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*To my beloved family: My
dear and loving Mino
My father Abdo and mother Farida
Special thanks to my second family Beya and her husband Said
My brothers (Baloti, Lamino, Idris) & my only sister Kika
To my best friends Sissa & Tissou Special
thanks to Ms. Aimeur and Ms. Adem. To all
my friends*

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*To my beloved parents
Sisters & brothers
To my lovely friends (Rima, Sara, Djedji, Lila)
To all those who trust me
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Abstract

The current study is concerned with teachers' assessment of students 'analytical Thinking Skill. It aims at checking whether Master I Applied Linguistics and Social Semiotic students' are assessed analytically through oral questions during the learning process. To achieve this objective, the study was conducted in the Department of English at Mouloud Mammeri University of Tizi-Ouzou using Bloom's Revised Taxonomy (2001) and a Mixed Method Research. To this end, a semi- structured classroom observation was conducted and a questionnaire was distributed to only nine teachers of Master I Social Semiotics. SPSS (Statistical Package for Social Sciences) was also used for statistical data analysis. In addition, Critical Discourse Analysis was employed to interpret the results of the classroom observations. Despite the positive results of the teachers' questionnaire, weaknesses have been noticed during our classroom observations regarding the assessment of analytical thinking orally. Accordingly, a set of recommendations have been provided, such as designing activities that require higher-order-thinking skills namely problem solving, debating, asking higher questions, using concept mapping and brainstorming, as well as encouraging pair and group work.

List of Abbreviations

CDA: Critical Discourse Analysis

CO: Classroom Observation

HOT: Higher Order Thinking

OT : Original Taxonomy

RT : Revised Taxonomy

SPSS: Social Package for Social Sciences

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General Introduction

Statement of the Problem

In the field of teaching and learning, teachers are not only responsible for preparing students to become academically competent and independent, but also to become innovative, analytical thinkers, effective doers and skillful problem solvers. This educational challenge requires teachers to develop students' logical, reasonable, analytical, and conceptual capacities (Partnership in 21st Century Skills, 2007). Therefore, developing the students' ability to construct their own meaning for new concepts and solving increasingly complex problems in the learning area as well as in daily life is necessary. This raises the issue of how and what to assess in order to meet these requirements.

Analytical thinking skills have become one of the most crucial skills for students. This particularly takes place in higher education levels, which aim to boost their High Order Thinking Skills (HOTS), so that they can promote themselves, and be effective leaders in society. As a result, educators need to develop and assess these skills. According to Areesophonpichet (2013), in order to develop students' analytical thinking skills, educators are recommended to use relevant teaching materials, or tools and appropriate strategies while planning their lessons. Thus, the development of analytical thinking skills will take place only if students learn and practise them in the classroom.

Since one of the educational challenges of teachers is to equip students with logical, reasonable, analytical and conceptual skills, their experience and teaching strategies are essential for the development of students' learning thinking skills (Fink, 2003). Accordingly, using assessment as an educational strategy seems to be vital to fully promote students' thinking abilities, especially if it is used during the teaching learning process; that is, formative assessment. Reaching such an aim is of big importance for students at the Algerian universities and because at this level students are expected to develop higher-order thinking skills. Moreover, students are open-minded enough to understand the importance of analytical

thinking, both in and outside classes because it help them to gather information, articulate, visualize and solve complex problems especially in the work place. Thus, in this study the issue addressed is related to the assessment of students' higher thinking skills (Analytical Thinking) during the teaching learning process.

A brief glance at the literature points out that analytical thinking plays a significant role in the process of teaching and learning. In this respect, different scholars (Benjamin Bloom, 1956; Anderson and Krathwohl, 2001) have developed theories about the assessment of this skill. These scholars have claimed that assessing different cognitive abilities of students is one of the most important processes and methods to be conducted in the teaching-learning field. Said differently, there has been stress on the importance of assessing analytical thinking as higher order skills. Going through these findings that are of great value, this study emphasizes the need for empirical work concerning the importance of this subject. In this way, studies conducted by Areesophonpichet. S, (2013);Unnanantn. T and Boonphadung. S,(2015) reveal that analytical thinking can be improved through practice using different strategies.

As far as this study is concerned, it is a case study that investigates teachers' assessment of students' analytical thinking skill through asking them oral questions in the Department of English at MouloudMammeri University of Tizi- Ouzou (MMUTO). The investigation attempts to see whether teachers do asses the ability of Master I Social Semiotics students to think in an analytical way, or they only asses the ability of students to recall and remember information. Furthermore, according to the best of our knowledge, the issue of measuring students' analytical thinking skills in the classroom in particular has not yet been explored in this department. Therefore, conducting a research in this field and on this subject is of crucial importance.

Aims and Significance of the Study

The present study is an attempt to investigate and check whether teachers in the Department of English at MMUTO put into practice the issue of oral assessment. More precisely, its objective is to clarify the implementation of assessing students' analytical thinking in the teaching learning process, focusing mainly on oral assessment strategies. In addition to this, assessing analytical thinking is a universal phenomenon, which infers in the learning process and renders it very important, since it prepares students to integrate professional careers as effective employees and responsible citizens. Hence, this needs the attention of educators and foreign language teachers to find adequate strategies and techniques such as assessment (oral questions) which is seen by many educators such as Benjamin S Bloom (1956) and Anderson and Krathwohl (2001) as an effective technique.

Research Questions and Hypotheses

Despite previous research devoted to the assessment of thinking skills, none of them has paid attention to the assessment of the higher-order thinking abilities of students to think in an analytical manner in the Department of English at MMUTO. There is also no previous research work that has dealt with the assessment of those abilities orally in the field of Language and Communication. Accordingly, this work seeks to answer the following research questions:

- ❖ To what extent do teachers in the Department of English at MouloudMammeri University engage their students in analytical thinking through oral assessment?
- ❖ What kind of questions do teachers stress when assessing their students orally?

In order to answer these questions, we suggest the following hypotheses:

HP1 Students in the Department of English at MouloudMammeriUniversityare effectively engaged in analytical thinking through² oral assessment.

HP2 Students in the Department of English at Mouloud Mammeri University are not engaged effectively in analytical thinking.

HP3 Lower-order thinking questions are stressed when the students are assessed orally.

HP4 Higher-order thinking questions are stressed when the students are assessed orally.

Research Techniques and Methodology

This work adopts the mixed method approach as methodology. This means that the research uses both quantitative and qualitative methods for data collection and data analysis. Furthermore, the data are gathered using two main instruments; a questionnaire for teachers of first-year master one Social Semiotics students in the Department of English at MMUTO and a classroom observation. The latter will help us to gain a better understanding of the present issue and observe the way in which students are assessed orally; that is, if they are involved in analytical thinking or not.

Structure of the Dissertation

This dissertation is designed according to the traditional simple structure. It includes into a General Introduction, a General Conclusion and four main chapters that consist in the review of the literature, the methodology, the results and discussion. First, the Introduction states the general topic of the work. The first chapter named Review of Literature comprises different definitions of the key terms presented by different authors from different perspectives. The second chapter Research Methodology and Design includes the corpus and the procedures used in the investigation. As for the third chapter, it presents the findings. In addition, the fourth chapter involves the discussion and interpretation of the findings. Finally, a General Conclusion provides a summary of the main points of the research and provides suggestions to expand the scope of the study.

Introduction

Investigating the assessment of analytical thinking skill has gained the interest of many educators and researchers. This chapter, then, is about the review of the literature that is designed to account for major works related to the theory and practice of this skill. It involves three main sections. The first section reviews the literature related to the issue of analytical thinking. It deals with the process of thinking as the first step toward analytical thinking, starting with a brief glance at the thinking process and its levels. Moreover, different definitions of the concept of analytical thinking and its main aspects and types are explained. As to the second section, it reviews the literature related to the issue of assessing analytical skill. As for the third and last section, it deals with the theoretical framework, which is Krathwohl's revision of the Original Bloom's Taxonomy (2001).

I. Analytical Thinking Skills: Theoretical Considerations

Analytical thinking skill, which is the fourth level of thinking processes of Bloom's taxonomy, is considered as one of the higher-order-thinking skills (Anderson, 1990 Cited in the Asian Conference on Education, 2013:2) in which students are recommended to think deeply. Thinking which is defined as the process of thoughts according to *Collins English Dictionary* (2014) is defined differently according to different scholars such as Ruggiero (2007); Andrew P and Johnson (2002).

I.1. The Thinking Process

The thinking process usually refers to every intellectual or logical action involving a person's "awareness". Thus, it can refer to the act of thinking or the subsequent thoughts or arrangements of ideas. Ruggiero (2007) study (Cited in Hazlina, A *et al*, 2012: 7179) observes that "*Thinking is a purposeful mental activity over which requires some control, that helps formulate or solve a problem, makes a decision, or fulfills a desire to understand*". That is,

thinking is the intellectual activities students use to develop information, solve problems, make decisions, and create new ideas. Furthermore, Moseley *et al* (2005:15) point out that thinking is “*an internal, mental process that constructs and operates on mental representation of information*”. That is to say, thinking is regarded as a cognitive process that arises in the individual’s mind and explains their thoughts and ideas. Moreover, Barrel, J (as cited in Hazlina *et al*, 2012:7179) foreshadows that thinking is “*a search for meaning and understanding that can involve the adventurous generation of options, the attempt to arrive at logical, reasonable judgments, and reflection on the process*”.

The above quotation clearly shows that thinking is a set of activities that do require skills in order to arrive at a final decision. Therefore, the clarification of ‘what are thinking skills?’ is requested. According to Johnson (2000), “*Thinking skill is any cognitive process broken down into a set of explicit steps which are then used to guide thinking*” (cited in Johnson and Andrew, 2002: 4). That is to say, thinking skills are the cognitive processes or activities that are the constituents of thinking which are used to solve problems and make decisions through using strategic tools and instructions. There are several core thinking skills including creative, critical, productive, and analytical thinking. However, the focus of the present study is only on “analytical thinking”.

1.1. Levels of Thinking

Six levels of thinking were recognized by Bloom in the 1956 and a group of researchers (Anderson *et al*, 2001) revised those levels. Thinking that stresses recall, memorization, identification, and comprehension, is typically considered to be a lower level. This kind of thinking may represent only routine, automatic presentation and limited use of the mind. It generally involves repetitive operations. Higher levels of thinking (HOT) include processes that require students to apply, analyze, evaluate, and synthesize. It is defined largely, as the prolonged use of the mind to meet new challenges. Prolonged use of the mind

occurs when a student must manipulate information, because a question is to be answered and or a problem to be solved cannot be resolved through the routine applications of previously learned knowledge (Onosko, J & Newman, F, 1994)

1.1.1 . Definitions of Analytical Thinking Skill

From several studies in the light of analytical thinking, researchers and theorists provided a wide range of definitions concerning this concept, which is one of the six types of thinking. Indeed, according to L. Incikabi *et al* (2013) “*Analytical thinking is the process of decision making which comprises of reasoning ability and reflective thinking*” (cited in Thassanant and Suttipong, 2015: 515-516). Thus, analytical thinking is the ability to use reasonable reflection in order to make decisions. At the same point, in order to think in an analytical way, students should first reflect and link new information to their background knowledge. M. Koddoura (2013) shared a detailed definition “*Analytical thinking is the ability to pinpoint an issue, select appropriate information for implementation, assume a related hypothesis and conclude in a logical manner*” (ibid: 516). That is to say, analytical thinking involves thinking in a coherent, systematic way to differentiate a problem, select the most essential information from it, and then develop a general logical conclusion.

In a recent study to “*explore the different trajectories of Analytical Thinking ability factors*”, Saengprom *et al* (2015:994) stipulated that analytical thinking “*forms part of a higher-ordered complicated thinking which is essential in individual’s learning and living*”. Munkhan continues this explanation “*If such individual has an analytical mind, he/she can evaluate, plan and decide what is the best option and direction for the future*” (Munkham, 2008). Hence, in order to plan and make decisions, individuals should incorporate analytical skill, which are considered as higher-order-thinking ability that students should develop. According to Forex Inc (2010), Bloom (1958) defined analytical thinking “*as the ability of learners to separate a whole into its basic parts in order to examine the parts and their*

relationships” (cited in Montaku Sudjet *et al*, 2012:18). In other words, analytical thinking involves the process of gathering significant information and identifying key matters related to this information. This type of thinking entails comparing sets of facts from different sources, recognizing potential cause and effect patterns, and drawing appropriate conclusions from these datasets.

From the above clarifications, it seems that the critical action to take when dealing with analytical thinking is *analysis*. Hence, Analytic according to Roget’s *Thesaurus Dictionary* (2002) refers to “*having the ability to analyze*” or “*division into elements or principles*”, and Analysis means literally to break a complex problem down into smaller, more controllable parts for the resolutions of examination — with the expectation that solving these smaller parts will lead to a solution of the more complex problem as well (ibid). Furthermore, as cited in research journal of Applied Science (2012:18), Bloom (1969) claims that analytical thinking is “*the ability of students to analyze in which they are requisite to examine and to break information into parts by identifying reasons or causes, making inferences and finding evidence to support generalization*”. That is to say, analysis is in the core of analytical thinking in which students are called on to separate information, distinguish, and categorize elements out of events in order to draw conclusions.

1.1.2. Analysis as the Strength of Analytical Thinking

According to Bloom (1981), it is vital that students have analytical thinking so that they can develop meaningful learning processes. He explains that analytical thinking comprises three aspects. ‘*Analysis of elements*’, ‘*Analysis of relationships*’, and ‘*Analysis of organizational principles*’. Analysis, then, is one of the six levels of Bloom’s Taxonomy which is defined as the “*breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between ideas expressed are made explicit*” (cited in Saengprom *et al*, 2015: 996). In other words, analysis is

the separation of a difficult idea into simple parts so that its fundamental structure may be understood, making inferences and being able to distinguish between facts and inferences. For the *Merriam –Webster Dictionary* (2013) analysis is:

The careful study of something to learn about its parts, what they do and how they are related to each other. To analyze something is to separate a whole into its components parts, which allows a person to break something complex down into simpler and more basic elements.

That is to say, analysis is the ability to breakdown a concept into simpler constituents in order to learn more about it and interpret it. Furthermore, Chaowakeeratipong (2002) affirms that analysis is the ability of students to categorize the basics of something into portions in order to find what it has made from and how such elements are linked. Besides, analytical thinking incomes the capacity to organize such issues of something and to discover the relations that exist among different components. (ibid)

Anderson, L.W and Krathwohl, D.R (2001), for their part, revised ‘analysis’ to become ‘analyzing’; in which students are asked to break material into its essential parts and conclude how the parts are associated to one another and to a general structure or purpose. That is, analysis is the ability to separate materials or concepts into component parts so that their organizational structure may be understood by differentiating between their different components, and demonstrating the ability to compare and contrast.

Benjamin Bloom (1958) and Anderson and Krathwohl (2001), in their taxonomies, consider analysis as a cognitive process purely mental which consists in thinking about thinking (metacognition). Pineda (2004) argues that metacognition involves “*constant reflection and active awareness about the learning process*”. Thus, features such as “*permanent planning, assessment, and evaluation of thinking process*” (Mayor, 1993; cited in Pineda, 2004) form what meta-cognition strategy implies in language learning. Formulated

differently, language learning can be enhanced by assessing thinking using cognitive skills. Therefore, it could be said that analytical thinking as a cognitive process which consists of asking questions about our and others' interests by analyzing their nature (the nature of the thoughts).

Developing a personal reasoning is the goal of analytical thinking that students are required to do, which is to find support to their reasoning giving evidence and reasons on their own. In this case, students are requested to think abstractly using their cognitive abilities on abstract thoughts, ideas and arguments. Hence, students should be analytical in their thinking and judgements. For this, teachers must put emphasis on the importance of assessing students' ability to think analytically.

1.1.3 Components of Analytical Thinking

In a study examining the model of Analytical Thinking skill Training Process (Montaku Sudjit *et al* (2012). Bloom (1969) brought together three main components of analysis which are explained as follows: (1) '*Analysis of elements*' which is the capacity to categorize and analyze significant items, i.e. to find a summary of content and to distinguish facts and ideas, similarities and differences and causes and effects; (2) '*analysis of relationships*' which is the ability to relate ideas and motives, i.e. to relate and analyze consistent and/or contrary information, and; (3) '*analysis of organizational principles*' is the examination for principles of relations between components of information, i.e. to recognize key problems by taking into account suitable levels and being able to summarize the appropriate information into one idea.

Anderson and his colleagues (2001) also have divided analytical thinking into three elements differentiating, distinguishing, and organizing. Thus, differentiating involves discriminating, distinguishing, focusing, and selecting. Distinguishing involves comparing appropriate from inappropriate parts or important from unimportant parts in the presented

materials. Organizing is defined according to Anderson and his colleagues (2001) as determining how elements fit or function within a structure that is finding coherence, outlining, and structuring.

1.2. Analytical Thinking as a Component Of Critical Thinking

Analytical thinking is considered as a component of critical thinking as mentioned by Chance, P (1986:6) who reports that “*critical thinking is the ability to analyze facts, generate and organize ideas, defend opinions, make inference, evaluate arguments and solve problems*”. That is to say, in order to be a critical thinker one should follow some cognitive skills; one of those skills is “*analysis*”. In other words, in order to think critically, one must recognize what one is criticizing and the manner to comprehend something is to look at it analytically; to break it down into parts, figure out how it works, and then classify it in order to draw conclusions (Bloom, 1956). Therefore, it could be said that, in order to be a critical thinker one must first think analytically. Peter A. Facione (1990: 4) highlights that the three essential skills to follow in order to be a good critical thinker are “*analysis, evaluation, and inference*”. Again, analysis is a prerequisite skill in critical thinking. After going through the above explanations, it could be concluded that analytical thinking is one of the components of Critical thinking. Both are related to each other and both help to get a solution or draw a conclusion or make a judgment.

1.2.1. Constructivism and Analytical Thinking

Constructivism is a view of learning based on the principle that knowledge is not something that can be merely given by the teacher to students. Rather, students through an active, mental process of progress create knowledge; students are the constructors and creators of meaning and knowledge (Becker and Varelas, 1995).

Constructivism relies on developmental work of Piaget (1977) and Kelly (1991). Twomey Fosnot (1989) defines constructivism by reference to four principles: First, 'learning', in an imperative way, depends on our previous knowledge; new thinking emerges as we change our old thoughts. Second, learning comprises creating ideas rather than routinely collecting evidences. Third, substantial learning occurs through reconsidering old ideas and coming to new conclusions about new ideas, which meet with our old ideas. A creative, constructivist classroom, then, involves learner-centered, active instruction. In such a classroom, the teacher delivers students with skills that permit them to assume, predict, manipulate items, ask questions, investigate, and invent (ibid). In this context, it is valuable to point out that the principles of constructivism resemble those of analytical thinking. The latter involve making decisions, solving complex and uncomplicated problems, reasoning, constructing, comparing and producing new ideas in a logical way. Both constructivism and analytical thinking require students to solve problems and interact in order to construct their knowledge by giving arguments, asking questions and relying on their previous knowledge.

1.2.2. The Assessment of Analytical Thinking Skill in Education

Knowing what levels of thinking to assess and how to assess them has become an integral part of the teaching learning process. Because of this, assessment strategies have become a major focus in teachers' programs. Assessing students' ability to think analytically means to assess their higher order thinking skills (Bloom, 1958). Though, what is assessment?

Assessment means different things in different situations and it is also used for different purposes. Consequently, it is worth providing some definitions of it. In the educational context, assessment is seen as the way in which teachers need to gauge and measure the students' improvement, skill acquisition, and educational progress of their students in order to reach clear aims. As Walvoord, B. E (2004:1) asserts assessment is "*the systematic collection of information about student learning, using the time, knowledge and*

expertise and resources available, in order to inform decision about how to improve learning". That is to say, assessment is considered as the process of collecting and arguing information about students' learning and the motives that touch this process, undertaken with the incomes, time, and skill offered, for the purpose of refining learning.

However, Walvoord, B. E (2004: 3-6) claims that it is not just the collection of information about students but also the use of this information to increase their leaning. As for Cunningham (1998:10), assessment is viewed as a fundamental tool, which aids teachers in making decisions about the teaching/learning process "*assessment, both formal and informal, plays an important role in decision-making*". Since analytical thinking skill can be enhanced by practicing it in the classroom, informal or the so called formative assessment is a prerequisite type that should be used in order to assess and develop students' ability to think analytically (Areosophonpichet, 2013).

1.2.3. Types of Assessment

The assessment of teaching and learning can be viewed as two complementary and overlapping activities. Such assessment is of two types: summative and formative.

Summative assessment is one of the types which most people are aware. It is regularly conducted in the last few weeks of a term, to catch how well students what they are supposed to acquire, as Brown (2003:5) states, summative assessment "*deals with the exams which take place at the end of a semester or a year of study (end-year exams)*". That is to say, summative assessment is concerned with exams that teachers create at the end of the semester or until the end of the whole year in order to evaluate students' performance. The second type of assessment is called formative assessment, which is strictly used to deliver feedback to the students on their knowledge. It provides the students with instruction on how to sustain and develop their improvement. Brown & Knight (1994) suggest, "*Ungraded assessment, where no mark is attached, may become the norm, allowing students the freedom to experiment and*

be more adventurous in their study and exploration of their subject” (cited in Surgenor, P 2010:1). Thus, formative assessment measures a student’s ability to use lately attained information, strategies and skills while the educational process takes place. The focus of the present study is mainly on this type of assessment since its aim is to see whether the students of Master One Social Semiotics in the Department of English at MMUTO are assessed analytically during the teaching learning process. One of the strategies and tools that teachers use while assessing formatively is *questioning*.

1.3. Questioning Strategies

Questions have long been used as a teaching technique used by teachers to assess students by stimulating their prior knowledge, and building their thinking skills. Thus, teachers often ask questions to help students bring to light what has been “*erudite*”, to fully explore the subject matter, and to make decision and peer-to-peer interaction (Christen bury L, Kelly, 1983).

According to Bloom (1956), asking students questions increase their higher-order learning by requiring them to analyze information, connect apparently different concepts, and articulate their thoughts. Indeed, the skill of asking the right questions at the suitable time is prerequisite. Bloom’s taxonomy of learning categorizes cognitive levels into several domains (Bloom, 1956). Questions that prompt responses in the knowledge, comprehension, and application domains are commonly considered lower-order questions (closed ended questions), in which students are only required to recall what they have learned. That is, this type does not require students to use high level of thinking (Teinken *et al*, 2010).

However, questions in the analysis, synthesis, and evaluation domains are considered higher-order questions which stimulate deeper thinking; therefore, teachers are encouraged to ask questions in these domains (Neal M, 2012). These kind of questions (open-ended questions) are helpful for students because they inspire them to produce a response, which is

unique to their thinking (Peterson and Taylor, 2012). This does not mean that lower-order questions should not be asked. It is suitable to ask questions to address all cognitive domains as long as the desired learning outcome is kept in mind and a good mix of questions is used during each teaching session.

Questions have been categorized into several taxonomies proposed to describe their major principles. The straightforward way to describe questions is to classify them according to the students' cognitive level (McComas W, Abraham L, 2012). Thus, Benjamin Bloom (1956) proposed hierarchical approach to cognition, which was modified after that by Anderson. W and Krathwohl, D.R (2001). The taxonomy deals with questions from several phases of cognition going from simple recall of memorized facts to procedures that require deep thinking. Questions can, therefore, address many cognitive areas with the determination of achieving precise learning results. Each domain is more ordered as lower or higher order in terms of reasoning difficulty. Since the focus of this study is on the assessment of analytical thinking skills, the insight will be only on one of the six levels of thinking which "analysis" is. Thus, "*analysis questions*" may ask the learner to organize elements within a structure, distinguish relevant from irrelevant information, or deconstruct underlying values and biases.

1.3.1. Bloom's Questioning Strategies for Analytical Thinking

Bloom's Taxonomy provides a valuable framework for teachers, and it can help in increasing performance tasks, creating questions, or constructing problems. In this taxonomy, to assess any level of thinking teachers must ask specific kind of questions. Hence, analysis, as it has already been mentioned, is one of the six levels of Bloom's Taxonomy (1956) which is considered as one of the higher levels of thinking that educators must assess frequently. Since analysis is classified as higher, the teacher should to ask open-ended questions (divergent questions) to push his/her students to think in their own. The questioning strategies of Bloom (1956) for this category of thinking are:

1.3.1.1. Questioning strategies for analysis

- 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?
- Can you explain what must have happened when _____?

(Bloom, cited in Pohl, 2000: 13)

Key Words that teachers use frequently when assessing learners' ability to analyze are:

“analyze, break down, compare, contrast, diagram deconstruct, differentiate, discriminate, distinguish, identify, illustrate, infer, outline, relate, select and separate” (ibid: 13).

1.3.2. Bloom's Revised Taxonomy: Anderson and Krathwohl (2001).

Benjamin Bloom and his colleagues (1956) proposed the original taxonomy of the cognitive domain for the classification of the educational goals and objectives. However, a group of cognitive psychologists, curriculum and instructional researchers, and testing and assessment specialists revised the original taxonomy (Lorin Anderson and David Krathwohl, 2001) in order to fit the suitable learning in the recent time. This taxonomy is labeled Bloom's Revised Taxonomy, which is the theoretical framework of the present work.

1.3.2.1. Anderson and Krathwohls' (2001) Questioning Strategies for Analysis

Similar to the original taxonomy, the revised version suggests a valued framework for teachers to use and stress on higher order thinking. By providing a hierarchy of thinking, both types can help in developing performance tasks and creating questions. The teacher in this case should permit the students to examine concepts and ideas and to break them down into basic parts using their HOT skills.

Questioning prompts for Analysis:

How can you classify _____ according to _____?

How can you compare the different parts _____?

What explanation do you have for _____?

How is _____ connected to _____?

Discuss the pros and cons of _____.

How can you sort the parts _____?

What is the analysis of _____?

What can you infer _____?

What ideas validate _____?

How would you explain _____?

What can you point out about _____?

What is the problem with _____?

Why do you think _____?

(Bloom, cited in Pohl, 2000: 13)

Key Words to use in analysis are: “*analyze, assume, categorize, classify, compare, conclusion, contrast, discover, dissect, distinguish, divide, examine, function, inference, inspect, list, motive, relationships, simplify, survey, take part in and test for theme*” (ibid).

Relying on the different definitions given so far, assessment can be defined as a process taken from a larger domain of content and process skills that allow one to infer students’ understanding of a part of the larger domain being explored. The sample may include behaviors, products, knowledge, and performances. However, focusing mainly on the assessment of learners’ knowledge and abilities the present work seeks to pay a particular attention to the assessment of the cognitive skills and knowledge of the learners, namely analytical thinking.

1.3.3. Blooms' Original Taxonomy (OT)

Benjamin Bloom and his colleagues in 1956 established the original “Bloom’s Taxonomy” which was proposed to offer classification of educational goals, and mainly to help teachers, administrators, and research workers to argue curricular, set learning experience for students, and develop assessment tools to measure their learning such as questioning strategies with greater precision (Bloom, 1994:10).

Bloom’s taxonomy (1956) has been developed to provide a common language for teachers to discuss and interchange learning and assessment means. As Krathwohl (2002) claims *“The framework was conceived as a means of facilitating the exchange of test items among faculty at various universities in order to create banks of items, each measuring the same educational objective”*. That is to say, this taxonomy is established for the sake of establishing communication in the educational domain in order to classify the educational system objectives. The result was a framework with six major categories and many subcategories for the most common objectives of classroom instruction—those dealing with the cognitive domain.

Bloom and his colleagues(1956) suggested that the learning experiences for the students should be categorized in three major domains- Cognitive, Psychomotor and Effective domains, they are also known as KSA which refers to Knowledge, Skills, and Abilities (ibid) so that the overall development of a student can be ensured as well as measured. All these domains have some sub-domains according to each level. The main concern of this study is mainly on the cognitive domain, which involves a classified series of intellectual skills involving the acquisition and use of knowledge that vary from simple recall to the ability to analyze, judge, and evaluate. This domain has been created for categorizing level of abstraction of questions that commonly occur in educational settings. Bloom in this case identifies six levels. Cognitive domain’s sub-domains are as follows:



(Munzenmaier, C. and Rubin, N.2013:18)

Figure 1: Bloom's Original Taxonomy (1956)

The basic or lowest level in the taxonomy (*knowledge*) relates to knowledge acquisition and at this level students simply “*memorize, recall, list, and repeat information*”. In the second level (*comprehension*), students are able to “*classify, describe, discuss, and explain*” information. At the next level (*application*), students “*demonstrate, interpret, and apply*” what they have learned and are able to use the information to solve problems. At the following level (*analysis*), students are asked to “*examine, compare, contrast, and distinguish*” what they have learned with other information (Bloom, 1956).

At the level of (*synthesis*), students build a structure or pattern from diverse elements, and are able to put parts together to form a whole. Finally, at the highest level (*evaluation*) students make judgments about the value of ideas or materials. An important concept of Bloom's theory is that students should master each skill that demonstrates lower-order thinking before they move on to the more advanced skills that demonstrate higher-order thinking. For example, teachers should focus on helping students to remember information before expecting them to understand it, helping them understand it before expecting them to apply it to a new situation, and so on. Each skill on the taxonomy represents a building block

to the next level. In order to ensure that students have mastered any learning objective completely, teachers use Bloom's Taxonomy as a sort of checklist to make sure that each student can demonstrate every cognitive skill on the taxonomy (Bloom, 1956).

1.4. Anderson and Krathwohl's Revision of Bloom's Taxonomy(2001)

Bloom's Taxonomy was revised in the 2001 by a group of scholars led by Lorin Anderson, one of Bloom's former students. The revised version is a more useful tool for planning curriculum, instruction and assessment. This taxonomy has been particularly significant in helping educators to formulate questions that aim to boost students to develop information in a variety of ways, depending on the goals of the task; this theory will serve as the approach of the present study.

The Revised Bloom's Taxonomy (2001) offers a review of the original Bloom's taxonomy within a new, two-dimensional framework: knowledge to be learned (knowledge dimension) and cognitive process, which is the kind of learning, estimated from students (cognitive processes) to help teachers and administrators increase alignment in the classroom. This taxonomy will contribute in improving instruction, ensuring that educators' lessons and assessments are associated with one another and with the state standards that their lessons are cognitively rich, and that instructional opportunities are not missed(Anderson and Krathwohl, 2001).

1.4.1. The Cognitive Process Dimension of Bloom's Revised Taxonomy (2001)



(Anderson and Krathwohl, 2001)

Figure 2: Bloom's Revised Taxonomy (2001)

Anderson and Krathwohl (2001) revised Bloom's taxonomy to fit the more outcome-focused modern education objectives, including switching the names of the levels from nouns to active verbs, and reversing the order of the two highest levels. The lowest-order level (Knowledge) became remembering, in which the student is asked to recall or remember information. It involves “*retrieving relevant knowledge from long-term memory*” (Anderson *et al.*, 2001: 67). It is the first cognitive process in the Revised Taxonomy which has two processes, namely ‘*recognizing*’ and ‘*recalling*’ (Krathwohl, *et al.*, 2002: 228). It is important to note the change from nouns to verbs to describe the different levels of the taxonomy. The names of the major cognitive process categories were changed to indicate actions because thinking *implies active engagements*. The idea is that the learning process should be put into “action”. That is to say, learners should be put into situations in which they can “think, analyze and produce”. *Knowledge* is an outcome or product of thinking; it is not a form of thinking. Consequently, since the word “knowledge” is inaccurately described a category of thinking, it was replaced with the verb “remembering.” (Anderson and Krathwohl, 2001).

Comprehension has become *Understanding*. Anderson and his colleagues (2001: 67) argue that it is “*to construct meaning from instructional messages, including oral, written, and*

graphic communication". This refers to the ability to demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, and giving descriptions, and stating main ideas. It requires students to make link between their background knowledge and the new one. This category involves the following cognitive processes: *Interpreting, Exemplifying, Classifying, Summarizing, Inferring, Comparing, and Explaining* (Krathwohl, et al., 2002:228). Application became *applying*, which involves "*carrying out or using procedures in a given situation*" (ibid). This refers to the ability to solve problems in new situations by applying previous knowledge, facts, and techniques and rules in different ways. This category involves "*Executing and Implementing*". (Krathwohl, et al., 2002:229).

Analysis has been revised to become *Analyzing*. As it has already been explained, analysis requires students to differentiate between different components or relationships, demonstrating the ability to compare and contrast. Anderson, et al (2001:68) defines this process as "*breaking material into its constituent parts and determining how the parts are related to each other and to an overall structure*". That is to say, to analyze is to examine and break information into parts by identifying motives or causes, make inferences and find evidence to support generalizations. The Objective of instruction is to acquire analysis by dividing messages into their parts and considering how these constituents are organized and what the aim of the messages is (Krathwohl, et al., 2002:230). This category includes three cognitive processes namely "*Differentiating, organizing, and attributing*" (ibid). This level will be the focus of the present work, in which teachers are expected to ask specific questions in order to assess their students' analytical skills. These four levels remain the same as Bloom et al (1956) original hierarchy. In general, research over the last 40 years has confirmed these levels as a hierarchy (Anderson &

Krathwohl). Another reversal has been at the level of the Structure. The top two levels are essentially exchanged from the old to the new version.

This revised taxonomy moves the “*evaluation*” stage down a level and the highest element becomes “*creating*.” At the second to the highest level of the revised version, students defend, support, justify and evaluate their opinion on this information “*to make judgments based on criteria and standards*” (Anderson *et al.*, 2001:68). It includes *checking* and *critiquing* (Krathwohl, *et al.*, 2002:230). And at the highest level, students generate new ideas, create a new product, or construct a new point of view. As claimed by Anderson and his colleagues, (2001: 68) creating is “*putting elements together to form a coherent or functional whole [that is] recognizing elements into a new pattern or structure, inventing a product*”. This category consists of three cognitive processes: “*generating, planning, and producing*”. (Krathwohl, *et al.*, 2002:230). This change has been made because the taxonomy is viewed as a hierarchy reflecting increasing complexity of thinking.

Conclusion

This section has put focus on the important notions related to our research. The concepts of analytical thinking, thinking, analysis, and assessment have been reviewed according to different views in the field of teaching and learning. A detailed presentation of the theoretical frameworks: Blooms’ taxonomy and Blooms’ revised taxonomy has been provided.

Introduction

This chapter is methodological; it deals with the research design of the current study. That is, it describes the techniques and procedures of data collection and analysis used in the present work to answer the research questions asked in the general introduction. The research design is divided into two sections. The first one is named '*Procedures of Data Collection*'. It deals with the description of the quantitative and qualitative methods used followed by the description of the participants then with the instruments used to collect data are described. The second section is called '*Procedures of Data Analysis*' and it deals with the method used to analyse the obtained data. Hence, a statistical method labelled *Social Package for Social Sciences* (SPSS) is used to analyse the close-ended questions. As for the analysis of the open-ended questions, *Critical Discourse Analysis* (CDA) is used. The revised taxonomy of Anderson and Krathwohl (2001) is used as the framework to interpret the results of the present study.

I. Research Methods

In order to collect data and gain a better understanding of the assessment of analytical thinking skills, a mixed-methods approach is adopted. This consists in a combination of quantitative and qualitative methods in order to collect an important amount of data to deal with the present research questions and hypotheses. As supported by Mayring (2014) who claims that the appropriate method is the one that leads to the resolution of the enquiry questions. The qualitative method helps in describing and gathering data directly from the population. It helps the researcher to get descriptive information on variables not easily assessed using empirical research and can provide a way to view a phenomenon from the point of view of the subject.

II.1. Participants and Context of the Study

The study is carried out in a realistic setting, that is, in the Department of English at MMUTO. The participants involved in the present study are teachers of English of Master I Applied Linguistics and Social Semiotics classes. The choice of Master-one classes was not done at random. In other words, students at this level are supposed to reach higher-order-thinking skills in which they are expected to produce, construct and think in a reasonable way on their own. The Department is composed of one hundred and one (101) teachers. However, since the present research is concerned with the Master one Applied Linguistics and Social Semiotics level, it could only include the teachers of this level; they are a total of nine (09) teachers. One of them assure more than one module.

1.1.Data Collection Instruments

In order to complete this study, a questionnaire and a classroom observation are used as two types of procedures to collect information. Indeed, a questionnaire is administrated for teachers and the technique of classroom observation has been used.

1.1.1. Teachers' Questionnaire

A questionnaire is a research tool which presents respondents with a list of questions. It allows gathering data from a large number of respondents. It guarantees the anonymity of the respondents. It is, therefore a very useful instrument used to gather information. Zoltán Dörnyei (2003) defends that this tool is the suitable for second language research, because of time constraints, the researcher's efforts as well as the financial resource on research .Furthermore, *"the questionnaire is a widely used instruments for collecting survey information, providing structured, often numerical data, being able to be administrated without the presence of the researcher"*(Wilson and Mc Lean, 1994 cited in Cohen et al, 2007:317).Thus, the questionnaire is one of the most common tools for gathering data.

For the sake of gathering enough data, a questionnaire is handed to the subjects on 23-05-2016. Indeed, to guarantee reliable data, participants are insured that their answers are highly anonymous. The questionnaire is made of 15 questions, which are divided into two types: Close-ended questions which contain predetermined answers from which participants can choose; and open-ended questions where teachers are requested to give their own answers. It is composed of four major parts. The first part includes Background Information, which aims at showing teachers' profile. The second part is concerned with teachers' assessment of students in general. The third section turns around the attitudes of teachers towards Analytical Thinking skill; it is intended to obtain information about teachers' view concerning analytical thinking inside the classroom and how often they use it. The fourth and last section deals with the assessment of Analytical Thinking skill.

1.1.2. Classroom Observation

In addition to the questionnaire, a classroom observation is used as an extensive tool that helps to complete the results gathered through the questionnaire. It is a research tool which aims at gathering in-depth answers. The latter permits to have access to data in a natural context. According to Bell (2005:184), classroom observation is *"[a technique that] can reveal characteristics of groups or individuals which would be impossible to discover by other means"*. Thus, the importance of classroom observation lies in the fact that it permits the researcher to gather valid data. In fact, in the present enquiry we aim to know about the different opportunities given by teachers to assess learners' analytical thinking, that it is why a structured classroom observation is used by developing a checklist of eleven (11) items to be observed, all of them are related to the assessment of analytical thinking. These observations took place from April 28.2016 to May 23, 2016. Due to time limitations, we managed to conduct only twenty two (22) classroom observations.

1.1.3. Procedures of Data Analysis**1.2. Bloom's Revised Taxonomy (2001)**

In order to analyze the collected data, Bloom's Revised Taxonomy of thinking skills has been used as a theory for the assessment of analytical thinking. This taxonomy consists of six levels namely *Remember, Understand, Apply, Analyze, Evaluate, and Create*. However, the focus will be only on one of these levels, which is *Analysis*.

1.2.1. Description of the Statistical method

Due to the different types of questions included in the questionnaire – both close and open ended the collected data are analyzed following the quantitative and qualitative analysis tools.

Close-ended questions (Quantitative data) which will generate numerical data are calculated with the help of a computer program named the Statistical Package for Social Sciences (SPSS). This package deals with the statistical analysis and presentation of the quantitative data; it is most used in social sciences (Landau and Everitt, 2004). The obtained results are highlighted by means of histograms and pie charts. Using only a questionnaire as a data collection tool is not enough to get reliable data. The reason is that the respondents can answer in a subjective way, and in order to make our results more valid we opted for classroom observation as a second research tool.

1.2.2. Critical Discourse Analysis

Critical Discourse Analysis (CDA) is a method that is adopted to describe and interpret the open-ended questions of this study. According to Fairclough (1992) Critical discourse analysis is the procedure of collecting skills for the study of textual practice and language use as social and cultural practices. That is to say, CDA offers an interdisciplinary technique of text analysis to know how texts create representations of the world, social identities, and social relationships.

Conclusion

This chapter has focused on the research design used in the study. First, it has presented the data collection procedures which consist of a questionnaire and a classroom observation. Then, it has outlined the methods used for the analysis of the gathered data used in this investigation. In addition, the chapter has dealt with the description of the context and participants of the study. It has also presented the two tools of data analysis: the SPSS for the analysis of the quantitative data, and Critical Discourse Analysis for the interpretation of the open-ended questions. For the notes of the classroom observations, they are explained together with the questionnaires in relation to Bloom's Revised Taxonomy.

Introduction

This chapter is devoted to the practical side of the study. It is concerned with the findings obtained from the questionnaires administered to nine (9) teachers of Master I students of Applied Linguistics and Social Semiotics in the Department of English, as well as the classroom observations. The section aims to determine whether students' analytical thinking is assessed. The findings are presented in percentage and displayed in histograms and pie charts. This part is arranged into two main sections. The first section is devoted to the presentation of the findings of the questionnaires and the second section deals with the presentation of the results obtained from the classroom observations.

III. Presentation of the Findings of the questionnaire

Q1: How long have you been teaching?

In the present research, teachers of Master I students were given a questionnaire to answer. The number of teachers is nine (9). The results obtained are the following:



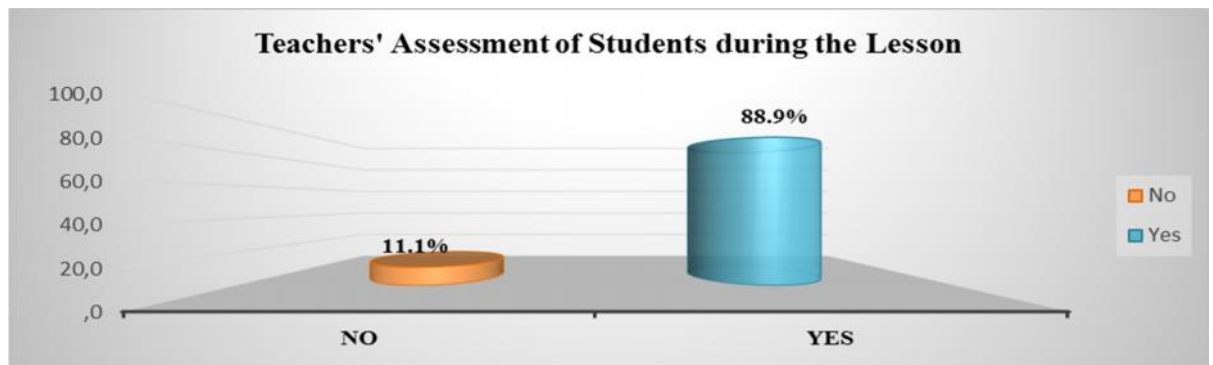
Diagram (1) Teachers' Experience

Remark: One (1) teacher did not answer the question.

From the gathered data, it is clear that our participants' experience is arranged from four (4) years to twenty five (25) years. The results of this question are of a big importance to the present work.

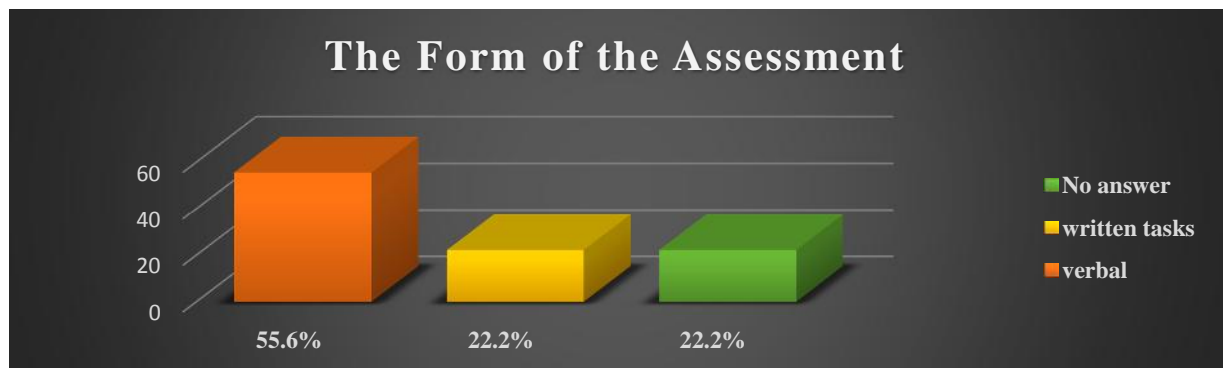
Q 2 A: Do you assess your students during the lesson?

As presented in diagram (2), the majority (88.9%) of teachers say that they assess their students during the lesson except one teacher who said no.

A: Yes**B: No****Diagram (2)****If yes, what form does the assessment take?**

Oral question

written tasks

**Diagram (3)**

As underscored in this diagram, the majority of teachers assess their students using oral questions; that is, (55.6%) that stands for five teachers. While two of them (22.2%) say that, they assess their students through using written tasks.

Remark: Two (2) teachers did not answer the question.

Q 3: How can assessment help the students improve?

This question is an open-ended question in which teachers were given the opportunity to express their points of view. The data gathered from this question reveal that the majority of teachers mention that the use of assessment does help students improve. Indeed, one teacher says: *“the students through discovering their strengths and weaknesses they will try to improve their levels by using their thinking skills”*. The minority provided different explanations, one teacher, for instance, gave a definition that implies *“that through assessment students pay attention to the way they convey their ideas”*.

I.3. Teachers’ Attitudes

Q 4: According to you, what is analytical thinking?

Based on the gathered data, the majority of the respondents assert that analytical thinking is *“the ability to analyse by linking new information to their background knowledge. It is about analysing data for the sake of solving either complex or uncomplicated problems by classifying elements and differentiating similarities. Analytical thinking is the ability to analyse”*. All the respondents argue that through using this skill *“students are not supposed to take everything for granted»*. The minority gave a different definition, which implies *“the faculty to think critically”*.

Q 5: In your opinion, analytical thinking is:

A: Necessary

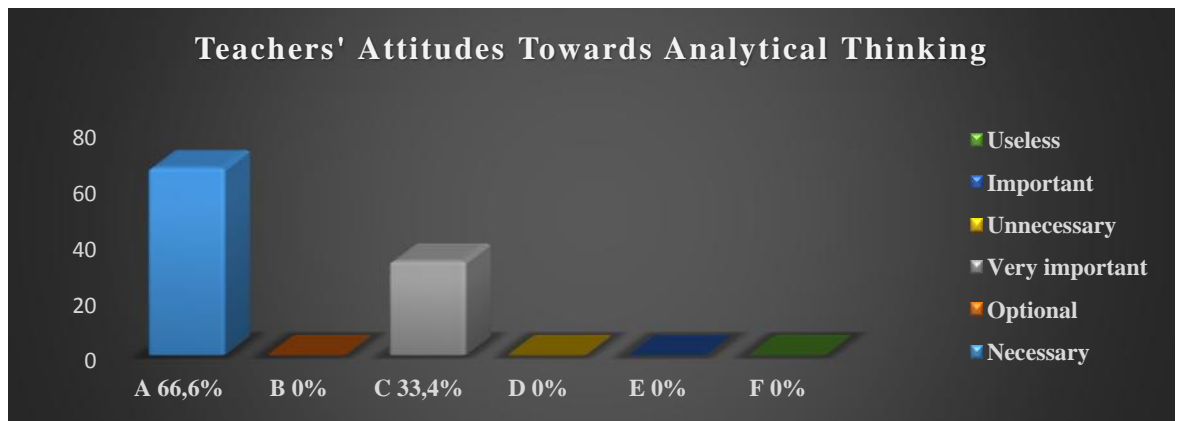
B: Very important

C: Important

D: Optional

E: Unnecessary

F: Useless

**Diagram (4)**

As displayed in this diagram, the majority of teachers affirm that analytical thinking is *necessary* with the percentage of 66.6% representing six (6) teachers. In addition, 33.4% consider it as *very important*. The respondents explanations have the same basic meaning which is “*Analysis is a very crucial skill for students to master, because possessing knowledge without being able to analyze information is not beneficial for the students. Analytical thinking can help students develop solutions to problems even in the real life*”.

Q 6: How do you agree with the statement: “Analytical thinking can be improved through practice?”

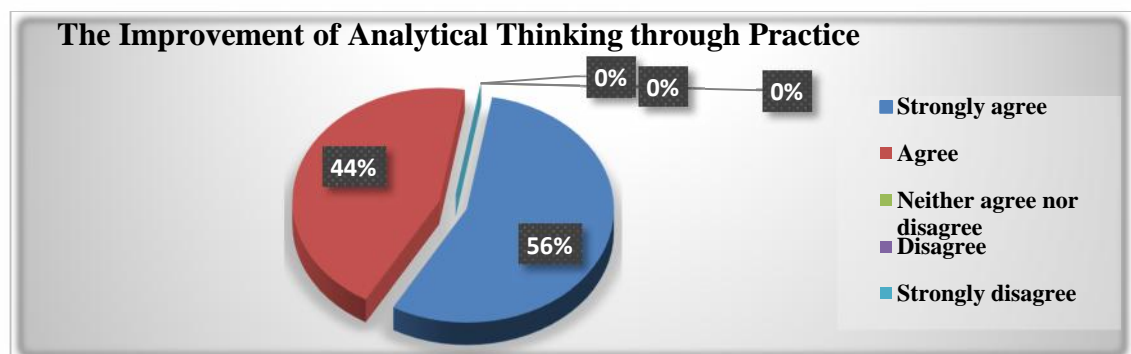
A: Strongly agree

C: Neither agree nor disagree

E: Strongly disagree

B: Agree

D: Disagree



As displayed in diagram (5), the majority of teachers, that is, 56% that stands for five teachers (5) opted for (A); that is, they affirm that they *strongly agree* on the fact that

analytical thinking could be improved through practice. In addition, 44 % of the respondents opted for (D). That is to say, they agree on the statement that *analytical thinking could be improved through practice*.

Q 7: What kind of skill do you assess in order to stimulate students' analytical thinking?

A: Remember

B: Understand

C: Apply

D: Analyse

E: Evaluate

F: Create

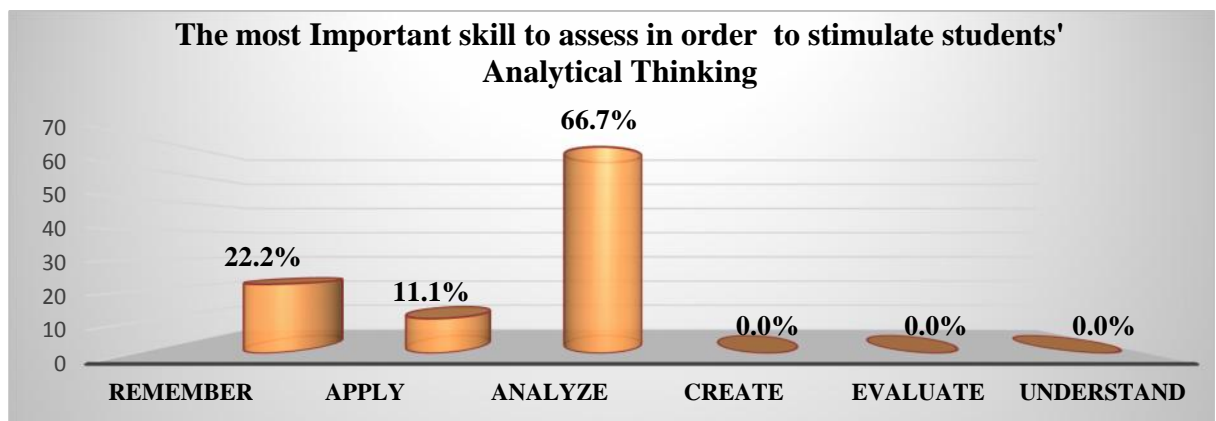


Diagram (6)

This question is very central; it allowed us to find which of the six levels of thinking teachers assess in order to allow students think analytically. Thus, according to the teachers as demonstrated in these results, the majority (66.7%) which represents six (6) consider *analysis* as the most important skill in order to assess students' analytical thinking. Followed by *remembering* (22.2%), and *applying* (11.1%).

Q 8: How often do you assess your students' analytical thinking skill?

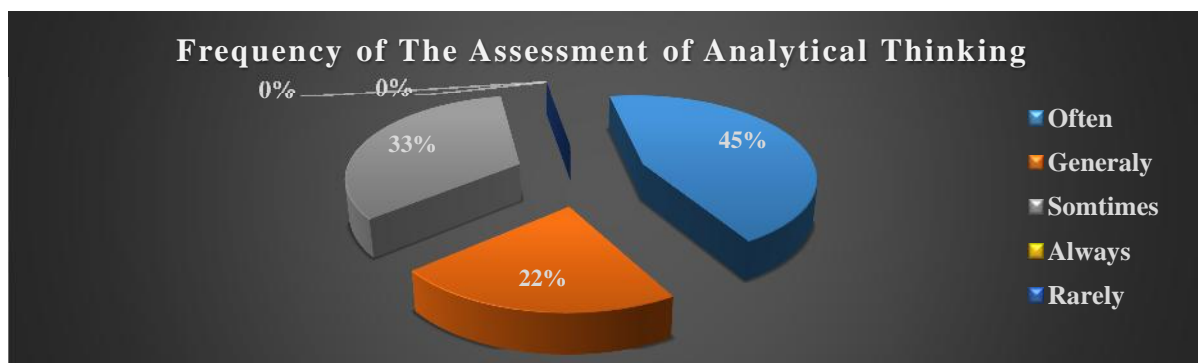


Diagram (7)

When it comes to the frequency of the assessment of analytical thinking, Diagram (7) clearly shows that the majority of teachers (45%) say that they *often* assess students' analytical thinking skill, followed by (33%) who opted for (D) which is '*sometimes*'. Then two teachers opted for (C), which means that they *generally* assess this thinking skill.

Q 9: What kind of strategies do you use in order to assess students' ability to think analytically?

This question is an open-ended question by which we provided the opportunity for teachers to speak about the kind of strategies they use in order to assess their students' analytical thinking skill. According to the results, the majority of teachers (77.8%) affirm that they use oral questions as the best option. Two of them claim that they assign their students written tasks.

Q 10: what kind of cognitive processes do you stress in order to push your students to analyze?

A: *Recognize and recall*

C: *Differentiate, organize, and attribute*

B: *Execute and implement*

D: *Generate, plan, and produce*

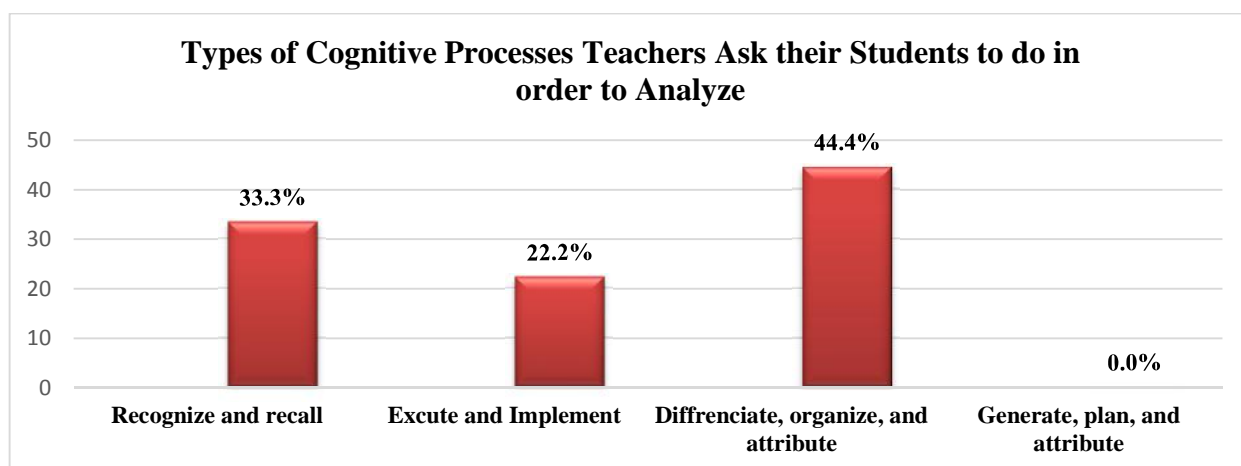


Diagram (8)

In this question, we wanted to know what teachers ask students to do in order to stimulate their ability to analyse. The results clearly display that the majority of teachers (44.4%) opted

for (C), in which they ask their students to '*differentiate, organize, and attribute*'. Three teachers opted for (A); that is, they ask their students to '*recognize and recall*', the rest (2) of the teachers opted for (B) which is asking the students to '*Execute and implement*'.

Q 11: do you involve your students in communicative tasks that require analytical thinking? **A:** Yes **B:** No

If yes, would you explain your answer?

Remark: One (1) teacher did not answer the question.

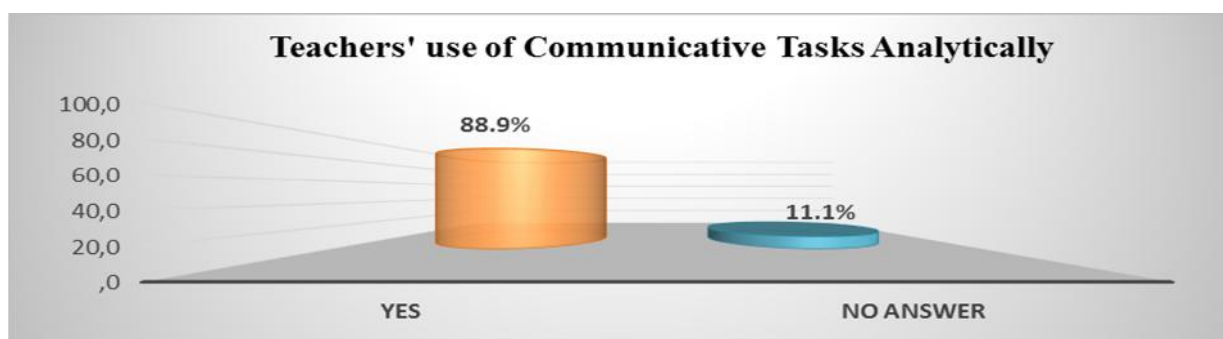


Diagram (9)

Diagram (9) shows that all teachers say that they engage their students in communicative tasks that require analytical thinking by asking them to perform oral presentations, group/pair work, debating, and by asking oral questions which require higher order thinking.

Q 12: Do you think that oral questions can help assess students' ability to think analytically? Would you explain your answer?

A: Yes

B: No

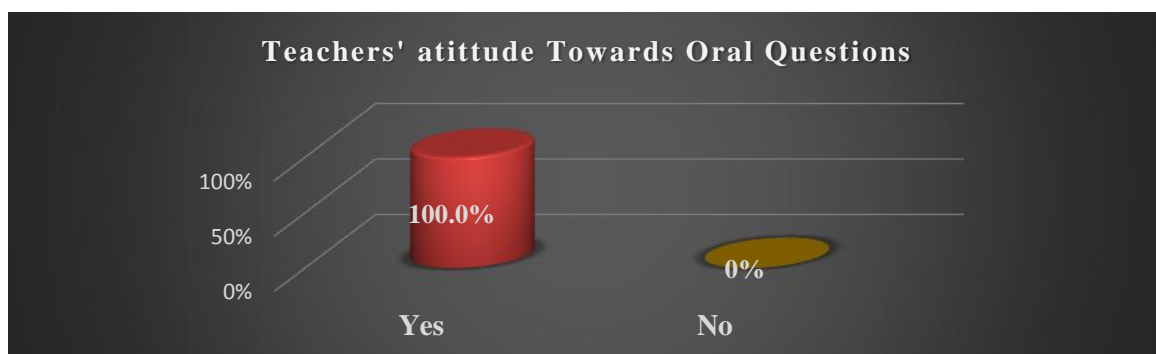


Diagram (10)

This question was asked to identify whether or not teachers use oral questions as a technique to assess students' ability to think in an analytic manner. Diagram (10) demonstrates that all teachers use this tool to stimulate students' deeper thinking. They argue that oral questions are the key to 'discussing', 'debating', 'analyzing', and 'arguing'.

Q 13: Do you encourage your students to be analytic thinkers? If yes, would you explain how? **A: Yes** **B: No**

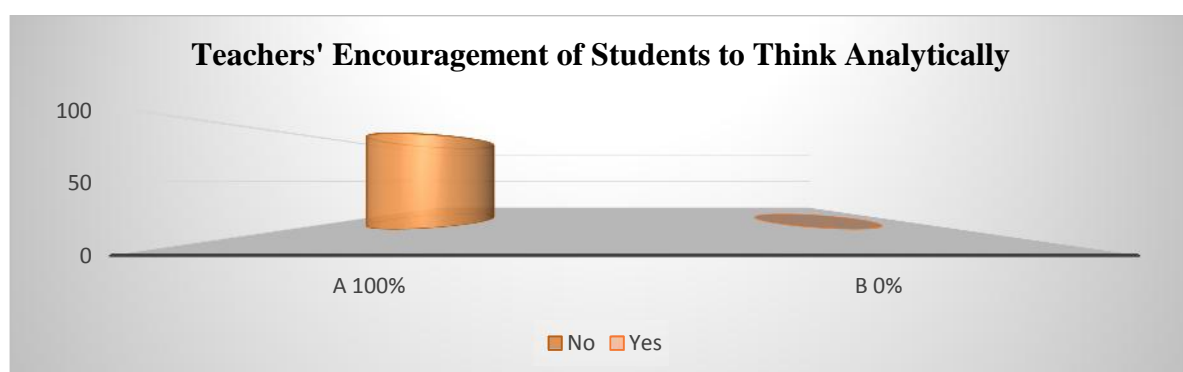


Diagram (11)

As shown in diagram (11), all teachers answered the question by *Yes*. They explain by saying that they encourage their students to think analytically. One teacher for instance, explained that he use "*problems to solve, comparing, analysing, brainstorming, working collaboratively, and asking higher order questions.*"

Q 14: What kind of obstacles do you face while assessing your students' ability to analyse?

A: Some students are not motivated

B: large classes

C: Some students find difficulties in understanding the question

D: Syllabus

limitations

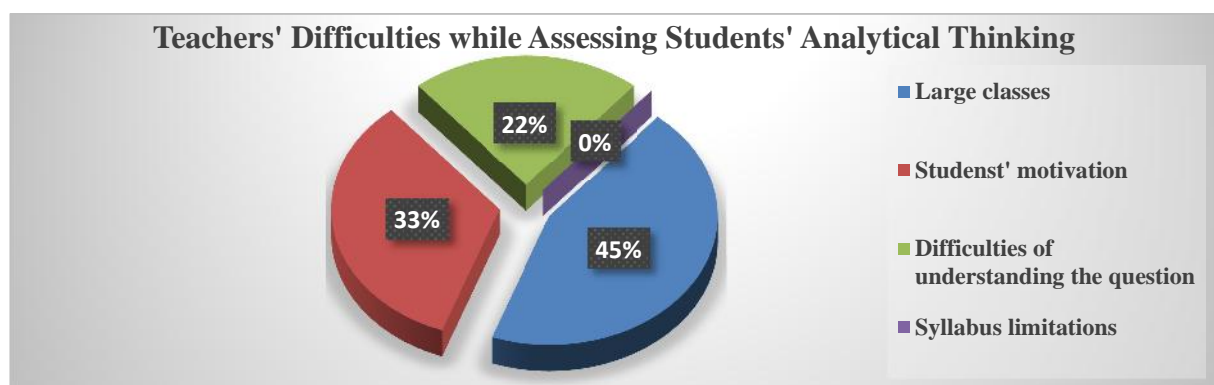
**Diagram (12)**

Diagram (12) clearly shows that the majority of teachers (45%) opted for (B) in which they find difficulties while teaching in large classes. Other teachers (33%) find difficulties when students are not motivated. Two teachers face difficulties of assessing the analytical thinking skill when the students do not understand the question. Two teachers pointed to the lack of authentic materials as another difficulty that they face while assessing their students.

Q15: How do you manage to overcome these obstacles?

Remark: One (1) teacher did not answer the question.

The last question is an open-ended. The data gathered from this question show that all teachers suggest different strategies to overcome the above-mentioned obstacles, except of one teacher who did not answer the question. They explained that they should motivate their students by giving the chance for the unmotivated students to answer oral questions, divide the classes into small groups, push students to work cooperatively, and reformulate the questions if the students did not understand them.

3.1.2. Results of the Classroom Observations

The analysis of this section is based on data gathered from the classroom observations conducted with seven (7) teachers. We could not observe two teachers because of the nature of the setting. After getting teacher's permission, twenty two (22) attendances have been assured with seven (7) teachers of Master one students option Social Semiotics. The observations took place from April 28, 2016 to May 23, 2016 and they are described in a checklist presented in form of table. The latter contains eleven (11) items that are important to assess and develop analytical thinking skill. These items have been observed in term of frequency, arranged from '*Always*' to '*Never*'. The results obtained from these observations are going to be presented in one table that contains the number of teachers according to the frequency of each item. That is, for each item we state how many teachers use it according to the rank order.

Teacher's behaviour	Frequency				
	Always	Often	Some Times	Rarely	Never
To gauge student's analytical thinking during the lesson, teacher asks oral questions.	0	0	3	0	4
In order to stimulate students' higher order thinking skills the teacher asks open-ended questions	0	2	2	0	3
Teacher engages students in communicative tasks that require analytical thinking.	0	0	0	2	5
The teacher asks problematic questions.	0	0	2	1	4
The teacher asks students to make decisions on a given situation.	0	0	0	3	4
In order to improve instructional practice, the teacher use questions of Blooms' revised taxonomy of higher-order-thinking skills involving analysis questions.	0	0	2	1	4
The teacher asks students to give evidence to support their response and	0	3	0	4	0
The teacher pushes students to use their previous knowledge to new situations.	5	1	0	0	1
In order to encourage students to think analytically, the teacher asks students to differentiate, distinguish, organize, and infer	0	0	2	0	5
The teacher use instructional strategies to assess students' analytical thinkers and to push them to develop this skill.	0	0	3	0	4

Table 1: Results of Classroom Observations of Teachers' Assessment of Analytical Thinking

Conclusion

This chapter has provided the results of the questionnaire and classroom observations indicating the assessment of analytical thinking skill by teachers of Master I Social Semiotics students in the Department English at MMUTO. In the light of presenting details and clarification, the following chapter is devoted to the interpretation of the findings presented in this section.

Introduction

This chapter discusses the results of the study in relation to the research questions. The chapter is divided into two (2) parts; the first part is devoted to discussing the questionnaires' results using the Statistical Descriptive Method in order to account for the closed-ended questions and a CDA for the open-ended questions. The second part is designed to discuss the results obtained through the classroom observations. The findings are interpreted according to Blooms' Revised taxonomy (2001).

IV. Teachers' Questionnaire**IV.1. Identification of the Participants**

A quick glance at diagram (1) reveals that teachers' experience is ranged from four (4) years to twenty five (25) years. As displayed in the previous section, teachers' experience differs from less experienced ones to more experienced teachers. In fact, the majority (44.4%) of them are experienced. These results corroborate with what Sornnate Areesophonpichet (2013:2) has pointed in a recent journal about the development of analytical thinking, he argues: *"Teachers' experience and teaching strategies are essential for the development of students' learning processes and analytical thinking skills"*. That is, the experienced teachers are likely to better manage the development and the assessment of analytical thinking skill as well as students' learning.

1.1. Teachers' Assessment of Students in General

This section is concerned with teachers' assessment of students during the lesson. Thus, from the results displayed in the previous section, it appears that the majority (88.9%) of teachers affirm that they assess their students while teaching. These results are very important since assessment is considered as a critical process in students' learning. These results then fit with Boud's words (1988:39) in which he foreshadows that *"assessment methods and requirements*

probably have a greater influence on how and what students learn than any other factor. This influence may well be of greater importance than the impact of teaching materials". This means that the teachers are aware of the importance of assessing their students' while teaching. Concerning the type of assessment that teachers use in order to assess their students, the majority (55.6%) of them claim that they use verbal assessment while the minority (22.2%) note that they use written form. This result goes hand in hand with what has been highlighted by Ronald T. Hyman (1979) who asserted that teaching is essentially a verbal activity.

As to teachers' view on how can assessment improve students' learning, the majority (77.8%) of them assert that "*through assessment, teachers can inform their students about their strengths and weaknesses and hence try to improve their level by bringing about their thinking abilities*". This assertion is mainly the same with the definition of formative assessment maintained by Sadler (1998:77) in which he concluded, "*[Formative assessment] refers to the assessment that is specifically intended to provide feedback on performance to improve and accelerate learning*". Thus, formative assessment helps students to progress in their learning.

1.1. 1. Teachers' Attitudes towards Analytical Thinking

In this section, the discussion will be devoted to teachers' view on the value and importance of analytical thinking. The first question in this section aims at considering teachers' view and perspectives of what analytical thinking is. Accordingly, the findings show that almost all (88.9%) explanations provided by teachers turn around the same definition attributing to it the skill of analysis. One teacher, for instance, notes that "*analytical thinking refers to the ability to identify and define problems and develop solutions for those problems, it also involves the students' ability to classify, differentiate, and analyse. The crucial skill involved here is analysis*". Another teacher argues that "*analytical thinking is a type of thinking skill which requires the ability to analyse by linking new information to their background knowledge*". As

for the rest of teachers, they gave a different definition, which implies “*the faculty to think critically*”. From these definitions, we can say that some teachers agree on the basic definition of analytical thinking; since they consider it as a cognitive ability and a thinking skill, whose core element is analysis.

In the same vein, the findings of this work revealed very positive results concerning teachers’ opinions and views about the importance of analytical thinking. Thus, the vast majority of the participants see analytical thinking as *necessary* (66.6%) and others (33.4%) *very important* by explaining that “*students cannot go further in their studies without analytical thinking skill*”. Another teacher points out that it is very important in the sense that it “*develops students’ creativity and cognitive skills by making decisions that are logical and effective*”. This entails that teachers are aware of the importance of analytical thinking. Furthermore, this result fits with what has been provided recently in the Partnership for 21st Century Skills by Areesophonpichet (2013:2) that “*Analytical thinking skills have become one of the more important skills for students in the 21st century; particularly, in Higher Education levels, which aim for students to increase their High Order Thinking Skills (HOTS)*”. Thus, analytical thinking skill is considered as a very important outcome of students’ learning, since it increases their HOT skill and prepares them for professional life.

As regards the question about analytical thinking and practice, the teachers are invited to say whether they agree on the fact that analytical thinking could be improved through practice. The survey reveals that the majority of teachers (56%) strongly agree on this statement. In fact, this result confirms with what has been found in the early research about the Development of Analytical Thinking Skills of Graduate Students by using Concept Mapping that “*The development of analytical thinking skills will take place only when students practice and develop their analytical thinking skills through the learning process within the classroom*”(Areesophonpichet, 2013:2). Therefore, it can be asserted that if teachers want to develop and

increase students' HOT skill or analytical thinking they should practice it consistently while teaching.

1.1.2. The Assessment of Analytical Thinking by Teachers

The results of the fourth section of the questionnaire is related to teachers' "*assessment of analytical thinking*". Said differently, it will be devoted to discuss the ways teachers use in order to assess students' ability to think analytically. The First question in this section is concerned with the different cognitive processes teachers use in order to push their students to analyze information. Indeed, the majority (66.7%) of them find that the most important thinking skill that should be assessed in order to stimulate students' analytical thinking is *analysis*. The results show that some teachers add another thinking skill, which is *remembering* (22.2%). This result is similar to what is cited in the research journal of Applied Science (2012:18), in which Bloom (1969) maintained that analytical thinking is the ability of learners to analyze in which they are required "*to examine and to break information into parts by identifying motives or causes, making inferences and finding evidence to support generalization*" (ibid). That is, analysis is the critical skill in analytical thinking.

As regards teachers' frequency of assessing students' ability to think in an analytic manner during the lesson, the findings of this work show that the majority 45% of them say that they *often* assess this thinking skill, (see diagram 7). Other teachers representing 33% opted for (D) which means *sometimes*. Then, two teachers opted for (C), which means that they assess this thinking skill *generally*. As it has already been mentioned in the previous results, the majority of teachers agree on the fact that analytical thinking can be improved through regular practice, again they confirm their views by justifying that they often assess this thinking skill. This result then indicates that teachers stress the great value of assessing analytical thinking skill. Accordingly, this would push the teachers to use different strategies such as debating,

brainstorming, asking higher order questions, and engaging students in pair and group work that permit their students to develop their analytical abilities.

In accordance with what is discussed above, the vast majority (77.8%) of teachers opted for open-ended questions. As one of the best strategies to assess students' analytic thinking. One teacher, for instance, declares that *"open-ended questions is a helpful technique that improves students' analytical thinking in the sense that it helps them scrutinize their thoughts into strengths and weaknesses and think in a deeper way"*. This means that questioning plays a crucial role in the assessment process. As Gall (1970) reported, asking questions is a vital factor in the process of teaching and learning. Furthermore, Wilen, William W (1991) confirm that asking higher order questions will *"require the learner to apply information by comparing, contrasting, describing, explaining, scrutinizing, interpreting, or providing examples to answer the question"* (cited in Chad Giaconozzi, 2007:2). That is, higher-order questions engage students to think in a deeper way, which will involve them in active learning. At the same point, the majority of teachers assert that they encourage their students to think analytically by using a variety of strategies such as: problem solving, comparing, analysing, brainstorming, working collaboratively, and asking oral questions. These activities are of a big importance since they encourage students to use their HOT skills. Cross (1987) reports that *"When students are actively involved in the learning task, they learn more than when they are passive recipients of instruction"*. (Cited in Jim Eison, 2010:3). Kiskoock and Iyortsuun (1982) also claimed that active learning could motivate students to think at a higher level.

As regards the analysis of the results of the question: ***what kind of cognitive processes do you stress in order to push your students to analyze?*** The majority (44.4%) of teachers claim indicated that they ask their students to *'differentiate, organize, and attribute'*. Three other teachers reported that they also ask their students to *'recognize'* and *'recall'*. As for the rest of the teachers (22.2%), they opted for (D) which is *'execute'* and *'implement'*. Additionally, these

results fit with Anderson' words, in which he states that the three cognitive processes that should be used in order to analyze are mainly '*differentiating, organizing, and attributing*' (Anderson, *et al*, 2002:221).

The findings of this work demonstrate that the vast majority (88.9%) of teachers involve their students in communicative tasks analytically by arguing that they use different strategies. One teacher, for instance, argues that he/she engages his students in "*oral presentations and debating*". Another teacher adds that he/she uses "*group, pair discussion, and by asking questions*". In this context, it is important to mention that communicative tasks sustain social interaction, and shared social contexts are important in developing higher order thinking (Vygotsky, 1978). In this case, students are encouraged to be active members in class through exchanging thoughts, feelings, or ideas, which will result in the negotiation of meaning and the creation of new ideas. As De Copraais, Borman, and Moge (2001) maintain that "*group discussion produces positive outcomes and leads to higher level of thinking, recognition and elaboration*".

The findings obtained show that all teachers (100%) encourage their students to be analytic thinkers and this by using different strategies. One teacher for instance argues that he/she uses "*problem solving, brainstorming, and group discussion*". Another teacher confesses that he/she pushes her students "*to compare, analyse, work collaboratively, and ask higher order questions*". In fact, this result reflects the principles of constructivism, in which students are active learners rather than passive consumers of information. This finding also goes hand in hand with the cognitive domain of Bloom's Revised Taxonomy (2001) which includes the ability of students to analyse, compare, and answer higher-order questions.

As to the difficulties that teachers face while assessing their students' ability to think analytically (see diagram 12), the outcomes clearly show that they encounter many problems. In fact, the vast majority of teachers (45%) indicate that they face difficulties when they teach

in large classes. Some (33%) of them add that they find obstacles when their students are not motivated. As for the rest of teachers, (22%) they add the difficulty of students in understanding the questions. These results confirm previous scholars' findings. Indeed, AL-Jarfs(2006: 24) notes that *"due to the size of the class they do not have enough time to pay attention to each and give every students a chance to speak and participate"*. Kennedy and Kennedy (1996) share the same opinion as they explain that *"it is difficult to surmount all what happen in class when the number of students exceeds a certain limit"*.

In accordance with what is asserted above, teachers affirm that in order to overcome problems encountered while assessing analytical thinking skill they tend to use different techniques. Those techniques involve dividing the classes into small groups (working cooperatively), motivating the students by giving the chance for the unmotivated ones to answer oral questions, and reformulate the question if the students did not understand it. This result goes hand in hand with what has been found in the early research. Indeed, Normore and Ilon (2006) maintain that small classes encourage students to be more cognitively engaged in the learning process since they are always under pressure to participate in class activities and this will lead them to become active members. On a similar view, Resmick (2003) notes that smaller classes increase students' development as teachers in such situation pay more attention to each individual student. This result is likely to be interpreted by the fact that teachers are attentive of the efficiency of these techniques. Concerning ambiguous questions, some teachers assert that in order to overcome this obstacle, they repeat the question to their students in the sense that they could understand it.

1.1.3. The Results of Classroom Observations

Classroom Observation is used as a second data collection tool in the present study, which helped us to get more details and to answer our research questions. It was conducted with

seven (7) teachers. The observation checklist we used contains eleven (11) items, which are related to analytical thinking. The findings of our investigation will be discussed in detail in the rest of this chapter.

In order to assess students during the lesson and to help teachers transfer knowledge to their students, questioning strategies play a critical role in doing so. They have often been used since the Socratic teaching as a crucial part of instruction. About the importance of questioning, Cotton (2001) reports “*teachers’ classroom questions is to encourage students to become actively involved in lessons; to develop their thinking skills and to stimulate students to pursue knowledge on their own*”. Based on the results, it was noticed that only three (3) teachers out of seven *sometimes* use oral questions as a strategy to assess students’ analytical thinking skill, whereas four (4) teachers *never* ask a single question to gauge this thinking skill. This result does not confirm the one obtained from the questionnaire in which it is asserted by the totality (100%) of the participants that oral questions is an effective strategy to gauge students’ analytical thinking while teaching (see diagram 3). This result does not fit Clasen and Bonk’s (1990) view in which they explain that “*although many strategies exist that can impact student thinking, teacher questions have the greatest impact*” (Cited in Limbacha B and Waugh W, 2010:1). This fact then shows that oral questions are not stressed in the assessment of students during the teaching learning process.

In a similar vein to what has been mentioned above, “*higher order questions*” are among the questioning strategies that teachers are intended to make use of in order to assess students’ ability to think analytically. That is, asking higher order questions will require students to manipulate information and to think in a deeper way in order to draw conclusions and to construct new meanings on their own. However, the collected data show that out of the seven (7) teachers who have been observed, only two (2) of them *often* use higher order questions to

stimulate their students' higher order thinking skills. Two of them use them *sometimes*. In other cases, a single open-ended question is *never* asked.

In addition, during our classroom observations, we have perceived that there are much of closed-ended questions in which only students' lower level thinking is assessed. For example, in a class one teacher asked his students to recall information about the previous session by summarizing and giving examples about H variety. These results, then, do not fit with the constructivist view in which Taber, K. S. (2010) explains that learning is the process of questioning, interpreting, analysing information, in which the students are expected to be able to use the information to develop and alter meanings, and to have good understanding of concepts and ideas. Accordingly, not using open-ended questions to gauge students higher-order-thinking will not help them to develop their thinking skills. The results, hence, are not in accordance with those of the questionnaire, especially those in which the majority (56%) of teachers *strongly agree* on the fact that analytical thinking can be improved through practice.

As regards problematic questions, our classroom observation results reveal that they are used only *sometimes* in order to assess students' analytical thinking. In many situations, they are *rarely used*. In addition, during our observations it has been noticed that a single problematic question has never been asked by our participants and this in many occasions. The obtained findings of the observations, therefore, do not confirm those of the questionnaire in which the majority of teachers argue that "*analytical thinking skill is the ability to identify and define problems and develop solutions for those problems*". This means that problematic questions have not been stressed, though problematic questions are a perquisite element in the development and assessment of H O T. This result does not reflect the principles of constructivism in which problematic questions help students to analyse information in order to get solutions. In this respect, Bransford and skin (1984) stressed that the most important

mechanism behind all thinking is problem solving. Similarly, Harv-Kays (2010) views analytical skill as a problem solving skill.

As decision making is concerned, it has been noticed that it is *rarely* taken into account to stimulate students' HOT skill, and in many cases the students are never asked to make decisions. This result, then, does not corroborate with Incikabi's words (2013:257-266) in which he maintains that "*analytical thinking is process of decision making which comprises of reasoning ability and reflective thinking*". In this sphere, Sternberg & Scott (2011) also highlight that analytical thinking skill is the ability to resolve complex and complicated problems, understand concepts and issues, and make decisions that make sense relying on evidence. This means that the students are not assessed on their higher-order thinking skills. Said differently, students' analytical thinking is insufficiently assessed. These results do not go hand in hand with those of the questionnaire where all the participants claim to use strategies that stimulate students' analytical thinking. Namely, brainstorming, problem solving, and engaging students in group and pair work.

Communicative tasks play a vital role in the development and assessment of analytical thinking skills; since they require students to negotiate and communicate meaning together to break information down and give conclusions. As Kukla (2000), Prawat and Fbden, (1994) assert that learning is a social process. That is, meaningful learning occurs when individuals are engaged in social activities. Furthermore, Byrens (2001:80) claims that "*higher order thinking needs a time to enhance it through using a lot of practice, as class discussion, debate, and problem solving*". However, the gathered data show that communicative tasks are *rarely* used, and on some occasions they are *never* used. These results, hence, do not confirm those of the questionnaire where it is reported that students are engaged in communicative tasks analytically by giving the examples of debating, oral presentations and collaborative tasks. In this case,

students are not highly involved in the learning process and they are not given the opportunity to use and develop their thinking skills in the class.

To improve the analytical skill of students, the teacher asks them to recall or/and remember what they have studied in the previous lectures to put it in new situations. According to Anderson and Krethwohl (2001), *remembering* is considered as *lower level of thinking*. However, while conducting our classroom observations, we noticed that the remembering level is *always* used. Thus, it is important to cite Christen and Murphy (1991) suggestion which says that activating prior knowledge increases comprehension. For example, in a social constructivist lesson, the teacher asks his/her students to remember the two types of constructivism that they have studied previously and put them into practice in which they are going to compare between the two concepts and give the difference between them in a task of five (05) minutes. Another teacher asked his/her students to classify the different types of politeness that they already know, after giving them the types, he/she asked the students to make the difference between them. Previous knowledge is considered as a prerequisite element in increasing and assessing students' H O T. This result fits with the constructivist view of learning, about what we already know, and that new ideas occur as we adapt and change our old ones. However, when observing the teachers it is revealed that some of them did not consider the step.

In accordance with the above explanation, remembering facts and giving the right answer for questions is not enough. Indeed, students should support their explanation by giving evidence to develop their thinking skill. Indeed, Bloom explains that analytical thinking is the ability of students to analyse and find evidence to support their answers. Furthermore, Sternberg (2003) points out that analytical skill is made up of some basic components which include argumentation and problem solving (cited in Uwaleke Chidebe C and F. C. Offiah 2013:45). However, when conducting our classroom observations it has been noticed that students are

rarely asked to support their answers by giving examples. In addition, asking for justifications is *rarely* put into practice. For instance, in one session we observed that students were asked to give an example about specific objectives of social related activities; however, they were not been given the chance to think about it. This result also does not fit with constructivism principles, which suggest that a productive classroom consists of learner-centered, active instruction. That is, the learners are given the opportunity to think about what they want to say.

In order to improve instructional practice and assess analytical thinking skill, it necessary to rely on questions of higher order thinking that involve analysis. In fact, while conducting our classroom observations it has been perceived that this skill is *rarely* used, and on some occasions, it is *never* used. This result, does not confirm the results of the questionnaire in which it is mentioned that the most important skill that should be used in order to assess students' analytical thinking is analysis in which students are asked to “*Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose*” (Anderson and Kathwohl, 2011:68). In the same perspective, in the results of the questionnaire it is highlighted that in order to push their students to analyze they mainly use the three cognitive processes which are mainly ‘*Differentiate, organize, and attribute*’. However, these have not been noticed during our classroom observations. Thus, in our classroom observations it has been remarked that it is the students' lower- order-thinking skills by asking them only re-call questions which are taken into account. Re-call type questions do encourage students to use higher level thinking only when they are followed by higher questions, which require students to recall information and put it into practice through analyzing and evaluating information (Tienken *et al*, 2010; Walsh and Salles, 2005). While conducting our classroom observations we noticed that one teacher asked his students to recall the different types of politeness and then put what they know into practice by asking them to compare and differentiate between these different types. Moreover, Saengprom *et al* (2015: 996) explain, “*analytical thinking is the*

ability to distinguish, categorize elements/things to see what are important, how the elements are related, what is the cause and effect, and what the underlying reason is”.

Though the results of the questionnaire stress the use of instructional strategies as an important aspect in the assessment and development of students’ analytical thinking, the data from the classroom observation do not confirm that. However, we observed that in some situations there is a use of collaborative learning strategies to develop students’ HOT skill and oral questions. Indeed, the strategies mentioned by teachers in the findings of the questionnaire are of a big importance for students to develop their HOT skill Byrnesn James (2001:80) stipulates, “*Higher order thinking needs a time to enhance it through using a lot of practice, as class discussion, debate, and problem solving*”.

Asking and answering questions are at the core of the educational process in the sense that they stimulate thinking, facilitate instruction, elicit facts and foster classroom discussion. However, there are some questions that are not clear for students and because of that they cannot give the right answer, especially those questions involving cognitive abilities. In our classroom observations we have noticed that reformulating the questions for the students is *rarely* put into practice, and in some situations, this is *never* done. This result does not confirm the questionnaire results in which it is mentioned that in order to overcome problems while assessing the students’ ability to think analytically, it is important to reformulate questions when necessary. Thus, the findings of this question does not fit with Sponder Barry’s words (1988:49) in which he observes that if teachers want to gauge students’ conceptual knowledge they must reformulate their questions.

Conclusion

The discussion of the gathered data from the questionnaire and the classroom observation answer the fundamental research questions stated in the general introduction. Thus,

while some of the hypotheses suggested are confirmed, others are rather refuted, the second hypothesis stating that Students in the Department of English at Mouloud Mammeri University are inadequately engaged in analytical thinking, and the third which states that Lower-order thinking questions are stressed when the students are assessed orally have been confirmed.

Through the analysis of the results of the teachers' questionnaire, we have found that teachers of Master I Applied Linguistics and Social Semiotics do not lack knowledge about Analytical Thinking Skills and how to assess and develop them. However, when it comes to practice it was perceived during our classroom observation that it is mainly the teacher-centered approach in which students are passive recipients of information.

With regard to the factors influencing teachers' assessment of students' analytical thinking skill, the respondents affirm that the major reason that incites them is the fact of teaching in large classes. In other instance, students' motivation and difficulty of understanding ambiguous questions are shown as other obstacles teachers face.

This dissertation investigated the assessment of analytical thinking in the Department of English at Mouloud Mammeri University of Tizi-ouzou. It was carried out to figure out whether Master I Social Semiotics students' analytical thinking is assessed orally during the teaching learning process. The investigation in this area is important because this subject is new, especially at university level where students are intended to think analytically. The dissertation was conducted on the basis of Bloom's Revised Taxonomy (2001) which has been reinforced by many authors, namely Anderson and Krathwohl.

For the sake of answering the advanced research questions and to test the hypotheses suggested in the general introduction, a mixed method approach was used. Thus, quantitative and qualitative methods were joined together in order to analyze the data. Indeed, the data were collected from two research instruments. Nine teachers of Master I Social Semiotics were selected to answer the questionnaire. Besides, a semi structured classroom observation was conducted in order to gather data about teachers' assessment of students' analytical thinking skill. For the sake of analyzing the quantitative data, a software package called SPSS was used. In addition to the statistical analysis, Critical Discourse Analysis was employed for analyzing and explaining the qualitative data obtained from the open-ended questions of the questionnaire.

Relying on the data analysis, the findings were synthesized and answers have been given to the research questions advanced in the study. Thus, concerning teachers' assessment of students during the lesson, 88.9% of them assert that they do assess their students. Likewise, the majority 55.6% affirm that they use *verbal assessment* to gauge students' abilities. Similarly, 77.8% of the teachers admit that assessment can help students improve their analytical thinking if it is used formatively.

Although the majority of teachers 66.6% considered analytical thinking *necessary*, this has not been confirmed by the results of the classroom observations. Concerning the statement that holds that analytical thinking can be improved through practice, the majority 56% of teachers

strongly agree on it. The results also reported that the most important skill that should be used in order to gauge students' analytic thinking is *analysis*. As to the frequency of the assessment of analytical thinking, skill teachers in their vast majority (66.7%) assert that they assess it *regularly*. In the same vein, they argue that in order to do so they use oral questions as the most important strategy. However, during our classroom observation, some weaknesses have been noticed. For example, concerning teachers' frequency of assessing students' analytic thinking, the questionnaire results reveal that the majority of teachers assert that they assess this thinking skill, however, the classroom observations show that students' analytical thinking skill is gauged only *sometimes*.

In addition, the results reveal that teachers use the same strategies to encourage students to think in a deeper way and to involve them in communicative tasks analytically. The strategies are mainly *working collaboratively, solving problems, debating, brainstorming, and asking higher order questions*. Though the results of the questionnaire reveal positive attitudes of teachers towards this thinking skill, when it comes to the results of the classroom observation drawbacks haven't been remarked. Thus, in many cases emphasis is not put on analytical thinking during the lesson. Accordingly the first and the fourth hypotheses stating respectively that Students in the Department of English at Mouloud Mammeri University are effectively engaged in analytical thinking has been disconfirmed, and Higher-order thinking questions are stressed when the students are assessed orally have been disconfirmed. On the other hand, the second and the third hypotheses stating respectively that Students in the Department of English at Mouloud Mammeri University are inadequately engaged in analytical thinking, and Lower-order thinking questions are stressed when the students are assessed orally have been confirmed.

Some limitations in our study are noticed. First, since the small scale of our investigation, our results and outcomes cannot be generalized to the whole population. In fact, as our sample consists only of nine teachers of Master I Social Semiotics. We shall not try to generalize our

results. Second, since the present investigation is the first in the Department, difficulties in collecting data have been met. Namely finding previous works about the present investigation.

Based on the research findings from the teachers' questionnaire and the classroom observations, the present study recommends some suggestions as well as some recommendations. Accordingly, it is intended to design a great deal of activities that require higher-order-thinking skill such as problem solving, debating, asking higher questions, using concept mapping and brainstorming, as well as encouraging pair and group work. Second, we advocate reducing the number of students in the classes since the majority of teachers claim that they find difficulties in assessing HOT skill when there are many students in the class.

It is a hope that the findings of this work as first investigation in the field of didactics will donate to a better implementation of the assessment of HOT skills at MMUTO. This would improve the learning process. It is also a hope that this study paves the way to future researchers interested in the same area to carry on a study in and outside the department.

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Dear teachers,

This questionnaire is part of a research that seeks to investigate the assessment of analytical thinking in Master one classes (Social Semiotics) in the department of English at MMUTO .In order to achieve this aim, we would greatly appreciate if you can give some of your time to answer it. Your answers will be precious for the completion of this work and will be treated with great confidence. Thus, you are kindly requested to cross (x) in the appropriate answer or give full answer if necessary.

Thank you in advance for your cooperation.

❖ **Section 1: Teachers' Experience**

1. How long have you been teaching?

..... Year(s).

❖ **Section 2: Teachers' Assessment of Students in General**

2. Do you assess your students during the lesson?

☐ Yes

☐ No

If yes, what form does the assessment take?

☐ Verbal

☐ Written

Others.....
.....

3. How can assessment help the students improve?

.....
.....

.....

.....

❖ **Section 3: Teachers' Attitudes toward Analytical Thinking**

4. According to you, what is analytical thinking?

.....

.....

.....

.....

5. In your opinion, analytical thinking is :

<input type="checkbox"/> Necessary	<input type="checkbox"/> Very important	<input type="checkbox"/> Important
<input type="checkbox"/> Optional	<input type="checkbox"/> Unnecessary	<input type="checkbox"/> Useless

Would you justify your answer?

.....

.....

.....

.....

6. "Analytical thinking can be improved through practice".

<input type="checkbox"/> Strongly agree	<input type="checkbox"/> Neither agree nor disagree	<input type="checkbox"/> Strongly disagree
<input type="checkbox"/> Agree	<input type="checkbox"/> Disagree	

❖ **Section 4: The Assessment of Analytical Thinking by teachers**

7. What kind of skill do you assess in order to stimulate students' analytical thinking?

<input type="checkbox"/> Remember?	<input type="checkbox"/> Understand?	<input type="checkbox"/> Apply?
------------------------------------	--------------------------------------	---------------------------------

☐ Analyse? ☐ Evaluate? ☐ Create?

8. How often do you assess your students' analytical thinking skill?

☐ Always ☐ Often ☐ Generally
☐ Sometimes ☐ Rarely ☐ Never

9. What kind of strategies do you use in order to assess students' ability to think analytically?

.....
.....
.....
.....

10. What kind of cognitive processes do you stress in order to push them to analyze?

☐ Recognize and recall. ☐ Differentiate, organize, and attribute.
☐ Execute and implement. ☐ Generate, plan, and produce.

11. Do you involve your students in communicative tasks that require analytical thinking?

☐ Yes
☐ No

If yes, would you tell us how?

.....
.....
.....
.....

12. Do you think that oral questions can help assess the students' ability to think analytically?

☐ Yes

☐ No

Would you explain your answer?

.....

.....

.....

.....

13. Do you encourage your students to be analytical thinkers?

☐ Yes

☐ No

If Yes? Would you explain how?

.....

.....

.....

.....

14. What kind of obstacles do you face while assessing your students' ability to analyze?

☐ Some students are not motivated.

☐ Large classes.

☐ Some students find difficulties in understanding the questions.

☐ Syllabus limitations.

Others.....
.....
.....

15. How do you manage to overcome these obstacles?

.....
.....
.....
.....

*Thank you very much for your
collaboration!*

Teacher's behaviour	Frequency				
	Always	Often	Some Times	Rarely	Never
To gauge student's analytical thinking during the lesson, teacher asks oral questions.					
In order to stimulate students' higher order thinking skills the teacher asks open-ended questions					
Teacher engages students in communicative tasks that require analytical thinking.					
The teacher asks problematic questions.					
The teacher asks students to make decisions on a given situation.					
In order to improve instructional practice, the teacher use questions of Blooms' revised taxonomy of higher-order-thinking skills involving analysis questions.					
The teacher asks students to give evidence to support their response and					
The teacher pushes students to use their previous knowledge to new situations.					
In order to encourage students to think analytically, the teacher asks students to differentiate, distinguish, organize, and infer					
The teacher use instructional strategies to assess students' analytical thinkers and to push them to develop this skill.					
Reformulating the question if students find difficulty of understand it.					