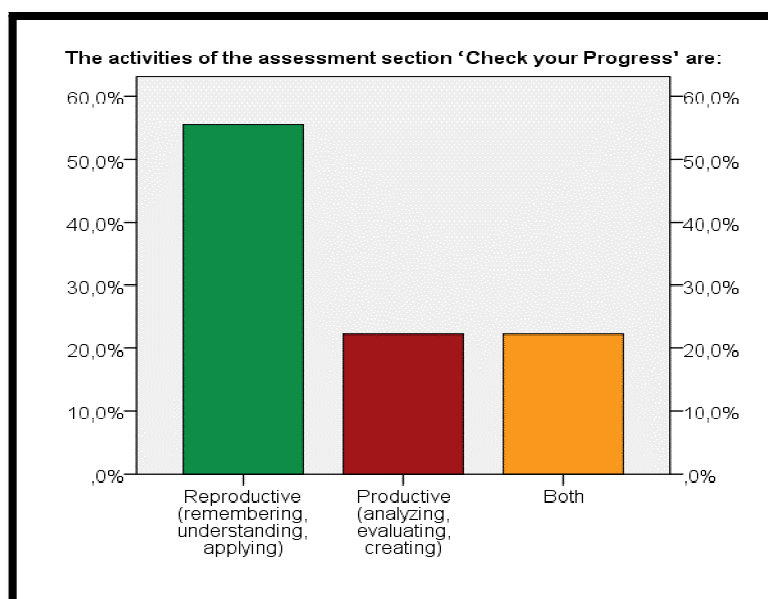
Diagram 05: Check your Progress Activities

As diagram (5) shows, that half teachers (6) representing (55.5%) consider the tasks included in "Check your Progress" as being reproductive while only two (2) teachers representing (22.2%) judge them as being productive. Finally, two (2) teachers representing (22.2%) claims that the activities in "Check your Progress" are both productive and reproductive.

Q12: How appropriate are these activities for assessing learners' analytical thinking?

Appropriate   Less appropriate   Not appropriate

Options	Number of teachers	Percentages
Appropriate	3	33.3%
Less appropriate	6	66.7%
Not appropriate	0	0%
Total	9	100%

Table 13: Teachers' Opinions about the Activities in "Check Your Progress"

As table (13) shows the majority of teachers six representing (66.7%) believe that the activities of "Check your Progress" are less appropriate for assessing analytical thinking and the rest three teachers representing (33. 3%) believe that they are appropriate.

Q13: Do you find obstacles while using the textbook assessment parts to evaluate pupils' analytical thinking abilities?

Options	Number of teachers	Percentages
Yes	7	77.8%
No	2	22.2%
Total	9	100%

Table 14: Obstacles faced in Evaluating Pupils' Analytical Thinking Abilities

According to the results recorded in table (14), option (no) is the least chosen since only two teachers representing (22.2%) do not face obstacles while using the textbook assessment parts to evaluate pupils' analytical thinking abilities. However, the majority of respondents (seven) representing (77.8%) do face obstacles.

Q14: What do you suggest in order to improve the textbook assessment parts?

In this open ended question each teacher gives his suggestions in order to improve the assessment parts of the textbook <u>At the Crossroads</u>. Each teacher wrote what he thinks as being appropriate.

Conclusion

This chapter has dealt with the presentation of the results. The findings are conducted through the evaluation of first year secondary school textbook <u>At the Crossroads</u> and also a questionnaire to secondary school teachers of English. The presentation of the results is in form of (tables, pie charts, histograms). The results provided in this chapter are going to be discussed in the next chapter.

Chapter Three: Discussion

Introduction

This chapter is devoted to the practical side of the study. It is concerned with the discussion of the research findings about the assessment of analytical thinking skill in the first year secondary school textbook At the Crossroads and the questionnaire designed for teachers of English. A qualitative content analysis is used with reference to Bloom's Revised Taxonomy in order to explain and interpret the research results.

This chapter involves two parts. The first part accounts for the characteristics of the assessment parts "check your progress" in relation to the number of tasks and their classification into the cognitive categories. The second part deals with the discussion of the questionnaire findings.

I: Discussion of the Finding of "Check Your Progress"

II.1. The Characteristics of the Assessment Parts 'Check Your Progress'

Check Your Progress is an assessment section which is included at the end of every unit in the textbook At the Crossroads. As its name indicates, it is meant to assess the learners' progress or attainment; that is, to measure the learning outcomes of the whole unit. A series of tasks is provided in order to achieve this purpose among which we can distinguish both tasks and activities. The tasks that are contained in this section can be divided in terms of their assessment objectives into four basic types. The first type is related to reading comprehension tasks; that is, learners are introduced to a sample of a text or reading passage that have been already encountered in the unit's lessons then followed by a number of questions about the text. The second type is related to grammar review, this type involves tasks that are intended to test how far the learners have understood language points and can apply most appropriately the grammatical rules that have been already

studied all along the unit. The third type is related to vocabulary review and development, this objective is presented in one activity called 'test your word power' at the very end of this assessment section. This activity is preceded by a glossary containing English vocabulary items related to the unit of study and their equivalents in the Arabic language. The learners are asked to use the glossary in order to fill in the blanks. The fourth type is presented in a form of a portfolio progress table that contains the whole unit's objectives illustrated in very simple active expressions. Learners are asked to self-assess their learning process by ticking on what they can do and how well they can do it. This self-assessment table is a valuable opportunity for both learners and teachers to check the effectiveness of the learning styles and the teaching techniques. In addition to that, it serves as well to find out whether the learners have acquired and developed the skills and competencies targeted by the unit's lessons as well as locating the areas of weaknesses in order to improve the learning process and achieve the desired outcomes.

1.2. The Number of Tasks and Action Verbs in "Check your Progress"

As table 1 (see chapter 3) shows, the assessment section in unit one is the most developed in terms of the number of assessment tasks; around (25%) in the whole assessment parts' content. However, the least developed unit in terms of assessment tasks is unit five with only (16%) which is a very small number compared to the other units. This difference in the number of tasks from one unit to another is probably due to the differences in units' contents; for instance the assessment of each unit depends on the amount of content that the unit covers.

The distribution of action verbs follows the same order with that of tasks. For instance, the number of action verbs is higher in unit one 25% while unit five has the least number of action verbs with only 11%. This is obviously related to the number of assessment tasks

that constitutes the section of "Check your Progress" in each unit. As we have mentioned before unit one possesses the larger number of assessment tasks thus it is logical that it includes the highest number of action verbs.

Generally, we can say that "Check your Progress" provides an opportunity for formative assessment with a considerable number of tasks (63) *"the process used by teacher and students to recognize and respond to students learning in order to enhance that learning during the learning"*(Cowie, et al. 1996 cited in Loughran, J. 1999: 198). Regarding the characteristics of formative assessment among which we can distinguish this characteristic: *"requires students to take responsibility for their own learning"* (Cizek, 2010: 08). We deduce that Check your Progress can also be considered as a self assessment section, since it contains "learning log" that enables learners to self assesses their progress. In addition, one task may contain more than one action verb. For instance, we can mention task 1 in unit five: *"complete the pie chart that follows with information from the text. Give a title to your pie chart"* (At the Crossroads, 162). In this task, learners are required to pick out information from a given text in order to complete a diagram. This involves deconstructing in the sense that, learners are given a text which can be considered as a whole piece of information and they are required to break it into its parts (deconstructing) in order to complete the diagram. The second action verb "give" may be classified into the cognitive category understanding. This explains the difference between the number of tasks and the number of action verbs (82). It is also important to note that the action verbs that we come to identify in the aforementioned assessment parts are not explicitly related to the RT cognitive classification of action verbs. This made difficult the categorization of the tasks into their equivalent cognitive level in the RT.

1.3. The Classification of Action Verbs in 'Check Your Progress' into the Cognitive Categories

Understanding category with (25%) is the most developed cognitive category in the whole assessments sections of the textbook. In the RT, understanding is classified as the second reproductive skill in the hierarchical organization of the cognitive levels. This means that learners are given enough opportunity to develop and assess their lower order thinking skills. Analyzing category with (19%) is the highest developed skill comparing to other HOTS namely evaluating and creating. This can be explained by the fact that evaluating and creating cannot be performed without analyzing first. In addition, it is important to consider that evaluating and creating are the least developed skills in "Check Your Progress"; therefore, learners are not encouraged to develop their critical and creative thinking. Put in another way, learners are not given much opportunity to express their ideas and produce new things.

1.3.1. The Classification of Action Verbs in "Check your Progress" into the Cognitive Category "Remembering"

Remembering is the first basic cognitive category in Bloom's RT. It is defined by Anderson and Krathwohl (2002: 215) as "*Retrieving relevant knowledge from long-term memory*". It consists of two cognitive processes recognizing and recalling. That is to say; learners are required to use their memory to recognize or recall knowledge. In fact, this category is developed with13% in the textbook At the Crossroads. It is developed in two ways; recognizing with 51% and recalling with 49%. This means that the learners will study how to use their memory to produce or retrieve definitions, facts, and to recite previously learned information. This fact is shown through the type of action verbs used in

the textbook. The result have been found by counting these verbs, for instance: **look, find, guess, and read** for recognizing, while for the recalling process, we can mention some action verbs such as **list, fill in, and answer**. Furthermore, the type of activities related to the recognizing process are generally related to lexis, finding synonyms and antonyms, while those related to recalling are generally 'WH' questions or multiple choice in which learners are asked either to construct answers themselves or to select from a list.

As an example: Task 3 in unit four

Task3: <u>Read</u> the text again and <u>answer</u> the questions below
A. What stirred the imagination of man?
B. Why did the ancient Egyptian observe the celestial bodies?
C. Did all Greek philosophers agree with him?
D. Which theory did Ptolemy maintain?   (At the Crossroads: 132)

In this task learners are asked to answer reading comprehension questions. So, pupils are asked to remember the content of the text in order to answer the questions.

1.3.2. The Classification of Action Verbs in "Check Your Progress" into the Cognitive Category "Understanding"

Understanding category is the second reproductive skill in the hierarchical organization of the cognitive skills in the new taxonomy. This skill is developed with a high percentage comparing with other categories. Understanding is about "*constructing meaning from different types of functions be they written or graphic messages or activities like interpreting, exemplifying, classifying, summarising, inferring, comparing, or explaining*" (Krathwohl, 2002: 215).

From this definition, we can notice that this category includes seven cognitive processes which are interpreting, exemplifying, classifying, summarising, inferring,

comparing, or explaining. In respect to this definition, first year learners in the secondary school will gain experience in identifying meaning from different messages, they will learn how to construct meaning from the provided tasks and activities. The results reveal that understanding is the first developed category in the textbook as most of the action verbs used in "Check your Progress" are classified into this category. For instance, rewrite, mark, circle, explain...etc. Furthermore, they can be also categorised into seven cognitive processes. The first and the high developed process is interpreting with 30%. Thus we can note the use of action verbs such as: **rewrite, mark, and circle.** This gives learners opportunity to develop their abilities in classifying and modifying concepts. Then, we have explaining which represents 20% including **explain, and justify.** This motivates learners to have experience in providing explanations and clarifying their choices. For instance, in task 11p 43 the third instruction of it says: *"mention three other things you don't like doing, explain why"*. In this task students are asked to justify their preferences in life. Moreover, there is classifying with 16%. This is shown through the use of action verbs like put and re-order. In addition to this, there is inferring which represents 8%. This result is obtained after counting the action verbs like **cross out**, and exemplifying with the same percentage 8%. This means that the learners are given a chance to order concepts and give examples for their language practices. At the end, the smallest percentage degree in this category is devoted to the process of summarizing and comparing with 4%. This low percentage shows that learners are not given a chance to summarize and to make comparisons.

As an example: task 6 in unit one

Task6: Rewrite the newspaper headlines below to make them more attractive. Use extreme adjectives instead of ordinary ones

A. Very good Result for Manchester United

B. Very Cold Temperatures in the North

C. Very Nice Place to Visit in the Sahara

D. Reading and Writing Standards 'Very Bad', Says Inspector.

(At the Crossroads: 41)

In order to fulfil this task learner must understand the meaning of these headlines to be able to modify them.

1.3.3. The Classification of Action Verbs in "Check Your Progress" into the Cognitive Category "Applying"

Krathwohl (Anderson et al., 2002: 215) defines the skill of Applying which is the last reproductive skill in the RT as *"carrying out or using a procedure in a given situation"*. This means that learners need to have an opportunity to re-use the previous studied rules in a given situation. Indeed, first year secondary school learners are asked to practice the already studied language points in a controlled way. Learners are provided with a series of tasks in a section entitled "Grammar review", in addition to other tasks in which they are asked to execute or implement the previous studied points. The Applying category consists of two cognitive processes: the first represents 51% and the second is 49%. This is shown through the use of action verbs such as: **use, put, and make.**

As an example: Task 1 in unit two

Task1: <u>Put</u> the verbs between brackets into the past simple or past continuous to get a grammatically correct news story.

Yesterday morning at 6.30, there (to be) an accident between a bicycle and a bus at the junction between Colonel Amirouche Boulevard and Colonel Lotfi Street. It (to rain) good. The bus (to travel) up Colonel Amirouche Buolevard when the cyclist suddenly (to emerge) round the corner at Colonel Lotfi Street. Fortunately, neither the bus driver nor the cyclist (to be) injured. ...

(At the Crossroads: 70)

In this task learners are asked to practise the previously learned grammatical rules in a given situation. In this case the rule is the use of tenses which are the past simple and the past continuous.

1.3.4. The Classification of Action Verbs into the Cognitive Category "Analyzing"

Analyzing is the first higher order level in the cognitive Taxonomy of both Bloom (1956) and the RT by Anderson and Krathwohl (2001). Analyzing is about *"Breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose" (*Anderson, et al., 2002: 215). This skill is developed in the textbook <u>At the Crossroads</u> with 19%.

This means that this crucial skill is not given much emphasis comparing to other skills as understanding. There exist tasks that require analytical thinking in the assessment parts. These tasks are related to grammar, reading comprehension, and vocabulary development.

Moreover, analysis can be categorized into three cognitive processes that are: differentiating, organizing, and attributing.

1.3.4.1.   Differentiating

Differentiating is the first and the high developed sub-category of analysis; it represents 50%. This result is obtained through counting the action verbs that lie in this category which   are related to: discriminating, distinguishing, focusing, and selecting. The tasks that require differentiating are generally related to grammar review or to composition writing. For instance, we can mention the task seven in unit one "Getting Through" which is about grammar review. The students are asked to *"Fill in the blanks in the interview report below using **both …and, either…or, neither…nor,** or **both of, either of,** and **neither of**"* (page 42). In order to fill in these blanks, the learner is put in an analysis situation in which he has to select the appropriate form to use in the right blank from the inappropriate ones. Thus, this action implies selection and discrimination by selecting appropriate from none appropriate in order to make the right decision.

Another task that implies analysis and differentiating is task eleven in unit one" Getting Through"

- *Write a letter of about 15 lines to a pen-friend of yours following the plan below.*
  - *Introduce yourself.*
  - *Mention three things you like doing, and the times of the day at which you like doing them.*
  - *Mention three other things you don't like doing. Explain why.*
  - *Talk about your preferences in matters of cloths, food, etc.*
  - *Talk about your ambition. (What you would like to be later?)*
  - *Include an appropriate ending.*   (At the Crossroads: 43)

This task also requires analytical abilities for two main reasons: the first and basic reason is that, it is a task which is related to students' real life. Richards (1986) defines a task as *"an activity or action which is carried out as a result of processing or*

understanding language" (1986: 289). The verb "processing" in this quotation implies the meaning of analysis because naturally one cannot process information without analyzing them. The second reason is that this task belongs to the higher order cognitive category "creating" which implies also analyzing since the taxonomy is organized hierarchically and analyzing is situated before creating. So, one should first be able to analyze in order to create. These already mentioned reasons are just related to the outside form of this task but if we look at the content we can see better how analyzing is important in order to fulfill this task. The learners are asked to write a short letter to a pen-friend (creating) and include some specific information about them such as differentiating between what they like and what they don't like (mention three things you like doing, mention three other things you don't like doing).

1.3.4.2. Organizing

Relying on the theory of Anderson and Krathwohl (2001) which advocates that organizing implies finding coherence, integrating, outlining, parsing, and structuring, we come to identify 31% of tasks that implies analysis in the sense of organization in the assessment section "Check your Progress" as shown in diagram 7(see chapter 3). The task two in unit one in which the students are asked to *"Make a list of all the ingredients required to make Indian Pudding"* (Page 40) requires them to read an already provided e-mail that contains a recipe of the Indian Pudding and scan it in order to select and outline the ingredients of that recipe. In order to do this activity, the learners should analyze the e-mail, select the ingredients and organize them in a form of a list. The following task in Grammar review is about finding coherence *"Rewrite the recipe (§2) using sequencers first, then, next, after that, finally where appropriate in order to make the process of making Indian Pudding more explicit"* (page 40). As it is clearly shown, the objective of

this task is to develop and assess students' analytical abilities in establishing coherence using sequencers. Other tasks in the same unit include the task eight and nine (page 42). The former is *"Turn the informal requests below into formal ones. Then mark the intonation at the end of each formal request with an arrow (↗ or ↘)"* is basically about structuring sentences so as to form a new pattern which is in this case a request and then recognize the appropriate tone to use with each sentence. This makes this activity analytical in its nature since it implies structuring that is related to organization and also it involves differentiating in the second part related to the selection of appropriate intonation.

1.3.4.3. Attributing

Attributing is the least developed sub-category; it represents only 19%. In this case learners are not given enough opportunity to develop their analytical abilities in relation to attributing. Relying on the theory of Anderson and Krathwohl (2001) we come to identify some action verbs that lie in this category which are related to deconstructing. For instance, we can mention task 1: *"complete the pie chart that follows with information from the text. Give a title to your pie chart"* (At the Crossroads, 162). In this task, learners are required to pick out information from a given text in order to complete a diagram. This involves deconstructing in the sense that, learners are given a text which can be considered as a whole piece of information and they are required to break it into its parts (deconstructing) in order to complete the diagram.

It is important to consider that analysis is developed only to some extent; that is learners are not encouraged to analyze complex situations. The provided tasks are not enough challenging and do not require deeper thinking. In addition, the action verbs provided in the instructions are not explicitly related to analysis.

1.3.5. The Classification of Action Verbs in "Check Your Progress" into the Cognitive Category "Evaluating"

The results show that Evaluate does not occupy a considerable place in the textbook At the Crossroads; it represents only 9%. This means that learners are not provided with enough practice to develop this high cognitive skill. Evaluate is about "*making judgment based on criteria and standards"* (Krathwohl, 2002: 215). To judge something is to think critically. Evaluate is a crucial skill that learners need in their life. Unfortunately; this crucial skill did not receive much interest in this textbook which focuses only on other skills such as remembering, and more precisely understanding and gives little attention to critical skills such as evaluating. This skill consists of two cognitive processes, which are checking and critiquing. The result obtained through counting action verbs such as **check** and **report,** whereas there are no action verbs related to criticizing, this shows that the higher thinking skill of evaluating especially criticizing is neglected in this textbook. In addition, the second section of **"check your progress"** is given for self assessment through the use of a learning log. After each unit, there is **"a learning log"** to be fulfilled by the pupils for instance on p43. Unit1: "Getting through". This learning log implemented in At the Crossroads is similar to the rest of the learning logs included in the textbook. Here, the pupils tick in one of the three boxes which match or correspond to the level of their performance. Such a self activity allows the pupils to evaluate their progress and to determine their strength as well as their weaknesses.

As an example:

Task2: Read the text above and <u>check</u> your answer to task 1 above. Then give a title to the text.   (At the Crossroads: 132)

In the given task learners are asked to evaluate their answers to a task relying on a given text.

1.3.6. The Classification of Tasks into the Cognitive Category "Creating"

Creating is the most complex and difficult skill to develop in the new taxonomy. It is defined by Anderson and Krathwoh (l2002: 215) as *"putting elements together to form a novel, coherent whole or make an original product"*. This skill is generally developed through composition writing in which learners are asked to write a letter, a story, or a song. These tasks permit the learners to show and develop their abilities in combining and recalling their knowledge about language like lexis, syntax, and punctuation to form a cohesive and a coherent written passage. The results have shown that, creativity is the skill which represents only 9% with reference to table (3). This percentage explains that there is less occurrence of this skill in the textbook comparing to other skills especially understanding. As a consequence, students will develop their abilities in drawing inferences and recalling knowledge rather than producing new concepts. In fact, there are not many action verbs which ask learners to generate and produce new patterns. Among these verbs, we can distinguish **write** and **re-order.** However; it should be mentioned that in most cases students are provided with guidelines and plans to follow in order to write a letter, an e-mail, a biography, etc. As a result, these activities become easier and less challenging.

As an example: Task11 in unit four

Task11: Use the information in the box below <u>to write</u> a short description of our planet Earth.

Third planet from the sun- shape: spherical- flat at poles -

Surface = 150 million km2

70% of surface = water – distance from the sun = 149,500,000km -

Circumference = 40,070 km – equatorial diameter = 12,756 km –

Rotation period = 23 hours 53 minutes 4.1 seconds

Year: complete orbit = 365 days 51.48 minutes 46 seconds –

Atmosphere: 78% nitrogen; 20.95% oxygen; 0.93% argon; 0.03%

Carbon dioxide; other gases: neon, etc. – greatest height: Mount

(8,872 m. above sea level).

(At the Crossroads: 134)

In this task learners are asked to write a paragraph about the planet Earth relying on the given guidelines. The guidelines consist of a number of information about the earth such as the surface, the distance from the sun...etc.

II: Discussion of the Questionnaire's Data.

Section 1: Background Information about our Participants

1. Teachers' Experience in ELT

In this research, Q1 (see chapter 3) that is related to background information about our participants is not a random question but it targets an already situated purpose. The purpose behind this question is not only to collect some personal information about our participants but also to situate the degree of validity of teachers' answers to the coming

questions. From the collected results we can deduce that the majority of our participants have more than 5 years of teaching experience (8 teachers). This means that they are familiar with the textbook <u>At the Crossroads</u> which is the subject of this research. Bearing in mind that: *"In education, teacher experience is probably the key factor in personal policies"* (king, J. 2010: 01). Teachers' experience and familiarity with the aforementioned textbook are helpful in their evaluation of the latter and this evaluation is more likely to be reliable and valid.

Teachers Professional Development

Acknowledging the importance of professional training for teachers; *"Student learning and achievement increase when educators engage in effective professional development focused on the skills educators need in order to address students' major learning challenges"* (Hayes Mizell, 2010: 05). The questionnaire sought to clarify whether our participants have benefited from such training in English language teaching (ELT). The highest rate was in favor of negative responses (55.6%), this is quite unfortunate, and it evokes the question whether they are knowledgeable about different teaching theories advocated by Applied Linguistics and the Bloom's RT. However, this doesn't neglect the possibility of self development through training, continuous practice, and experience; *"The idea is that experience, gained over time, enhances the knowledge, skills, and productivity of workers"* (king, J. 2010: 01). Fortunately, the positive responses have recorded approximately the same rate 44.4%; that is, (4 teachers out of 9) have received a professional training in ELT.

Section 2: Teachers' opinions about Analytical Thinking

1. Teachers' knowledge about Analytical Thinking

The third question (see chapter three) is an open-ended question which aims at evaluating teachers' knowledge about analytical thinking. It reveals that the majority of our participants have an idea about its meaning. Most of them have given a correct and clear definition of analytical thinking that corresponds to Anderson and Krathwohl's definition of this cognitive skill. For instance, one of the teachers defines it as:

Ta- analytical thinking is a cognitive activity which involves the analysis of data or information including comparing, selecting, and rejecting.

Tb- analytical thinking means to think in a critical way where you conduct a logical process

Tc- analytical thinking means to process information in a logical way

This leave no doubt that Secondary School teachers of English are aware of the meaning and implications of this skill. However, their definitions were not at the same level of clarity and precision.

2. The Importance of Analytical Thinking

Most of teachers 88. 9% consider analytical thinking as being important and no one judge it as worthless. This can prove that teachers are aware about the importance of analytical thinking in school education and are more willing to situate their roles as guides and stimulators for learners' critical thinking; "*The goal for business educators who want to instill critical thinking skills in their classrooms is to think of their students not as receivers of information, but as users of information*" (Snyder, M. 2008: 97). As a result,

they advocate the integration of this skill in the Educational Curriculum; this is reflected through the data represented in table (4) in which all the participants (100%) recognize the necessity in teaching pupils how to be good analysts. The importance of this skill is also reflected in the RT that situates it in the category of HOTS and among the educational objectives to be achieved.

Despite the challenges related to defining higher order thinking skills, educators, administrators, and teachers have recognized the value of these skills as well as the importance of teaching them. As argued by Devries (1987, cited in King, F. 1998: 8) *"teaching higher order think, then, provides students with relevant life skills and offers them an added benefit of helping them to improve their content knowledge, lower order thinking, and self-esteem"*. This quotation points at an important characteristic of higher order thinking skills as they can be transmitted and used in real life situations.

3. Practice that Stimulates Pupils' Analytical Thinking

It is important to bear in mind that practice is very important in developing analytical thinking; *"thinking analytically is a skill like carpentry or driving a car. It can be taught it can be learned and it can improve with practice"* (Heuer, 1999: 02). In accordance with this quotation we have asked a more direct and precise question (Q6, see chapter three) for two main reasons. The first reason lies in our need to test teachers' knowledge of analytical thinking process, whereas, the second reason lies in collecting some other suggestions about the kind of practice or tasks that best encourage and activate learners' analytical thinking. The results have shown that 44.4% of teachers have chosen the answer (b) claiming that the activities which stimulate analytical thinking involve differentiating, organizing, and attributing. From this, we can deduce that the majority of teachers recognize the appropriate types of activities that require analytical thinking. These results

reflect the theory of Anderson and Krathwohl which classifies analytical thinking into three major cognitive processes namely differentiating, organizing, and attributing. In fact, the majority of teachers are aware of the cognitive processes involved in the process of analysis. So, teachers' evaluation of the integration of analytical thinking in the section "Check your Progress" is more likely to be valid and reliable. However; some teachers do not know the appropriate activities as they relate them either to lower order thinking skills "remembering" or to the highest cognitive level in the RT "creating". The latter involves analysis as well; one cannot create without analyzing and this justifies the teachers' selection of the option (c). The last option (others) presents the least percentage; only one teacher suggested another type of activity that he names: "critics", it is not clear whether the teacher means criticizing in the sense of evaluating or he is referring to critical thinking in general.

Section 3: Teachers' Opinions about the Assessment Parts "Check your Progress"

1. Teachers Use of the Assessment Parts "check your progress"

The majority of teachers (88.9%) use the textbook assessment sections to assess their learners' progress. These results clearly reflect the importance of the textbook as a basic teaching tool as claimed by Richards (2001: 01): *"textbooks are key component in most language programs...in other situations the textbook may serve primarily to supplement the teacher's instruction"*. On the one side, the teachers claim their use of the textbook as an essential material to assess learners' achievements. On the other side, the degree of frequency of its use is limited to the options (often) with the percentage of 66.7% and sometimes (33.3%), while no teacher opted for the option (always). This implies that, to some extent, teachers' dissatisfaction regarding the textbook assessment parts "Check your

Progress". This dissatisfaction may be due to the absence of a balance between teachers' objectives and the textbook content that leads them to the choice of other teaching materials whenever they recognize this need.

2. The Assessment of HOTS in "Check your Progress"

The outcomes indicate that most of the teachers (77.8%) agree that the assessment parts of the textbook evaluate students' HOTS. However, they judge the assessment activities as relating to reproduction; that is, lower order thinking skills and less attention is given to HOTS as productive thinking levels. This is clearly shown in their responses to Q10 (see chapter three) in which the majority of participants (55.6%) have judged the included activities as being reproductive, while only 22.2% have categorized them into the production category.

In fact, these results obtained from the questionnaire, further confirm the results recorded after analyzing the corpus under study. Clearly, the assessment parts "Check your Progress" are primarily concerned with the assessment of lower order thinking skills rather than HOTS. Both levels are addressed but with different emphasis. Indeed, many studies confirm these results. As an example, the research done by Beynolds (1980) in which he analyzed teachers self reports on their item writing practices and he claimed that *"a very heavy reliance on items written at the knowledge, comprehension, and application levels of Bloom's taxonomy and very little attention was paid, by contrast, to analysis, synthesis, and evaluation"* (cited in Stiggins, R.J. et al, 1989: 234).

The common point between the results is that the stress is put on developing lower order thinking skills rather than HOTS. However, educators and textbook designers should give more attention to HOTS and they should provide activities which target and stimulate these skills. As claimed by Dewey (1939: 15) *"thinking does not occur spontaneously but*

must be "evoked" by "problem and questions" or by some complexity, confusion or doubt". Thus, many activities should be designed in this sphere so that pupils can practise these important skills which were beneficial in their real lives.

2.1.   Assessing analytical thinking in "Check your Progress"

Most of the participants (66.7%) judge the activities of the assessment parts as being less appropriate for assessing analytical thinking. This is mainly due to the simple nature of these activities that do not present challenging situations. Some of teachers' justifications for their judgment include the following:

Ta- They don't encourage learners' creativity and ability to solve problems.

Tb- Sometimes there are some suggested tasks that are given to check students' understanding; however, these tasks do not go beyond that.

The teachers' justifications imply that they hold a negative attitude towards the assessment parts "Check your Progress" in relation to assessing analytical thinking. The majority claim that the assessment activities are widely related to lower order thinking skills and do not present problem solving situations. Our assumption is that this teacher' s attitude is mainly due to the fact that the majority of the activities do not present real life situations which is a very important criteria in assessing analytical thinking. The latter should be assessed by putting the students in real situations, as maintained by Bloom: *"the student may be placed in an actual situation, such as a laboratory in which he analyzes the reactions of materials, or a classroom in which he must analyze the interactions of members of the group …"* (1956: 149). However, this cannot be accomplished without teachers' interference in order to put the students in context.

The evaluation of the corpus has revealed the same result, obviously, the assessment tasks that compose "Check your Progress" are not appropriately designed to assess analytical thinking. This is because they do not require students to decompose or compose information or materials. They just call for superficial analysis which does not require deeper thinking.

Regarding this dissatisfaction, most teachers (77.8%) claim that they face obstacles while using the textbook assessment parts to evaluate pupils' analytical thinking abilities. These obstacles can be justified by the fact that the activities in "Check your Progress" are less appropriate for assessing learners' analytical thinking. In fact, each teacher tries to specify the faced obstacles. The following is a sample of teachers' answers:

Ta- The textbook' activities are not analytical and productive, no real-life situation.

Tb- Most of the time they don't reflect pupils' real life situations therefore, they seem boring, they do not motivate learners, and they do not evaluate the four skills.

Tc- The activities are not efficient.

Indeed, we have collected some valuable teachers' suggestions to improve the assessment parts of the textbook At the Crossroads. Among which we can distinguish the following:

Ta- Activities should be designed in the form of complex real life situations where pupils integrate and re-invest the acquired competencies in the four skills.

Tb- We should suggest more tasks and activities so that to reach students' needs.

Tc- Follow analytical procedure of the lessons, focus on real life situations, and progression of learning from theory-practice to production.

Td- Tasks should be based on real life situation and adapted to the competency- based approach.

Te- Tasks must be adapted to the approach which is being used (Competency-Based approach).

What is common among teachers' answers is that all of them suggest relating the activities to real life situations which is one major principle in CBA. This new approach in education and learning requires a focus not only on input, but also on outcomes or results. Such results, however, do not pertain only to the academic knowledge, as in traditional testing where rote memorization of knowledge is required but should also represent a complex articulation of knowledge, attitudes and skills that learners can use whenever they are needed.

Conclusion

This study is conducted on the issue of the assessment of analytical thinking in the textbook At the Crossroads. The data collected from the evaluation of the corpus "Check your Progress" and teachers' responses have answered the question asked in the General Introduction. The assessment parts provide activities targeting both lower and higher order thinking skills; however, the stress is put on lower order thinking skills. Analytical thinking as one of the HOTS is not given much focus; it is covered in a superficial way. This confirms our hypotheses: the assessment parts of the textbook At the Crossroads provide activities targeting analytical thinking, the provided activities deal with both lower and higher order thinking skills, and that the teachers hold negative attitudes towards the assessment parts of the textbook.

General Conclusion

This research work has investigated the teaching and the assessment of analytical thinking in the Algerian educational system, arguing that analytical thinking can be implemented through practical assessment. That is to say, assessment is an effective strategy in developing learners' thinking abilities. The present study is carried out to see if this is the situation in the Algerian secondary school with reference to the first year English textbook At the Crossroads, and teachers.

Our research has targeted three main objectives. The first is to check whether the assessment parts of the textbook At the Crossroads include tasks targeting analytical thinking. The second is to situate the cognitive levels to which these tasks belong to. The third objective is to shed light on the teachers' attitudes towards the assessment parts in general and their tasks specifically.

Taking as a starting point Bloom's Original Taxonomy (1956) and its Revised Version (2001) by Anderson and krathwohl who define analytical thinking as *"breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose"*(Krathwohl, 2002: 215). We have hypothesized that the assessment parts of the textbook: At the Crossroads contains tasks that deal with both higher and lower order thinking skills and that the focus is on lower order thinking skills namely remembering, understanding, and applying rather than higher order thinking skills namely analyzing, evaluating, and creating.

To conduct this investigation, we have opted for the mixed method approach that combines between both quantitative and qualitative approaches for data collection and data analysis. The data collected relying on the evaluation of the assessment section "Check your Progress" of the first year secondary textbook At the Crossroads and a questionnaire designed for Secondary School teachers at Makouda and Timizart. As for data analysis, we

have rely on a computer program called SPSS to deal with quantitative data and Content Analysis to deal with qualitative data.

The analysis of <u>At the Crossroads</u> reveals that higher order thinking skills namely analytical skill are not addressed adequately, in other words, there is a lack of activities that target higher order thinking skills. Moreover, most activities target lower order thinking skills as the majority of action verbs belong to the understanding category.

The results obtained confirm our hypotheses that the textbook provides activities targeting analytical thinking and that the assessment parts provide activities which deal with lower and higher order thinking skills. However, the stress is put on lower order thinking skills as remembering, applying, and understanding in the first place.

On the basis of the examination of the data collected from the teachers' questionnaire, we have come to the conclusion that all teachers are aware about the importance of teaching analytical thinking. Yet, the majority of them face difficulties while teaching and assessing it through using the assessment parts of <u>At the Crossroads</u>. This clearly confirms our hypothesis that teachers hold negative attitude towards the textbook activities. They judge its assessment parts as being less appropriate for assessing learners' higher order thinking abilities.

Clearly, analytical thinking is crucial in education, for this teachers and textbook designers should try to integrate this skill in an effective way allowing its implementation and assessment. Textbook designers should include more challenging tasks that require deeper thinking and activate learner's critical thinking skills. Among these tasks we can recommend the following:

- **Tasks about clarifying ambiguities:** such as asking learners to identify what's wrong with sentences.

- **Tasks about evidence-based conclusions:** that is to encourage learners to draw conclusions basing on some provided evidences.

- **Tasks about underlying assumptions**: like designing tasks that requires learners to identify the implicit meaning of given statements.

- **Conventional vocabulary activities:** such as matching pictures with words or definitions.

Another thing that should be taken into consideration is that tasks should spark student's interest and be relevant to their daily lives and promote cooperative learning. Our hope is that our study has contributed to the field of education though slightly so that it will open a new prospective for future research that will add to this present work. We judge important to complete this study by investigating this issue further from learners' perspective rather than teachers. Another study about the barriers or obstacles to the promotion of higher- order thinking skills in classrooms would be beneficial in the field of education.

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Appendices

Appendix I

units	The tasks	The action verbs	The cognitive level
Unit1	Task 1	Fill	Remembering
	Task 2	List, make	Analyzing
	Task 3	Infer	Understanding
	Task 4	Rewrite	Analyze
	Task 5	Put	Applying
	Task 6	Write	Applying
	Task 7	Use	Applying
	Task 8	Fill, use	Applying
	Task 9	Rewrite	Understanding
	Task 10	Fill	Analyzing
	Task 11	Turn	Analyzing
	Task 12	Match	Analyzing
	Task 13	Write	Creating
	Task 14	Write, introduce, mention, talk, include	Creating, analyzing
	Task 15	Tick (learning log)	Evaluating
	Task 16	Supply	Remembering
Unit 2	Task 1	What type, circle	Understanding
	Task 2	Fill in	Understanding
	Task 3	Find	Remembering
	Task 4	Put	Applying
	Task 5	Use, complete	Applying, analyzing
	Task 6	Join, use	Understanding, applying
	Task 7	Use	Applying
	Task8	Complete, use	Analyzing, applying
	Task 9	Re-order	Understanding, analyzing
	Task 10	Use, write	Applying, creating
	Task 11	Tick (learning log)	Evaluating
	Task 12	Supply	Remembering
Unit 3	Task 1	Find	Remembering
	Task 2	Read, draw	Understanding, analyzing
	Task 3	Report, make, complete	Evaluating, applying, understanding
	Task 4	Quote	Understanding
	Task 5	Rewrite	Understanding
	Task 6	Re-order	Analyzing
	Task 7	Describe	Understanding
	Task 8	Solve	Analyzing
	Task 9	Tick	Evaluating
	Task10	Supply	Remembering
Unit 4	Task 1	Look, guess	Remembering, understanding
	Task 2	Check	Evaluating
	Task 3	Answer	Remembering
	Task 4	Circle, justify, join, make	Analyzing, evaluating, understanding, applying
	Task 5	Re-order, write	Understanding, creating

	Task 6	Justify	Evaluating
	Task 7	Cross out	Understanding
	Task 8	Use, write	Applying, creating
	Task 9	Rewrite, make	Understanding, applying
	Task 10	Use	Applying
	Task 11	Write	Creating
	Task 12	Tick (learning log)	Evaluating
	Task 13	Supply	Remembering
Unit 5	Task 1	Complete, give	Analyzing, understanding
	Task 2	Find	Remembering
	Task 3	Fill	Applying
	Task 4	Justify	Evaluating
	Task 5	Punctuate	Understanding
	Task 6	Make	Remembering
	Task 7	Write	Creating
	Task 8	Match	Understanding
	Task 9	Fill	Applying
	Task 10	Write	Creating
	Task 11	Tick (learning log)	Evaluating
	Task 12	Supply	Remembering

Appendix II

CHECK YOUR PROGRESS

● Read the e-mail below and do exercises 1, 2 and 3 that follow.

Dear Sihem,

Last time you asked **me** to send **you** the recipe for the Indian Pudding I talked about in my previous e-mail. I'm sorry that I haven't **done it** earlier than this. Here **it** is. §1

Pour ¼ corn meal, a little at a time, into 2 cups of hot milk and cook over low heat or in the top of a double boiler, stirring constantly, for 15 minutes until it is thick. Remove from heat. Mix together ¼ cup sugar, 1/8 teaspoon baking soda, ½ teaspsoon salt, ½ teaspoon ginger, and ½ teaspoon ground cinnamon, then pour into the corn-meal mixture. Add ¼ cup molasses and 1 cup cold milk, mixing thoroughly. Pour into 1-quart casserole and bake in a preheated 275 degree F oven for 2 hours. Serve warm with whipped cream and a light sprinkling of freshly grated nutmeg. Serves 6 to 8. It is also preferable to serve **it** with vanilla ice cream. §2

Keep in touch.
Best regards,
Cheyenne

❶ Fill in the blanks with information from the e-mail above.
A. Sender of the message: _____. B. The addressee: _____.
C. Subject: _____.

❷ Make the list of all the ingredients required to make Indian Pudding.

❸ What do the words in bold in the e-mail refer to?

Grammar review

❶ Rewrite the recipe (§2) using sequencers **first, then, next, after that, finally** where appropriate in order to make the process of making Indian Pudding more explicit.
Start like this: The recipe for making Indian Pudding is as follows: __

❷ Put the frequency adverbs between brackets in the sentences below.

PERSONAL PROFILE
A. I am cheerful. (always)
B. I tell lies. (never)
C. I arrive late at school. (hardly ever)
D. I follow instructions well. (usually)

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● Read the blurb below and do the tasks that follow.

> *Gandhi: A Story of a Life* by Y. Chadha is a book about the life of Gandhi Mahatma (Sanskrit 'Great Soul), one of the most representative figures in the history of twentieth-century India. It begins with information about his life like where he was born and how he studied law in London before settling in South Africa where, until 1914, he led the Indian Community in opposition to racial discrimination. It also tells the story of how he returned to India to become the leader of the fight for his country's independence from the British. He organized hunger strikes and pacifist marches, and campaigned for social reform. He also fought for religious tolerance and for an end to discrimination against the so-called untouchable caste. Today, his policy of non-violence has become a worldwide model of political protest. **§1**
> Ghandi did not live to see the independence of his country in 1947. In 1946, he was assassinated by a Hindu nationalist in the violence that followed the partition of British India and Pakistan. Gandi: *A Story of a Life* tells a story of heroism and integrity in a style easily accessible to both the ordinary and the learned reader. Highly recommended. **§2**

❶ What type of book is advertised in the blurb above? Circle the right item A, B, C, or D. Justify your choice.

A. A history book   B. A biography   C. A short story   D. An autobiography

❷ Fill in the blanks below with information from the blurb.

Title of the book: _____

Author: _____

Four main events: _____

Setting: (Time and place): _____

Your reaction to the blurb: Would you like to buy the book or not? Why? _____

❸ Find in the text the words that are closest in meaning to the following:

A. starts = _____ §1   B. moving to = _____ §1   C. racism =_____ §1
D. division =_____ §2   E. courage = ___' §2   F. comprehensible =_____§2

Grammar

❶ Put the verbs between brackets into the past simple or past continuous to get a grammatically correct news story.

Yesterday morning at 6.30, there (to be) an accident between a bicycle and a
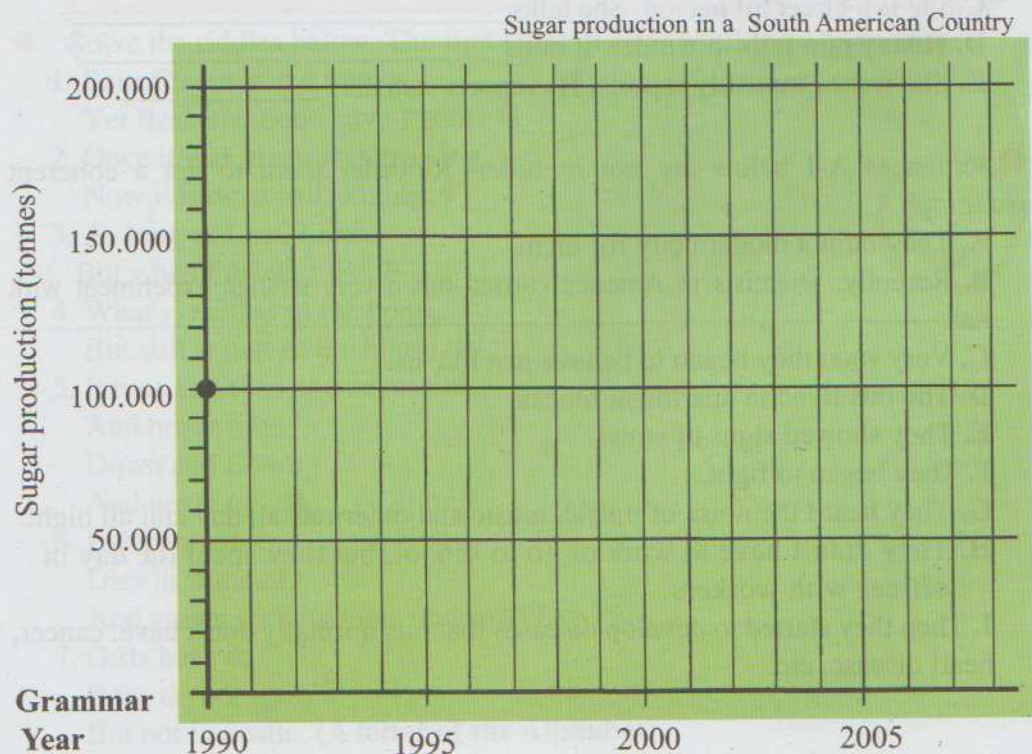
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CHECK YOUR PROGRESS

● Read the results of the survey on sugar production below and do the tasks that follow.

This graph shows sugar production by a South American country from 1990 up to this year. During this period, production has fluctuated considerably. The total production was 100,000 tonnes in 1990. In 1995, production increased steadily and reached a total of 150,000 tonnes. A big storm hit the country in 1996 and destroyed a lot of sugar cane. Consequently, sugar production fell sharply that year to 120,000 tonnes. The following year production went up again, and by the year 2000 it reached 180,000 tonnes. However, in 2001 the price of sugar went down sharply at the major world markets because of overproduction. This surplus of production obliged many countries in the region to destroy a lot of sugar cane. Production fell to just under 100,000 tonnes in 2001 and remained at that level for the next two years. For the last two years, however, production has kept increasing, reaching the total of 200,000 tonnes at the present moment.

❶ Find in the text words with the same meaning as the following:

A. Move up and down=   B. Increase=
C. Fall=   D. Surplus of production=

❷ Read the text above and draw a curve on the graph below to illustrate the fluctuations of sugar production.

Sugar production in a South American Country

Sugar production (tonnes)

200.000

150.000

100.000

50.000

Grammar
Year   1990   1995   2000   2005

CHECK YOUR PROGRESS

❶ Look at the picture and guess who the man in the picture is.

   A. Thales   **B.** Ptolemy   **C.** Pythagoras

Astronomy is perhaps the oldest recorded science. It is the science of celestial bodies: the Sun, the Moon, the planets, the stars, galaxies and other objects in our universe. It studies their positions, motions, distances, physical conditions, their origins and evolution. The heavenly bodies have always stirred the imagination of men. There have always been numerous accounts of fanciful trips to other worlds. Man has also observed the planets for purely practical reasons. The ancient Egyptians were the first to use this science to solve practical problems. Their naked-eye observation of the Sun and the Moon allowed them to establish a calendar as early as 4236 BC. This made it possible for them to plan ahead for the sowing, growing and harvesting of crops and for various other activities as well. **§1**

The first true astronomers were the Greeks. They assumed that the Earth was spherical in shape and attempted to measure its size. The ancient Greek astronomers included Thales and Pythagoras. Ptolemy of Alexandia summarised the findings of these scientists. He maintained the theory that the Earth was the centre of the universe, with the Sun, the Moon and other stars turning around it. Many Greek philosophers did not agree with him. Ptolemy died about AD 180 and little progress was made for centuries. **§2**

❷ Read the text above and check your answer to task 1 above. Then give a title to the text.

❸ Read the text again and answer the questions below.

  A. What stirred the imagination of man?
  B. Why did the ancient Egyptians observe the celestial bodies?
  C. Which theory did Ptolemy maintain?
  D. Did all Greek philosophers agree with him?

❹ Read the text again and do exercises A and B below.

  A. Circle the link word that suits best as a transition from paragraph 1 to paragraph 2. Justify your answer.
    a. In addition   **b.** However   **c.** As a result   **d.** Besides
  B. Join the underlined sentences in paragraph 2 with link words 'though', 'although', 'but', 'however' or 'yet'. Make the necessary changes.

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CHECK YOUR PROGRESS

❶ Complete the pie chart that follows with information from the text. Give a title to your pie chart.

The Worldwide Energy Pie

According to 1996 statistics, the world's energy resources come mostly from oil (31%), coal (26%) and natural gas (19%). Renewable energy supplies about 20% of the world's energy needs, with hydroelectricity supplying 6% of the world's needs and traditional biofuels (firewood, crop wastes and dung) supplying 12%. A small proportion ie., 2% is derived new renewables like the burning of waste and the conversion of crops such as sugar into alcohol fuel. §1

The derivation of world's energy resources from solar, wave, tidal and geothermal resources is still limited. This is because renewable energy depends on developing expensive machines for capturing and converting these resources into energy. In addition, renewable energy is not always available when we need it. Rivers can dry and the wind does not always blow. §2

It is clear that, in the future, demand for energy will be higher than at present, because of population growth and increased industrialisation. Furthermore, the price of energy should be reasonable so as not to restrict economic growth, especially in developing countries which have not got a lot of money. §3

Title: _____
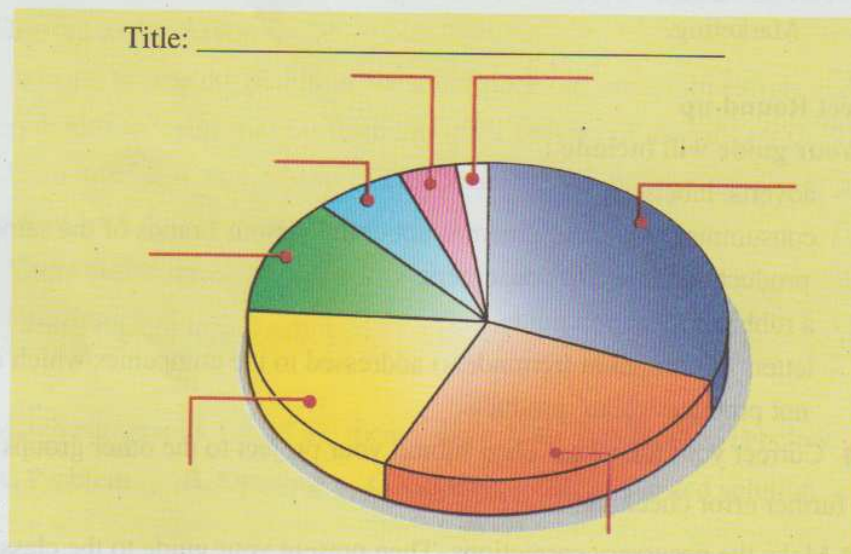
❷ Find in the text words whose definitions are as follows:
A. electricity derived from water=_____§1   B. related to the Sun= _____ §2
C. which may be obtained=____§2   D. not very high and not very low=____§3

Appendix III

Questionnaire

Dear teachers,

This questionnaire is part of our research work which investigates the implementation of the assessment of analytical thinking in the textbook <u>At the Crossroads</u> that you are using or have already used. The information you provide is a very useful contribution to the research. This questionnaire will only be used for the purpose of a research degree in the Department of English at MMUTO. Accordingly, you are kindly requested to answer the questions by crossing the appropriate box (x) or by writing full statements when necessary. All your answers will be kept confidential.

Thank you for your collaboration!

❖ **Section One: Background Information**

1. How long have you been teaching English in the Secondary School?

Less than 5 years ☐   Between 5 and 10 years ☐

More than 10 years ☐

2. Have you ever received any professional training in English language teaching?

Yes ☐   No ☐

❖ **Section Two: Teachers' Attitudes towards Analytical Thinking.**

1. According to you, what is analytical thinking?

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………….

2. Do you think that analytical thinking is :

Important ☐ Very important ☐ Not important ☐

3. Do you think that pupils should be taught how to be good analysts?

Yes, certainly ☐ No, not necessarily ☐

4. In your opinion, what kind of practice stimulates pupils' analytical thinking

a- Recognize and recall ☐

b- Differentiate, organize, and attribute ☐

c- Generate, plan, and produce ☐

d- Others ☐ , please specify ……………………………..

…………………………………………………………………......

❖ **Section Three: Teachers' Attitudes towards the Assessment Parts of the Textbook At the Crossroads.**

1. Do you use the textbook assessment parts to evaluate your students learning progress?

Yes ☐ No ☐

2. How often do you rely on these assessment parts?

Always ☐ Often ☐ Sometimes ☐

Rarely ☐ Never ☐

3. The assessment parts of the textbook evaluate students' higher-order thinking skills.

Agree ☐   Strongly agree ☐

Disagree ☐   Strongly disagree ☐

4. The activities of the assessment section 'Check your Progress' are:

   a- Reproductive (remembering, understanding, applying) ☐

   b- Productive (analyzing, evaluating, creating) ☐

   c- Both ☐

5. How appropriate are these activities for assessing learners' analytical thinking?

   Appropriate ☐   Less appropriate ☐   Not appropriate ☐

   Justify………………………………………………………………………….……

   ……………………………………………………………………

6. Do you find obstacles while using the textbook assessment parts to evaluate pupils' analytical thinking abilities?

   Yes ☐   No ☐

   If yes, please specify the obstacles ………………………………………..

   …………………………………………………………………………....

   …………………………………………………………………………

7. What do you suggest in order to improve the textbook assessment parts?

   ………………………………………………………………………………

   ………………………………………………………………………………

   …………………………………………………………………