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Investigating the Effectiveness of Using Bloom's Taxonomy to Develop EFL Learners High Order Thinking Skills in Formative Assessment The Case of First year students of English Kasdi Merbah University -Ouargla-

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Dedication

I would like to dedicate this work to my family who brought

me up with their love, support and encouragement.

To the most precious people to my heart:

to my Kind-hearted mum '' Hinda'' and my great father

''youcef'' for their encouragement, love and ever support.

to my supportive sister "Ahlem'' for her care and

encouragement

to my Brothers "Boubeker", "Salem", "khaled" and

"Abdelkader".

to my lovely sister "Loudjin".

to my Gorgeous "Fatoum".

Special thanks to my best friend .

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university.

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Abstract

This research project seeks to investigate the student's and teacher's opinions of the English department at Kasdi Merbah University, Ouargla, towards the effectiveness of using Bloom's taxonomy in developing EFL learners' high-order thinking skills. In order to investigate the effectiveness of Bloom's taxonomy in developing EFL learners high-order skills in formative assessment, the following design is formulated: The research is conducted through a mixed approach of quantitative and qualitative methods. A questionnaire was administered to 50 first-year students, and five teachers of the English department were interviewed. Formative assessment is expected to improve students' high-order thinking skills. This study refers to the formative assessment involving cognitive levels of thinking based on Bloom's taxonomy. High-order thinking skills are 21st century skills needed in the classroom and in real life, and the use of Bloom's taxonomy to develop EFL learners' high-order thinking skills (HOTS) in formative assessment improves EFL students' performance, attitude, and behavior. Likewise, enhance the teacher's ability to teach and design good formative assessment tasks and rubrics. The research aims to develop and improve the EFL student's high-order thinking skills during formative assessment. Hence, high order thinking skills help EFL students think, evaluate, and create rather than just memorize, and it also enhances their cognitive abilities. The results show that despite several situational constraints, such as students' lack of comprehension, time constraints, and teachers' experience in teaching high-order thinking skills, all respondents, both teachers and students, shared their positive attitude toward the principles of high-order thinking skills in several aspects. Despite the teachers' positive attitude towards implementing HOTS-based assessment, there was still a lack of knowledge among students about high-order thinking skills. This study revealed that teachers use Bloom's Taxonomy to promote and evaluate learners' learning, enhancing their development of higher-order thinking skills. Formative assessment provides students with relevant, useful, and specific feedback, enabling them to restructure their thinking and modify their understanding as they transition from lower-order thinking to higher-order thinking.

Keywords: Effectiveness , Bloom's taxonomy , High Order Thinking Skills , Formative assessment

List of Abbreviations

EFL: English as a foreign language

ESL: English as a second language

FA: Formative Assessment

HOT: High Order Thinking

HOTS: High Order Thinking Skills

LOTS: Low Order Thinking Skills

RBT: Revised Bloom's Taxonomy

SA: Summative Assessment

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General Introduction

General Introduction

    While EFL students have to master the four language skills of tertiary education—listening, speaking, reading, and writing—they also need to acquire other abilities in order to learn effectively and efficiently. Along with problem-solving and critical thinking skills, one of the objectives of education in the twenty-first century is to help students develop high order thinking capabilities. It is crucial for students to be able to adjust to this capacity in their everyday lives. Combining cognitive process and task completion ability makes up thinking ability. Although at the cognitive level, specific references are made to low-level thinking skills (LOTS) and high-level thinking skills (HOTS), Bloom initially defined a taxonomy of thinking skills that includes cognitive, affective, and psychomotor dimensions.

    HOTS are built on the basis of LOTS, which has a more complicated capacity for thought. On a cognitive scale, there are two thinking ability dichotomies: LOTS and HOTS. When pupils face unanticipated issues, doubts, and quandaries, HOTS will be in play and can be learnt and taught. To maximize students' learning, there must be linearity between the learning process, instructional methods, and evaluation. Assessment must have the ability to cause HOTS in addition to the learning technique. In recent years, formative assessment's potential role in education has gained more attention due to its capacity to provide information to teachers about the learning process's strengths and flaws, as well as to assess the student progress of EFL learners.

    Formative assessments are those that are conducted with the goal of enhancing teaching-learning. Utilizing tests that are capable of evaluating learners HOTS should help achieve this objective. Students' cognitive abilities can be improved by testing their high order thinking abilities. Students with HOTS abilities will perform better academically than those with LOTS. In order to access students' high order thinking skills, the author is therefore interested in undertaking research on formative assessment analysis using exams created by teachers. This study aims to determine how well Bloom's taxonomy-based formative assessment develop and assess students' higher-order thinking skills.

1- Background of the study

    Assessment expected to be able to improve students high order thinking skills, and formative assessment is inseparable from teaching for some reasons, commonly they are used to gather information regarding student learning progress, attitudes, behavior and performance (Widiastuti&Saikah ,2017). It is also used to grade

students work (Staub&Kirkgöz, 2019)HOTS in this study refers to the formative assessment involving cognitive level of thinking based on Bloom's taxonomy.

Bloom's taxonomy was published in 1956 by a team of cognitive psychologists at the university of Chicago name after committee's chairman , the psychologist Benjamin Bloom . Bloom's taxonomy is a model that describes the cognitive processes. Developing EFL learners high order thinking skills is a main goal in nowadays courses, I addition to problem solving and critical thinking abilities. Thinking ability is the combination of cognitive process and the ability to complete a task (Milvain, 2008) . Initially Bloom (1979) indentified 3 taxonomies of thinking skills which include cognitive, affective and pshymostor dimensions.

In fact, teachers use Bloom's taxonomy in designing lessons, courses and analyzing the learners needs, but they do not use it in developing HOTS and form formative assessment.

A formative assessment is an important tool that provides feedback for teachers in adjusting their teaching and learning to achieve students' learning objectives. Through using Bloom's taxonomy with HOTS-based assessments, students are challenged to experience assessments that develop their HOTS.

2- Problem statement

High order thinking skills are 21st century skills needed in the class and real life. By using Bloom's taxonomy the development of EFL learners HOTS in formative assessment improve EFL student's performance, attitude, and behavior.

As well, enhancing teacher's ability in teaching and designing good formative assessment, tasks and rubrics.

The issue raised of the present study is to investigate the effectiveness of using Bloom's taxonomy to develop EFL learner's high order thinking skills in formative assessment.

3- Research Questions

In order to achieve the aim of the study

1. to what extent is the use of Bloom's taxonomy effective to develop EFL learners HOTS in formative assessment?

2. What is the role of formative assessment in developing EFL learners HOTS?

4- Hypotheses

In order to answer the above mentioned questions a set of hypotheses are formulated

1. Bloom's taxonomy is very effective in developing EFL learners HOTS in formative assessment.

5- The objectives of the study

The aims of the study are:

1. Developing and improving EFL student's HOTS during formative assessment.

2. HOTS help EFL students think, evaluate, and create rather than just memorize, and it also enhances their cognitive abilities.

6- The significance of the study

Bloom's taxonomy taught teachers practice the HOTS such as creativity, collaboration, critical thinking, student leadership in class during the course and assess the performance of students constantly by observing their attitude, behavior, proficiency.

Teachers should be aware of the most appropriate formative assessment related to the needs of the students. Thus, they effectively evaluate their student's performance in more reliable way.

Bloom's taxonomy helps both teachers and students to achieve the goals of learning and teaching process.

7- Methodology

In order to investigate the effectiveness of Bloom's taxonomy in developing EFL learners high order skills in formative assessment the following design is formulated

7-1. Methodology

The research is conducted through a mixed approach: quantitative and qualitative method to test the formulated hypotheses. This descriptive study involve qualitative interview data from teachers of English as well, quantitative questionnaire data from first Year Students of English.

7-2-Methods

The instruments employed to gather data include:

-Teacher's interview

-Student's questionnaire

7-3- Study population and sampling

The sample of the study is consisted 50 first year students of English at the department of English language university of KasdiMerbahOuargla

The sample randomly selected, a case study design is relevant to the aim of the study.

8- Structure of the dissertation

This dissertation composed of three chapters. Chapter one explains Bloom's taxonomy, taxonomy structure, classification of thinking skills and the history of its development and then, the changes between the original taxonomy and revised one. Furthermore, the use of Bloom's taxonomy in developing EFL learners HOTS, and taxonomy use in the educational setting. Chapter two displays the definition and types of classroom assessments. Emphasis on the formative assessment , FA characteristics are presented, and FA process and types then the focus is mainly on FA techniques and methods, designing a FA by using Bloom's, in addition to the development of HOTS in FA, and the significance of FA in education. Chapter three is a practical part; it is about the analysis and interpretation of the gathered data.

Definitions of key words

Bloom's taxonomy

Bloom's taxonomy utilizes hierarchical models to classify learning objectives in cognitive (classify thinking skills), affective, and psychomotor domains, focusing on cognitive domains.

High Order Thinking Skills (HOTS)

HOTS are individual abilities enhance learning progress and critical thinking by analyzing complex information, categorizing facts, navigating solutions, understanding concepts, and developing insightful reasoning.

Formative Assessment

Formative assessment evaluates student comprehension and academic progress using a wide variety of methods, identifying struggling concepts, skills, and unachieved standards. This helps teachers make adjustments and support for improved learning outcomes.

CHAPTER I
Bloom's taxonomy in high order thinking skills Enhanceme

Introduction

To categorize the goals and results of learning, educators offer a framework to organize, review, and evaluate their instructional strategies, as well as gauge student achievement. The most well-known taxonomy in the field of education was created in the 1950s by Benjamin Bloom and his colleagues, and it is called Bloom's Taxonomy. Six levels are used to group the learning objectives: remembering, understanding, applying, analyzing, evaluating, and creating. In addition to Marzano's Taxonomy are a few other taxonomies that have been created over time. These taxonomies have a significant impact on education because they help teachers create effective lesson plans, appropriate assessments, and systematic, uniform student progress evaluations. To organize educational goals, objectives, and outcomes hierarchically, developing meaningful and significant educational experiences depends on knowing how to successfully plan lessons and evaluate student development. Bloom's Taxonomy is one famous framework that has had a substantial impact on approaches to instructional design and evaluation. The original taxonomy, created by Benjamin Bloom and his associates in the 1950s, gave educators a hierarchical classification of cognitive abilities. But as educational theory and research have developed, a more comprehensive and flexible framework has become necessary. As a result, the updated Bloom's Taxonomy was created, improving on the original. The revised Bloom's Taxonomy will be thoroughly discussed in this chapter, along with its advantages over the original taxonomy and its importance in assisting students in the acquisition of high-order thinking abilities. By comprehending and making use of the revised taxonomy,   teachers can increase student engagement and offer more fulfilling learning opportunities.

1-1- History of the Taxonomy

Bloom's Taxonomy is a widely used framework. Ben Bloom came up with the idea in the beginning, and Anderson and Krathwohl updated it in 2001. The six cognitive processes of remembering, understanding, applying, analyzing, evaluating, and creating make up the taxonomy, which is organized according to them in order of increasing complexity. Recalling previously learned knowledge, such as facts,

dates, or definitions, is what the taxonomy's first level, remembering, is all about. The learner must comprehend the significance of the knowledge they have retained to move on to understanding, the second level. Utilizing newly acquired knowledge to resolve issues and finish tasks constitutes the third level, or applying. The fourth level, Analyzing, calls for students to dissect complicated information into smaller pieces and look at connections between them. The fifth level, evaluation, calls for learners to form opinions and evaluate the relevance or caliber of data. Utilizing previously learned information to produce fresh concepts, ideas, or methods of doing things constitutes the final level is Creating, these cognitive processing tiers are not entirely distinct from one another; rather, they work in tandem to support deeper learning. The more levels a student reaches, the more complex thought processes and higher-order thinking skills they must use to promote efficient teaching and learning methods, Bloom's taxonomy has been widely used across disciplines. It has been applied in the development of curricula, exams, and teaching resources. For instance, Ferry et al. (1998) found that it was employed in nursing education. Teachers use Bloom's taxonomy as a framework for developing learning goals and gauging the success of their instructional strategies in EFL classes (Whittingham et al, 2018).

In 1956, Bloom et al. first presented Bloom's taxonomy as a hierarchical model for the cognitive domain. By Anderson and a group of cognitive psychologists, the model was reviewed in 2001. As a result, the terminology and structure of the taxonomy underwent several significant changes (Anderson et al. 2001). Often referred to as Bloom's taxonomy (Bloom et al., 1998), these two classification schemes for educational goals were developed, and the updated Bloom's taxonomy (Anderson et al. 2001). In the educational field of teaching English as a second language, Bloom's taxonomy has been used for course design and evaluation (Scott 2003), and structuring assessments (Lister et al). Consequently, the revised Bloom's taxonomy helped formulate ideas for language comprehension. Bloom's taxonomy is important to develop a common understanding of how the revised Bloom's taxonomy is interpreted in English language learning and teaching. The standard for creating tests and assessments is Bloom's Taxonomy omit to conduct a methodical evaluation according to Bloom's Taxonomy, there are gradual learning stagesfrom lower degrees

like remembering and comprehending ,applying, in a more advanced sense like analyzing.

1-2- The original taxonomy (old taxonomy)

The idea for this classification system was formed at an informal meeting of college examiners attending the 1948 American Psychological Association Convention in Boston. It was agreed that such a framework could be obtained through a system of classifying the goals of the educational process. This is the first product of these meetings, and the committee and editor have taken responsibility for the present product.

The original Bloom's Taxonomy was first proposed in 1956 by Benjamin S. Bloom and his colleagues. Bloom was a professor of education at the University of Chicago, and his colleagues included Max Englehart, Edward Furst, Walter Hill, and David Krathwohl. They developed the taxonomy as a way of categorizing educational goals and objectives, and as a framework to guide instructional design and assessment. Bloom and his colleagues based their taxonomy on the belief that education should be focused on developing cognitive skills and that higher-order thinking skills were essential for success in school and in life.The original Bloom's Taxonomy remains one of the most widely used and influential models in education, providing a framework for educators to develop learning objectives, design instructional activities, and assess student learning outcomes across a variety of subject areas and grade levels (Anderson &Krathwohl, 2001).

The taxonomy formed of three domains including: cognitive (knowledge), affective (attitude), and psychomotor (skills), Bloom's taxonomy has always been a reference in relation to the ability to think on a cognitive level. This taxonomy is a tool used to design, assess, and evaluate student learning (Lord &Baviskar, 2007). They identified six levels of cognitive skills, which were arranged in a hierarchical order, with the lower levels providing the foundation for the higher levels. The first level of Bloom's Taxonomy is knowledge, which involves recalling information such as facts, concepts, or procedures. The second level is comprehension, which involves demonstrating an understanding of the meaning of information. The third level is application, which involves using information in a new context or situation. The

fourth level is analysis, which involves breaking down complex information into its component parts and examining relationships among them. The fifth level is synthesis, which involves combining parts or elements to form a new whole. The sixth and highest level is evaluation, which involves making judgments about the value or quality of information or ideas.

Bloom and his colleagues intended the taxonomy to be a practical tool for educators to use in designing instruction and assessments that would promote the development of student's cognitive skills. They believed that by using the taxonomy, educators could create activities and assessments that would support students in progressing through the levels of the taxonomy, developing higher-order thinking skills along the way. Bloom's Taxonomy has been a cornerstone in the area of education since it was developed in the 1950s, giving teachers a framework for categorizing learning objectives and rating student achievement. The taxonomy has undergone adjustments and adaptations over time to fit the evolving demands of educators and students, but its fundamental concepts are still applicable and crucial for successful teaching and learning (Anderson and Krathwohl, 2001).
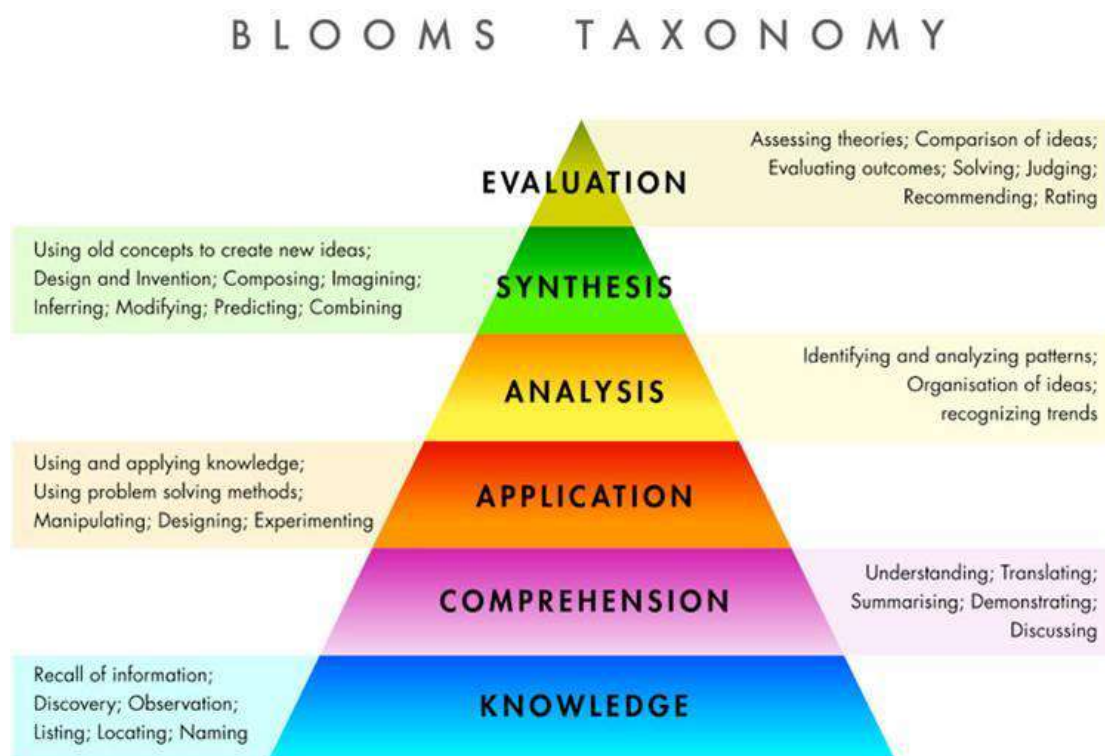
Figure 1: Original Bloom's Taxonomy (Bloom, 1956)

1-2-1 Taxonomy domains of learning

Domains are the three basic components of the taxonomy:
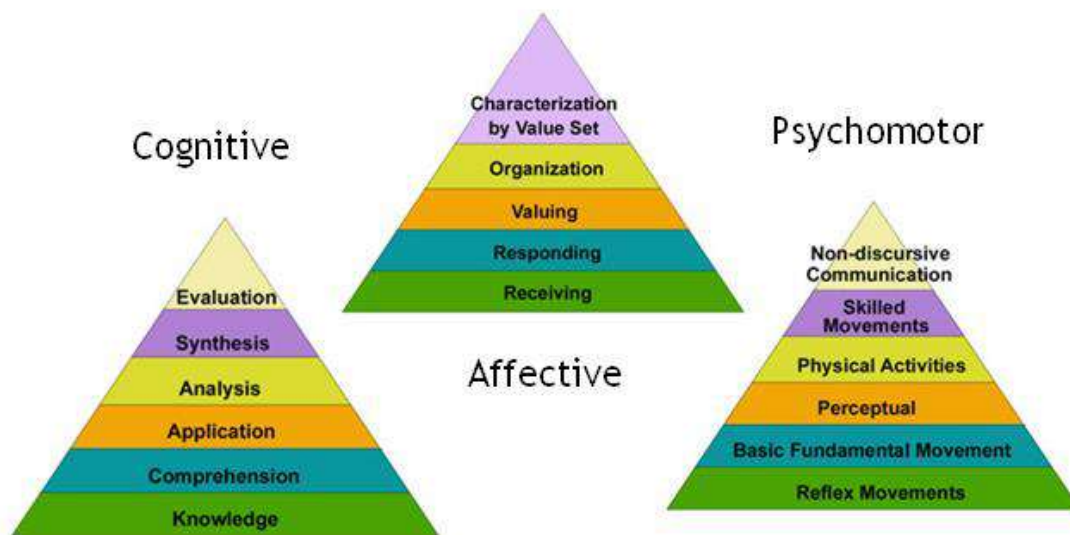
Figure 2: Original Bloom's Taxonomy Domains (Bloom, 1956)

1-2-1-1- The Cognitive Domain

The cognitive domain comprises goals that pertain to information retention or recognition as well as the growth of intellectual capacities and talents. This is the area in which the majority of recent test development work is concentrated. It is the area where the majority of the effort in developing curricula has been done and where the objectives are most clearly stated when framed as descriptions of student behavior. It includes six levels of cognitive skills (knowledge, comprehension, application, analysis, syntheses, and evaluation).

1-2-1-2- The Affective Domain

The affective domain is the second section of Bloom's taxonomy. It contains goals that cover shifts in values, attitudes, and interests as well as the growth of appreciations and appropriate adjustment. The affective domain is composed of five levels:

-Receiving: This stage entails being conscious of and attending to stimuli.

-Responding: at this stage, the ability to respond to stimuli must be displayed.

-Valuing: At this level, the stimuli are given worth or value, and the learner shows a commitment to them.

-Organization: this level implies integrating the values into a cohesive framework.

-Characterization: At this level, values must be internalized and a coherent collection of values must be established.

1-2-1-3-Psychomotor Domain

The psychomotor domain is the growth of physical skills and capacities is referred to in this domain. The hierarchy-based system has five levels of psychomotor skills, with the lower levels serving as the foundation for the higher levels. The psychomotor domain has five levels, which are:

-Perception: This level entails the ability to recognize inputs

-Set: At this stage, you must be prepared to take action and possess the required attitude or mindset.

-Guided Response: This level calls on the capacity to adhere to directions or prompts.

Mechanism: At this level, you must be able to execute intricate motions or talents

-Adaptation: this level encompasses the ability to modify or adapt actions or abilities in response to shifting circumstances.

1-2-2- Structure of the Original Taxonomy

The term's unease can be eased by realizing that "taxonomy" and "classification" are interchangeable. Multi-tiered classification system for thinking based on six levels of cognitive complexity is called Bloom's Taxonomy.

Since the levels have frequently been represented as a staircase over the years, many teachers have urged their learners to climb to a higher (level of) thought:

1-Knowledge: involves the recall of information, such as facts, concepts, or procedures.

- Knowledge of specifics

- Knowledge of terminology

- Knowledge of specific facts

- Knowledge of ways and means of dealing with specifics

- Knowledge of conventions

- Knowledge of trends and sequences

- Knowledge of classifications and categories

- Knowledge of criteria

- Knowledge of methodology

Knowledge of universals and abstractions in a Field

Knowledge of principles and generalizations

Knowledge of theories and structures

2-Comprehension: students demonstrate understanding of the meaning of information.

- Translation

- Interpretation

- Extrapolation

3-Application: using information in a new context or situation.

4-Analysis: students break down complex information into its component parts and examine relationships among them.

- Analysis of elements

- Analysis of relationships

- Analysis of organizational principles

5-Synthesis: combining parts or elements to form a new whole.

- Production of a unique communication

- Production of a plan, or proposed set of operations

- Derivation of a set of abstract relations

6-Evaluation: students make judgments about the value or quality of information or ideas.

- Evaluation in terms of internal evidence

- Judgments in terms of external criteria

The categories were arranged from straightforward to intricate and from concrete to abstract. Additionally, it was thought that the original Taxonomy reflected a cumulative hierarchy, meaning that knowledge of each simpler category was a prerequisite for mastery of the following, more difficult one, and such a cognitive level encompasses the simplest to the most complex, with the assumption that student's learning must go through all stages in a sequence (Hadzhikoleva, Hadzhikolev, &Kasakliev, 2019). For designing lesson plans and assessments, instructors could use the original Bloom's Taxonomy as a shared language. Teachers

could create exercises to help young people go through the levels of the taxonomy by identifying certain cognitive talents. Additionally, the taxonomy assisted teachers in evaluating students' learning at each level, allowing for more specialized feedback and training. The original Bloom's Taxonomy has drawn criticism for emphasizing cognitive abilities at the expense of affective and psychomotor abilities, despite its widespread use. Bloom and his colleagues created additional taxonomies for the affective and psychomotor domains in response to this critique. In conclusion, the original Bloom's Taxonomy offered useful framework for educators to employ when developing lessons and evaluating student learning. Teachers could design activities and tests to help students advance through the levels of the taxonomy by detecting certain cognitive talents. The original taxonomy continues to be a crucial tool for educators looking to boost student learning and accomplishment, despite years of revisions.

1-3 Revised Bloom's Taxonomy (RBT)

In the 1990s, Lorin Anderson, a former Bloom student, organized a new assembly with the goal of modernizing the taxonomy in order to make it more applicable to instructors and students of the twenty-first century. According to Anderson and Krathwohl (2001), this time, "representatives of three groups: cognitive psychologists, curriculum theorists and instructional researchers, and testing and assessment specialists." Like the original group, they worked hard and diligently to complete their work over the course of six years.

The revision which was released in 2001 has a number of seemingly insignificant but actually highly important changes to better reflect the needs of modern education.
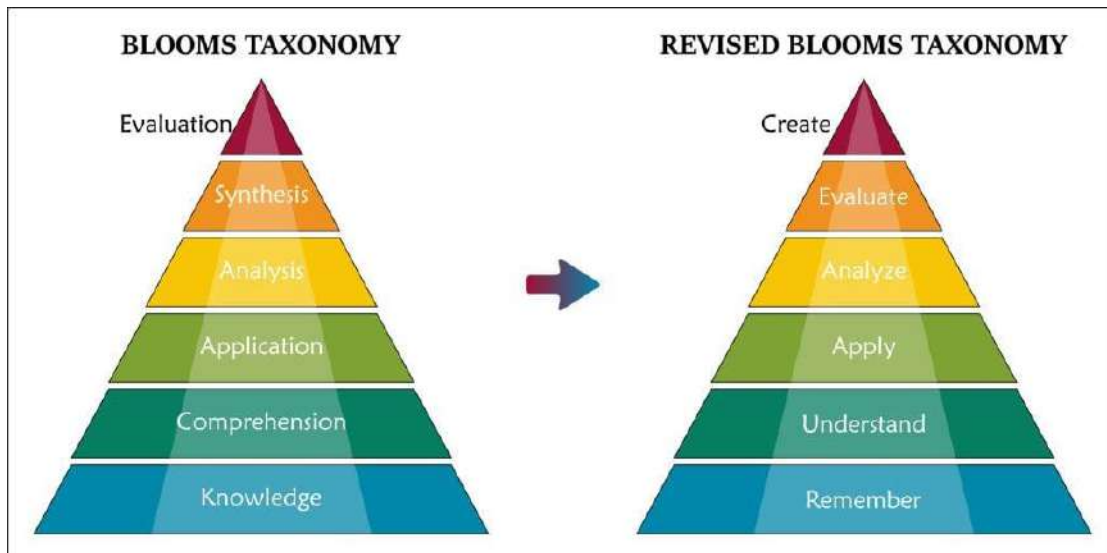
Figure 3:Revised Bloom's Taxonomy (krathwohl , 2002)

1-Reorganization of the cognitive domain

Six degrees of cognitive abilities were identified in the original taxonomy, ranging from higher-order thinking abilities like analyzing and inventing to lower-order thinking abilities like remembering and understanding. The six categories of remembering, understanding, applying, analyzing, evaluating, and creating make up the cognitive domain in the updated taxonomy. With Remembering at the bottom and Creating at the top, these categories are shown as a pyramid. Higher-order thinking skills are built upon by lower-order skills in this reorganized hierarchy, which is a more realistic reflection of how learning occurs.

2-Terminology changes

The two versions' differing wording is probably what stands out the most and can lead to the most confusion. Bloom's six main categories were essentially converted from noun to verb forms. Additionally, remembering replaced knowledge as the term for the original hierarchy's lowest level. Finally, understanding and creation replaced comprehension and synthesis.To better reflect the creative character of higher-order thinking processes, the term "synthesis" from the original taxonomy was replaced to "creating" in the revised taxonomy. Comparison photos are shown below in an effort to reduce confusion.
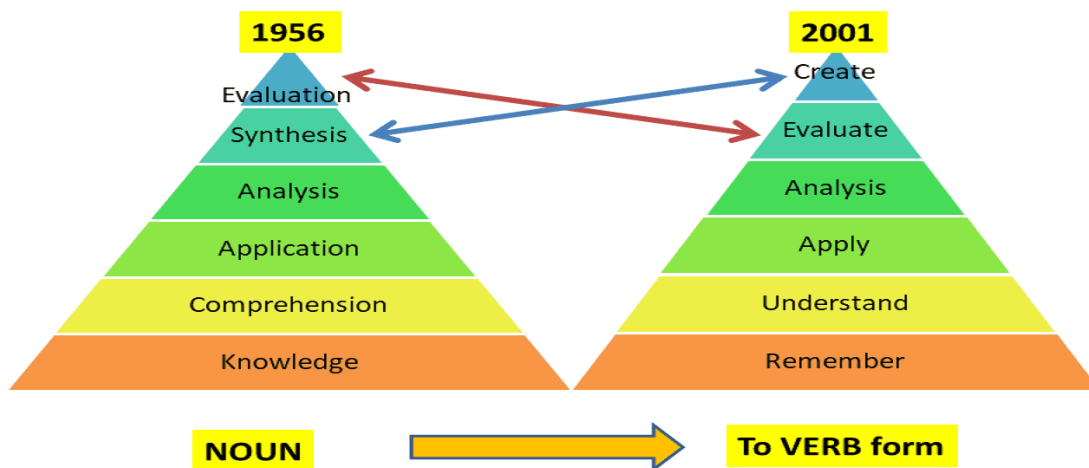
Figure 4: Bloom's Original Vs Revised Taxonomy(Forehand, 2005)

3- Addition of a knowledge dimension

The revised taxonomy acknowledges the significance of knowledge in the learning process in contrast to the original taxonomy's concentration on cognitive abilities. Factual, conceptual, procedural, and metacognitive knowledge are the four categories of knowledge that make up the knowledge dimension. The original taxonomy was criticized for not sufficiently addressing the function of knowledge in learning; therefore this amendment was created to answer that complaint. Structural changes seem dramatic at first, yet are quite logical when closely examined. Mary (2010, p03) stated that:"Bloom's original cognitive taxonomy was a one-dimensional form. With the addition of products, the Revised Bloom's Taxonomy takes the form of a two-dimensional table". One of the dimensions identifies The Knowledge Dimension (or the kind of knowledge to be learned) while the second identifies The Cognitive Process Dimension (or the process used to learn).
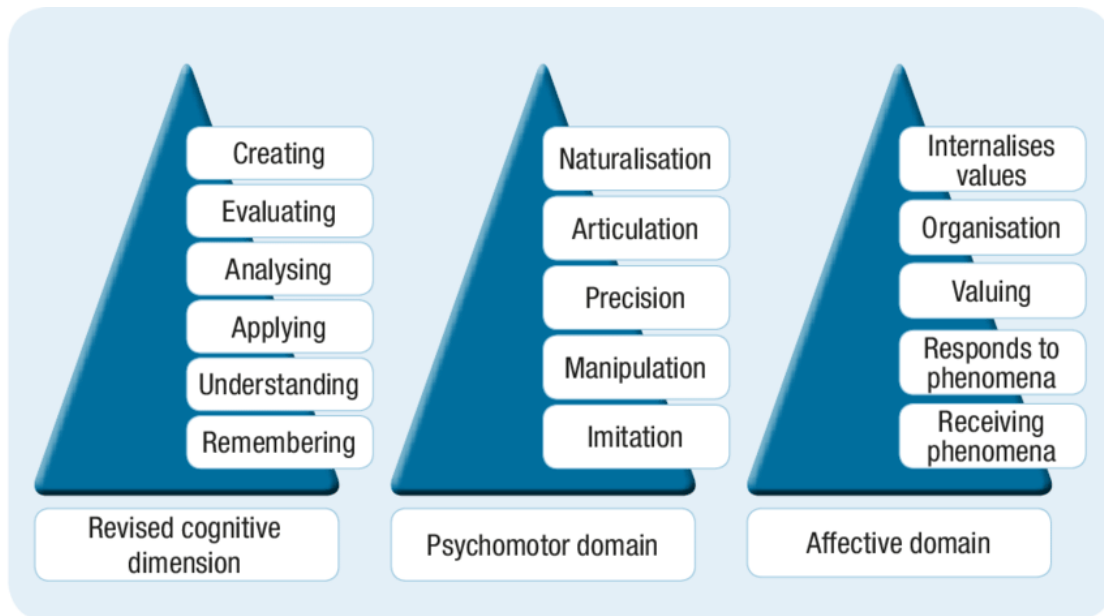
Figure 5: Revised Taxonomy Domains(Anderson, Krathwhol, 2001)

4-Enhanced flexibility

The updated taxonomy gives educators greater flexibility to create instruction and assessment that caters to the requirements of their students. A more thorough and flexible framework is possible because to the rearrangement of the cognitive domain and the inclusion of the knowledge dimension.

The Bloom's Taxonomy was revised in order to answer complaints about the original taxonomy and better meet the demands of contemporary education. A more complete framework for educators to provide instruction and evaluation that promotes student learning and growth has been made possible by the restructuring of the cognitive domain and the addition of the knowledge dimension.

1-3-1- Structure of the revised taxonomy

The six levels of cognitive skills in the revised Bloom's Taxonomy are arranged in a hierarchical fashion, from the lowest order of thinking to the highest order of thinking. They are as follows:

1-Remembering: This is the most fundamental level of thinking, where students just recall facts from memory without giving them much thought. Recalling terminologies, historical dates, and fundamental facts are a few examples of tasks at this level.

2-Understanding: At this level, students are expected to demonstrate their understanding of the content by summarizing, rewriting, or translating it into other languages. At this level, tasks include classifying material, explaining concepts, and paraphrasing information.

3-Applying: At this level, students apply what they have learned to solve issues, respond to inquiries, or finish assignments. At this level, tasks may involve applying ideas to fresh contexts, employing knowledge to address issues, or utilizing new skills.

4-Analyzing: At this level, information is dissected into its constituent pieces and relationships are examined. At this level, you can compare and contrast concepts, analyze evidence, or look at the basic framework of an argument.

5-Evaluating: Making assessments or conclusions at this level based on data and supporting evidence. At this level, you can analyze the reliability of a source, rate the strength of an argument, or make suggestions in light of the available data.

6-Creating: is the ultimate degree of thinking, where students apply their knowledge and comprehension to come up with original concepts, items, or solutions. At this level, tasks like designing, inventing, or producing something new based on prior knowledge are common.
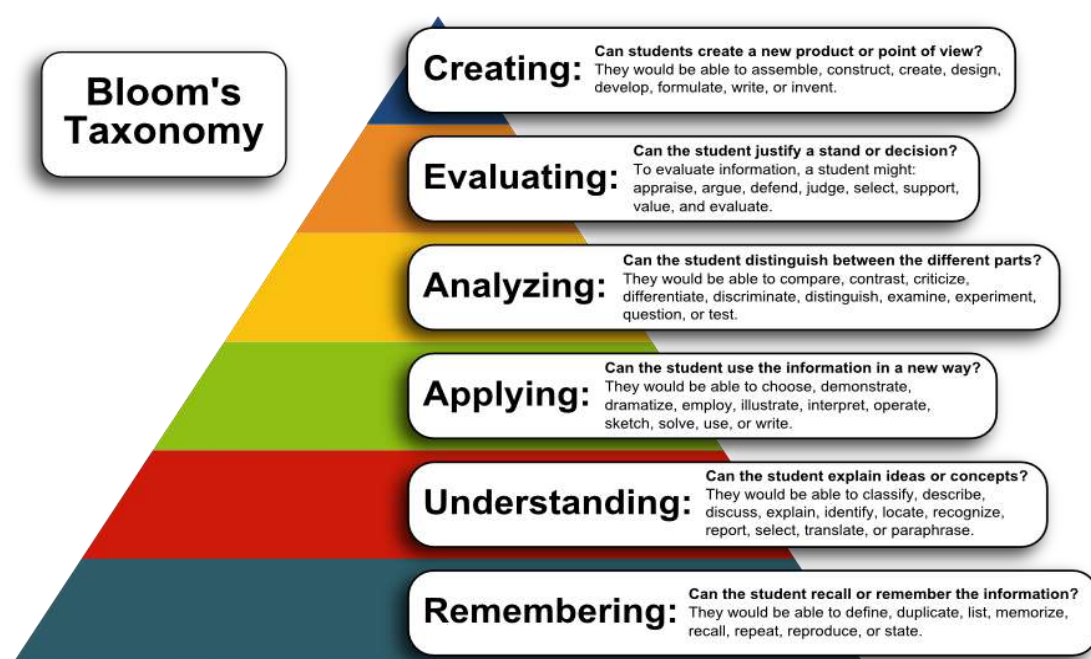
Figure 6 :Learning Objectives of Bloom's Taxonomy(Anderson, krathwohl, 2001)

1-4- High order thinking skills

High order thinking skills are very signifiance in human Learning in general and language Learning in particular.

Definition of HOTS

The cognitive processes known as high-order thinking skills (HOTS) involve complex mental operations like critical thinking, problem-solving, analysis, synthesis, evaluation, and creativity. These skills go beyond simply rote memorization and surface-level grasp of information. They require learners to engage in deeper levels of thinking, reasoning, and application to analyze complex issues, generate innovative solutions, and make informed judgments. Learners must engage in deeper levels of thinking and application in order to master these abilities, which go beyond simple recollection and processing of material (Tâm&Linh, 2017). Bloom's taxonomy of educational objectives, which is frequently utilized by educators and assessment specialists, test items that assess a range of thinking skills can be created (Haladyna, 2004). Nitko and Brookhart (2007) believed that HOT referred to the analysis, synthesis, and evaluation domains, which are at the top of Bloom's taxonomy. The lower levels of the same taxonomy represent lower order thinking in this context. HOT was described by Resnick (1987) as being difficult, laborious, and producing a variety of responses. She adds that using various criteria, being doubtful, and exercising self-control are all necessary for HOT. Similar to this, HOT was defined by Stein and Lane (1996) as the use of sophisticated and critical thinking to respond to a problem for which there is no known predictable, well-known approach or pathway explicitly suggested by the task, task instruction, or worked example. That is to say, HOT involves solving tasks and being creative.

1-5- The use of Bloom's taxonomy to develop EFL learners HOTS

The use of Bloom's Taxonomy is essential for helping students develop higher-order thinking abilities. With the aid of Bloom's Taxonomy, educators can create assignments and tests that encourage creative problem-solving, critical thinking, and other skills. Teachers can lead students through progressively higher levels of cognitive engagement and support the development of these vital abilities by using Bloom's Taxonomy (Lemons, 2013). Bloom's Taxonomy places a strong emphasis

on recall and comprehension at the fundamental level. Learners are urged to retain knowledge, facts, and ideas as well as to understand and evaluate the significance of them (Haladyna, 2004). The foundation for developing higher-order thinking abilities is established. Teachers can develop learning experiences that encourage critical thinking, problem-solving, analysis, synthesis, assessment, and creativity by incorporating Bloom's Taxonomy into instructional design (Leighton, 2011). They can create exercises and tests that force students to think critically, examine data, draw connections, and come up with original ideas. Students are given the tools to become independent thinkers who can apply their information in meaningful and relevant ways by instructors who scaffold learning experiences using Bloom's Taxonomy. With the help of this strategy, students can develop the skills necessary for success in academic, professional, and personal situations and grow to be lifelong learners and active members of society, For example; educators can use Bloom's Taxonomy to guide the development of higher-order thinking questions (Lubezky, Dori, and Zoller, 2004). Teachers can encourage students to engage in in-depth reflection and produce well-thought-out responses by posing questions that demand analysis, evaluation, or synthesis (Wenglinsky, 2002). Additionally, educators can design learning tasks and projects that provide opportunities for learners to apply their knowledge in real-world scenarios. Learners can enhance and expand their high-order thinking abilities by participating in problem-solving exercises, group discussions, and creative projects.

Bloom's Taxonomy serves as a great tool for educators to assist the development of high-order thinking skills among learners. By structuring instruction and assessments that align with the taxonomy's levels, educators can create an environment that fosters critical thinking, problem-solving, analysis, synthesis, evaluation, and creativity.

It is essential for learners to acquire high-order thinking abilities if they are to become self-reliant, analytical, and creative thinkers. Individuals that possess these abilities are better able to comprehend complicated issues, think critically and creatively, and arrive at sound conclusions across a variety of life areas (Henningsen& Stein, 1997) . By fostering high-order thinking abilities, educators

enable students to take an active role in their own education, enabling them to face problems in the real world and make valuable contributions to society.

Remembering	Understanding	Applying	Analysing	Evaluating	Creating
acquire	arrange	apply	analyse	appraise	calculate
choose	categorize	calculate	appraise	argue	change
collect	change	change	break down	assess	combine
complete	chart compile	choose	classify	compare	compose
copy	conclude	classify	combine	conclude	constitute
define	convert	compute	compare	contrast	create
describe	defend	conduct	contrast	critique	derive
detect	determine	construct	criticize	decide	devise
distinguish	diagram	demonstrate	deduce	discriminate	discover
duplicate	differentiate	develop	defend	interpret	document
find	document edit	discover	detect	judge	generalize
identify	estimate	employ	differentiate	justify	modify
indicate	explain	generalize	distinguish	recommend	originate
isolate	extrapolate	manipulate	evaluate	relate	plan
label	formulate	modify	formulate	standardize	produce
list	generalize	operate	generate	validate	rearrange
mark	give example	organize	illustrate		relate
match	illustrate	predict	infer		revise
name order	interpret	prepare	outline		signify
outline place	organize	produce	paraphrase		specify
recall recognize	paraphrase	relate	plan		synthesize
reproduce select	predict	restructure	relate		tell
state underline	prepare	show	save		write
	relate	solve transfer	separate		
	summarize	use	shorten		
	update		structure		
			subdivide		

Figure 7: Bloom's taxonomy action verbs

1-6- Bloom's Taxonomy in Educational Setting (EFL learning and teaching)

For more than 50 years, educators have used Bloom's Taxonomy extensively to create learning objectives, lesson plans, and assessments. The teaching and study of English as a second or foreign language is just one of the many educational contexts in which it has proven effective. "The original Bloom's Taxonomy has revolutionized the way teachers approach instruction and assessment, allowing for greater alignment between learning objectives, instructional activities, and assessment methods. It has helped teachers to create more rigorous and meaningful learning experiences for their students "(Crowe, Dirks, &Wenderoth, 2008). Learning objectives and skills are categorized into six stages by Bloom's Taxonomy, a hierarchical model, according to knowledge, understanding, application, analysis, synthesis, and evaluation.

Students must master particular abilities at each level to show that they comprehend and can put what they have studied into practice. Teachers frequently use this taxonomy to create assignments and tests, learning objectives and activities that focus on particular language abilities and competencies can be created for English language teaching and learning. Students might be asked to name and clarify vocabulary words associated with a specific topic or theme at the knowledge level, for instance. They can be asked to summarize or paraphrase a text at the comprehension level, that encourages students to use higher-order thinking skills and critical thinking," Bloom's Taxonomy is a valuable tool for teachers to use when designing lessons and assessments that promote higher order thinking and problem-solving skills." (Orey, 2010). At the application level, learners might be requested to apply the language in a different situation, like writing a dialogue or paragraph utilizing the target vocabulary. At the analysis level, students may be required to look at a text's organization or structure or to study how language is used to persuade or express meaning. They might be required to write a new text or to form an argument using evidence from several sources when they reach the synthesis level. Students may also be required to evaluate a text or argument and offer a well-founded judgment or critique at the evaluation level. Project-based learning is one method that Bloom's Taxonomy can be used to improve English language teaching and learning. With this method, pupils are given a task or problem from the real world to do that calls on them to use their language abilities and knowledge.

Projects can be created to target particular Bloom's Taxonomy levels and can be modified for various competency levels (Leighton, 2011). As an illustration, a project that focuses on comprehension can require students to read and summarize news articles or short stories with a certain theme. Students could analyze the language and persuasive strategies used in a political speech or advertising as part of a project that focuses on the analytical level. Students may create a multimedia presentation or podcast on a topic of their choice as part of a project that focuses on the synthesis level using a variety of sources and media. Task-based language instruction is yet another method that Bloom's Taxonomy can be applied to the teaching and learning of the English language. This method involves giving students

a task or real-world issue to resolve that necessitates the use of language in authentic ways.

Tasks can be created to target particular Bloom's Taxonomy levels and can be modified for various competency levels. Students can be required to organize and conduct a survey or an interview with native speakers on a subject of their choice as an example of an activity that focuses on the application level. Students may be asked to analyze and interpret information from the survey or interview as part of a work that focuses on the analytical level. Students may use the data to produce a report or presentation on their findings as part of an activity that aims to develop their synthesis skills. Additionally, Bloom's Taxonomy can be used to create tests that evaluate students' learning and achievement (Haladyna, 2004) . Multiple-choice questions, short answer questions, essays, and presentations are just a few of the task types that can be included in assessments that can be created to target particular levels of the taxonomy. Multiple-choice questions or fill-in-the-blank exercises, for instance, might be used in assessments that focus on knowledge level to gauge students' memory of vocabulary or grammatical structures. Essay questions or presentations may be part of an assessment that focuses on the evaluation level. It has become commonplace in education to employ Bloom's Taxonomy in instructional design and assessment at all educational levels, its use has been observed in curriculum creation, classroom instruction, and evaluation. (Marzano& Kendall, 2008).

Objectives are important in education, as they indicate what we want students to learn. Teaching is an intentional and reasoned act, and objectives can be explicit or implicit, clearly or fuzzily conceived, easily measurable, or not. They may be called aims, purposes, goals, and guiding outcomes, or content standards or curriculum standards. Objectives are present in virtually all teaching, and they should be aligned with or be consistent with the selected objectives.

The major purpose of constructing the taxonomy of educational objectives is to facilitate communication and improve the exchange of ideas and materials among test workers, as well as other persons concerned with educational research and curriculum development. It would enable a group of schools to discern the similarities and differences among the goals of their different instructional programs, compare and

exchange tests and other evaluative devices, and understand more completely the relation between the learning experiences provided by these various programs and the changes which take place in their students. The task of producing taxonomy, that is, a classification of educational outcomes, is analogous to the development of a plan for classifying books in a library symbols for designating classes of objects where the members of a class have something in common. Taxonomy is a method of classifying books and other educational outcomes in order to convey a certain relationship between them. It requires selecting appropriate symbols, giving them precise and usable definitions, and securing the consensus of the group which is to use them. Similarly, developing a classification of educational objectives requires selecting an appropriate list of symbols to represent all the major types of educational outcomes, defining these symbols with sufficient precision, and securing the consensus of the educational workers who wish to use the taxonomy.

Conclusion

In conclusion, Bloom's taxonomy has been a useful tool for educators for over 70 years, offering a structured framework for allocating educational goals and outcomes. Deeper learning experiences are facilitated by the development of both fundamental knowledge and higher-order thinking skills. The taxonomy is a flexible tool for developing and assessing successful instructional practices because it has been applied across a variety of disciplines and contexts. Bloom's Taxonomy has greatly influenced education and has aided teachers and academics in developing lessons and tests. Six degrees of cognitive abilities are categorized in the taxonomy, from lower-order thinking abilities like memory and recognition to higher-order thinking abilities like analysis, synthesis, and evaluation. Bloom's Taxonomy can be used by teachers to motivate learners to participate in higher-order thinking and foster the critical-thinking abilities required for success in the classroom when creating lesson plans and evaluations, educators can utilize Bloom's Taxonomy as a common language, which makes it easier for them to create activities that go through the levels of the taxonomy. As they work on more difficult problems,this method helps students build cognitive abilities as they work on more difficult activities, allowing them to show that they comprehend the information and use it in new contexts. Overall, instructors that aim to enhance student learning outcomes can benefit from using Bloom's Taxonomy. Teachers can assist students in developing the critical thinking abilities that are necessary for academic success and that will be helpful to them in their future employment by using the taxonomy to guide instruction and evaluation

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CHAPTER II
Formative Assessment

Introduction

Assessment plays a significant role in the teaching and learning of language, because it gives students information aimed at enhancing their learning. The information from the assessment must also emphasize the sort of thinking used when completing any tasks for the feedback to be effective in this position. The study's objective is to measure how well assessment encourages higher-order thinking. Applying Bloom's taxonomy consistently to assessment tasks in an EFL environment is helpful. A useful tool for study and discussion of learners' HOTS assessments is the Bloom taxonomy. The notion that feedback enhances student learning is supported by formative assessment and feedback. The chapter discusses the function of formative assessment in monitoring the growth of EFL learners' HOTS using Bloom's taxonomy.

2-1- Definition of Assessment

In order to make educated decisions about students' learning progress and accomplishments, assessment is a comprehensive process in education that involves collecting evidence, assessing it, and interpreting it. It includes a range of techniques and instruments for evaluating one's abilities, attitudes, and knowledge. The following succinct definition of assessment:

Assessment is the systematic process of gathering evidence about a learner's knowledge, skills, and abilities and using that information to make valid and reliable judgments about their progress and achievements in relation to specific learning goals (Gronlund, 2006). Assessment is an important tool to evaluate the teaching and learning process for improvement purposes (Nykowanna, 2019).

2-2 Types of Classroom Assessment

There are various types of language assessment, each with its own goal, method, characteristics   and criteria:

2-2-1- Formative assessment

Is a continuous process that tries to give teachers and students feedback to enhance the learning process. It is usually low-stakes and intended to show pupils which areas need more focus. Exams, exit tickets, and class debates are a few instances of formative

evaluation. Formative assessment, according to Black and William (1998), significantly improves student learning and achievement.

2-2-2- Summative assessment

At the end of a learning unit or course, summative assessment is often used to gauge the level of student learning. It has high stakes and tries to establish a student's level of proficiency. Standardized examinations, final exams, and year-end portfolios are a few examples of summative evaluation. Summative evaluations, according to Stiggins et al (2004), can aid in locating weak points and determine if students are meeting learning goals.
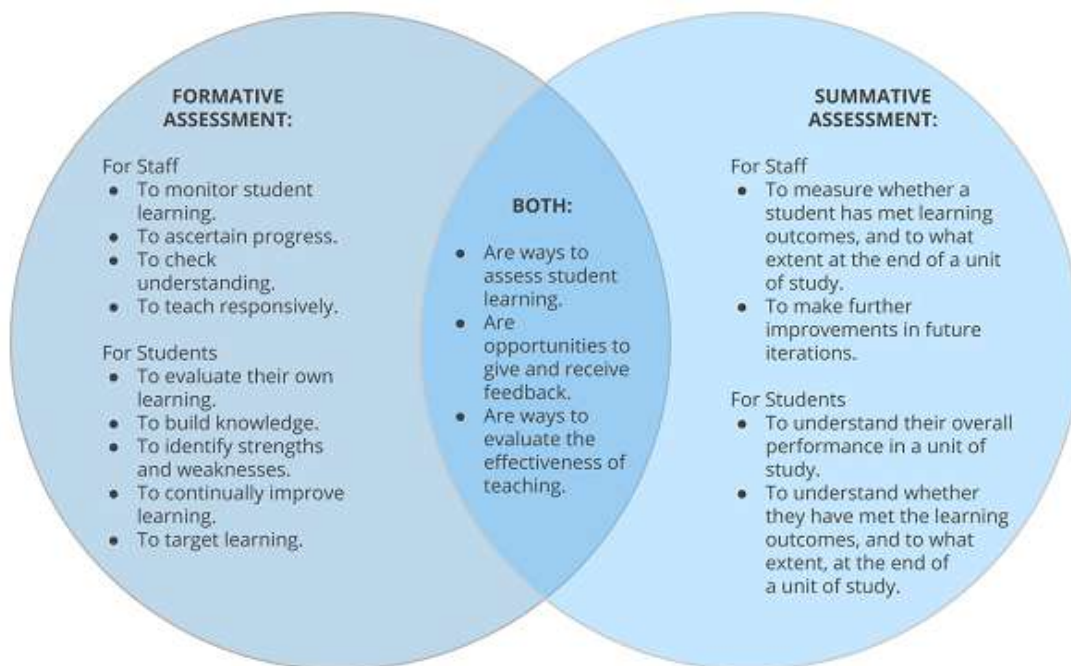
Figure 8: Formative Vs Summative Assessment (Ktabi, 2014)

2-2-3- Diagnostic Assessment

A diagnostic test seeks to pinpoint the precise strengths and weaknesses of any language learner. It typically takes place at the start of a course or program and offers knowledge that aids teachers in creating efficient education. Pre-tests, interviews, and self-assessments are a few types of diagnostic exams. Brown (2004) emphasized that diagnostic testing can assist teachers in determining the needs of individual students and modifying instruction to meet those needs.

2-2-4- Criterion-Referenced Assessment

This type of assessment looks at whether a student has met a certain set of learning goals. Instead than comparing students to one another, it is used to evaluate learning outcomes based on pre-established standards. Rubrics and checklists are two instances of criterion-referenced assessment. According to Gronlund (2006), criterion-referenced assessment can aid teachers in making sure that learners achieve particular learning goals.

2-2-5- Placement Assessment

Based on a student's language proficiency, placement assessment seeks to establish the right level of teaching for them. It is frequently applied when enrolling students in language programs or courses. Oral interviews and language tests are two types of placement evaluations. Placement assessment, according to Bachman and Palmer (2010), can help ensure that students receive instruction that is appropriate for their language proficiency level.

2-3- Formative Assessment

Formative assessment is a crucial part of the evaluation process in education since it gives teachers and students continuous feedback as they progress through their learning. Formative assessment concentrates on tracking development, finding areas for improvement, and establishing instructional strategies as opposed to summative assessment, which analyzes learning outcomes at the end of a unit or course (Greenstein, 2010). This in-depth explanation will explore the idea of formative assessment, its attributes, advantages, and provide references to back up its application. It is a continuous, dynamic process that happens throughout instruction and enables teachers to acquire data on students' learning progress in real-time. It involves a variety of tactics, such as questioning methods, observations, tests, in-class discussions, and self-evaluations. Formative assessment according to Black and William (1998) is all the actions carried out by educators and/or students that offer data that can be used as feedback to alter the teaching and learning processes.

FA is a term coined by Michael Scriven in 1967 has received relatively little attention in ESL/EFL context. It is defined as an active and intentional process where a partnership between the teacher and students is established to gather evidence of

learning for the purpose of raising student's attainment. Rea-Dickens and Gardner (2000) stress the neglecting of FA from EFL context and affirm that it has received more attention than other concerns in language testing. Black and William argue for the following definition: We use the general term assessment to refer to all those activities undertaken by teachers and by their students in assessing themselves—that provide information to be used as feedback to modify teaching and learning activities. Cowie and Bell (1999) seem to support Black and William view, they opt for an additional criteria that the assessment process occurs while learning is taking place.
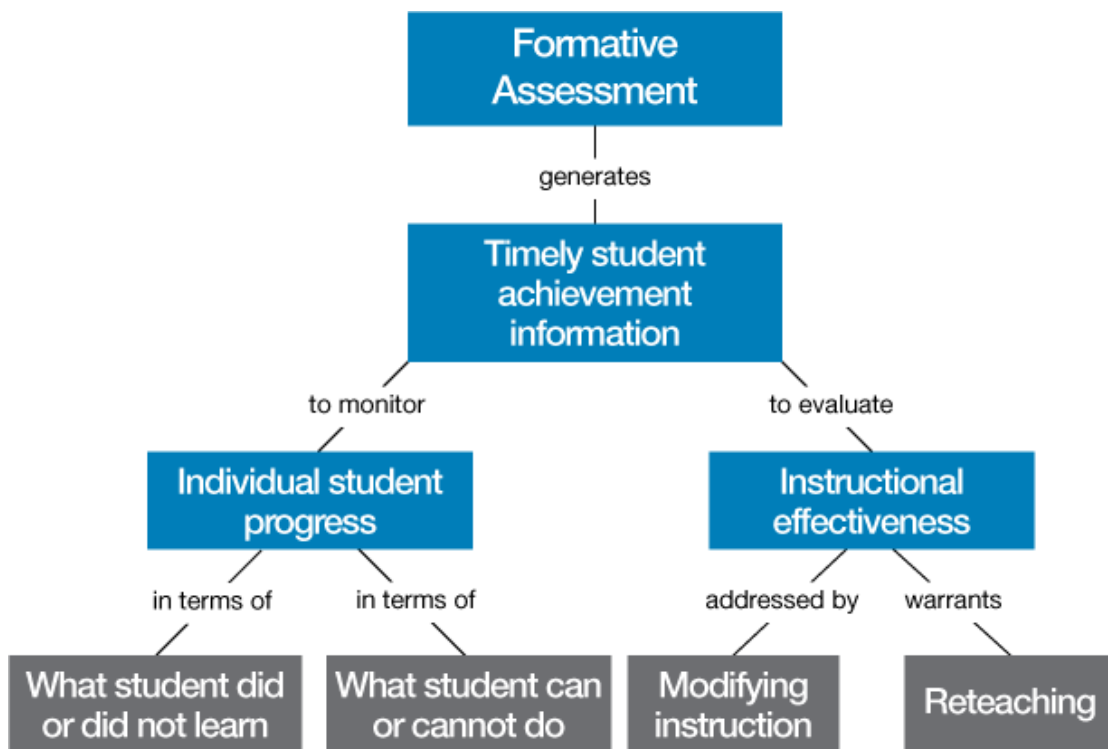
Figure 9: The Importance of Formative Assessment (Brown, 2014)

2-4- Characteristics of Formative Assessment

The key characteristics of formative assessment set it apart other types of assessments. These characteristics are necessary for its successful application in educational contexts. The following are some of the main characteristics according to (Black and William, 1998; Ames 1992; Patrick et al. 2001; Meece, Anderman, and Anderman 2006):

2-4-1- Feedback

The goal of formative assessment is to inform students about their learning progress in a timely and precise manner. The goal of the feedback is to instruct student's

on how to advance their knowledge, abilities, and performance. It emphasizes areas that still require improvement while highlighting areas of strength (Hattie &Temperly, 2007).

2-4-2- Continuous and Ongoing

Formative assessment is a continuous procedure that happens during the learning process, as opposed to a summative assessment, which normally takes place at the conclusion of a unit or course. It gives feedback at various points to help guide teaching and learning practices, and it is integrated into routine instruction.

2-4-3- Assessment for Learning

The main goal of formative assessment is to aid and improve student learning. It is used to track development, spot learning gaps, and direct instructional choices. The emphasis is on modifying teaching strategies, offering focused interventions, and scaffolding student knowledge using assessment data.

2-4-4- Low-Stakes

Formative assessment is frequently low-stakes, which means that grades or rankings are not substantially influenced by it. Instead of determining final grades, its goal is to foster student growth and inform education. Students are encouraged to take risks, practice self-reflection, and concentrate on their educational path in this relaxed setting.

2-4-5- Variable and Flexible

To acquire proof of student knowledge, formative assessment makes use of a variety of tools and techniques. These may consist of peer evaluations, self-evaluations, debates, questions, and self-assessments. Because formative assessments are flexible, educators can adapt their strategies to various subjects, age, groups, and learning environments.

2-4-6- Learner Involvement

Students are actively involved in the evaluation process through formative assessment. It motivates people to consider what they have learned, gauge their own development, and create objectives for growth. Students take charge of their own learning processes and actively participate in identifying their areas of strength and development.

2-4-7- Growth Mindset

By highlighting that errors and obstacles can be chances for growth, formative assessment fosters a growth mindset in learners. It encourages fortitude, tenacity, and the conviction that skills can be acquired by hard work and smart tactics. By adopting these qualities, educators may develop a supportive and flexible learning environment that promotes student involvement, development, and achievement. Formative assessment develops into a potent instrument for increasing instruction and learning, encouraging student self-control, and directing curriculum choices.

2-5- Formative Assessment Process

FA process entails a number of crucial procedures that teachers must do in order to assess student learning and give feedback for instructional objectives. (Sadler, 1989; Black & William, 1998) have identified essential elements of formative assessment, here is a general description of the FA procedure:

2-5-1- Establish Learning Objectives

Outline the learning objectives or goals that you want the students to attain in the beginning. These objectives must to be precise, quantifiable, and in line with the requirements of the program.

2-5-2- Elicit Evidence

To acquire proof of student learning, employ a variety of assessment strategies. This can involve monitoring how students behave, asking them questions, giving them quick tests or quizzes, giving them tasks or projects, or looking at examples of their previous work.

2-5-3- Interpret the Evidence

Examine the evidence gathered to learn more about the knowledge, abilities, and misconceptions of the students. To guide your instructional decisions, look for trends, frequent mistakes, and areas of strength or weakness (Kaplan and Maehr 1999).

2-5-4- Provide Feedback

Give students timely and detailed feedback based on their study of the evidence. Focus on pointing out areas for growth, debunking myths, and providing advice on how to improve their learning. Feedback should be useful, applicable, and tailored to the requirements of each student (Ames 1992; Kaplan and Maehr 1999).

2-5-5- Adjustment Instructions

Make informed judgments regarding instructional tactics and interventions using the assessment information and feedback. To meet the needs of each student, instructors modify their teaching strategies, offer additional assistance or challenges, and modify the curriculum (Angelo & Cross, 1993).

2-5-6- Engage Students

Encourage self-evaluation and reflection among students to involve them in the assessment process. Encourage them to assess their own development, make improvement-focused goals, and take responsibility for their education (Black and William 1998; Sadler 1989; Chappuis 2005).

2-5-7- Repeat the Cycle

Formative assessment is a continuous procedure that takes place during the learning process. To track student progress and promote their learning growth, repeatedly repeat the steps of obtaining evidence, interpreting it, giving feedback, and changing instruction.
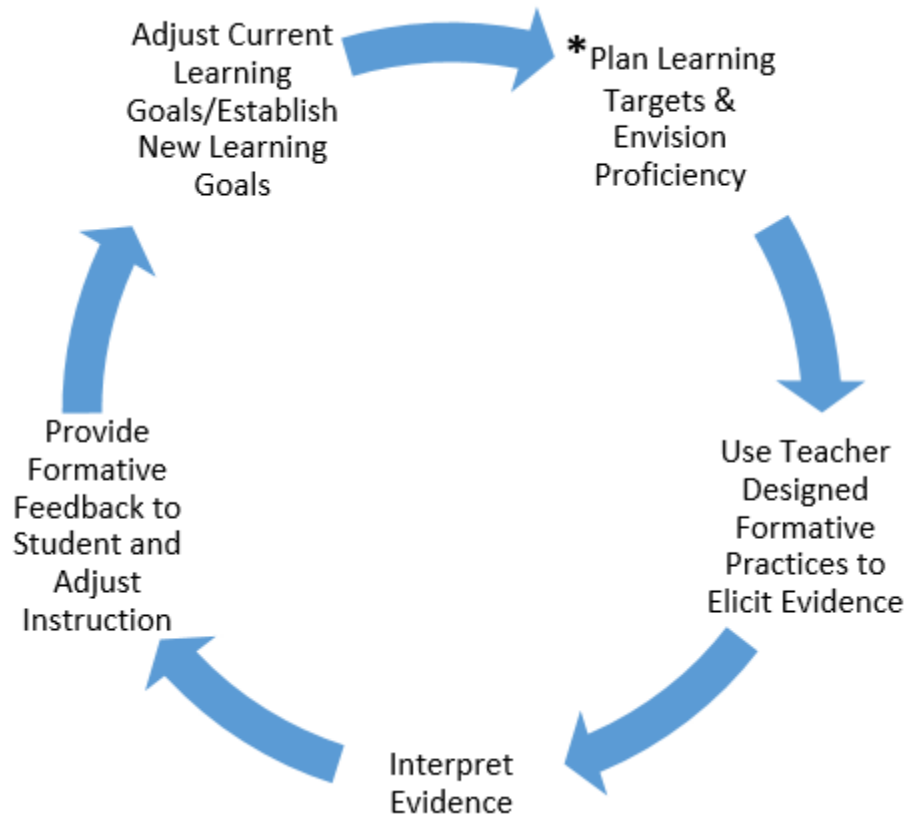
Figure 10: Formative Assessment Process (Brookhart, 2006)

It is crucial to remember that formative assessment procedure is flexible and iterative. Teachers should be receptive to the requirements of their students, modify their approaches as appropriate, and continuously assess the development of their pupils. The objective is to enable students to actively participate in their learning and use assessment as a tool for improving instruction.

2-6- Types of Formative Assessment

Formative assessment can be divided into distinct forms according to a number of different criteria, including the goal, the method of delivery, and the time frame. Typical types of FA include:

2-6-1- Formal Formative Assessment

Formal formative assessment is a disciplined and methodical method for learning about how well student are doing in their studies. Standardized exams or assessments are typically performed, and the outcomes are used to measure students' comprehension and pinpoint areas where they require further help (Brown, 2004).

2-6-2- Informal Formative Assessment

Informal formative assessment is a more adaptable and unplanned method of learning about the development of students' learning. In order to assess students' understanding in the present, a range of strategies, including observation, inquiry, and discussion, is used. Formal assessments are more structured than informal formative assessments, but they can provide valuable insights into students' learning needs (Harris and McCann, 1994).

2-6-3- Implicit formative assessment

Is the constant, frequently unconscious process of assessing students' comprehension as they participate in learning activities. This kind of evaluation is integrated into the learning process and might involve student reflection, peer input, and teacher observations (Bashman and Palmer, 2010).

2-6-4- Explicit formative assessment

Entails giving students precise and understandable feedback on their learning development, for students to better understand how their work is being evaluated, this sort of assessment may contain rubrics, checklists, or other tools. It is often more structured than implicit assessment (Bashman and Palmer, 2010).

2-6-5- Long-cycle formative assessment

Formative assessment with a long cycle entails collecting data over a long period of time, such as a semester or school year.This type of assessment is frequently used to gauge students' advancement towards long-term objectives, like learning a specific skill or completing a significant project (Thomson &Willams,2007).

2-6-6- Medium Cycle Formative Assessment

Compared to long-cycle assessments, medium cycle formative assessments often cover a shorter time frame, such as a unit or module within a course. This kind of evaluation offers more targeted feedback on students' learning development and is frequently used to guide instructional choices (Thomson &Willam,2007).

2-6-7- Short cycle formative assessment

Is a quick and frequent technique for gauging students' comprehension and offering feedback. This type of evaluation is frequently utilized in class or in small group

settings to give students rapid feedback and direct ongoing education (Thomson &Willam,2007).
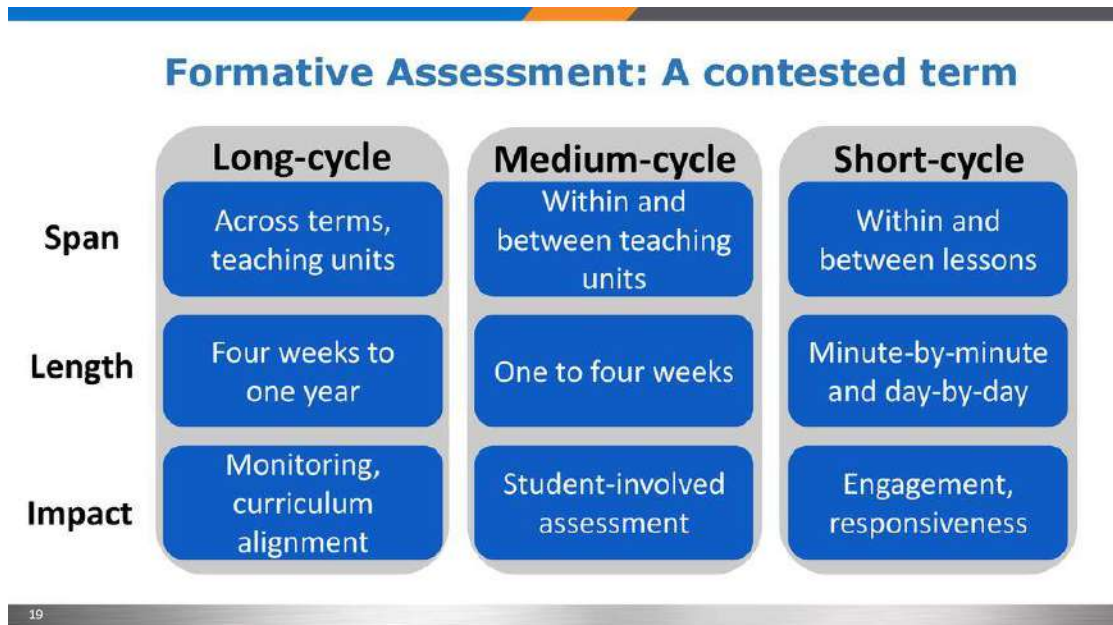
Figure 11: (Moss, Brookhart, 2009)

Overall, teachers have access to a variety of tools and strategies through the various forms of formative assessment to understand more about their students' learning progress and to give feedback to encourage continuous learning.

2-7- Formative Assessment Techniques and Methods

FA includes a range of methods that teachers can employ to collect data and give learners ongoing feedback as they study. Here are some typical forms of formative assessments:

2-7-1- Classroom observations

Teachers can learn about their students' understanding and growth by observing their behavior, participation, and interactions throughout class activities and discussions (Stiggins, et al, 1989).

2-7-2- Techniques for Questioning

Asking open-ended questions, looking for clarifications, and promoting dialogues can all be used to gauge a student's comprehension, capacity for critical thought, and ability to express their ideas.

2-7-3- Exit Tickets

Short tests administered at the conclusion of a course or class time, such as reflection questions or quizzes, can give teachers rapid feedback on their students' understanding and point out any misunderstandings (Kaplan and Maehr 1999).

2-7-4- Peer and Self-Assessment

Through exercises like self-reflection, peer feedback, and peer evaluation of work, students can gauge both their own and their peers' progress in their academic studies (McTighe and O'Connor 2005).

2-7-5- Short tests and quizzes

Short tests and quizzes might be given to gauge comprehension and point out any areas that require more explanation. Low-stakes tests like these can be used to direct education (Ababio&Dumba, 2013; Alkharusi, 2011; Oz, 2014).

2-7-6- Classroom discussions

Getting students involved in small or large-group conversations gives them the chance to express their opinions, challenge one another's assumptions, and show that they comprehend various concepts (Kaplan and Maehr 1999).

2-7-7- Graphic organizers and concept maps

Students can better organize their thoughts, link ideas, and show that they grasp the connections between concepts by having them construct visual representations.

2-7-8- Performance assessment

Giving students activities or projects that call for them to use their knowledge and abilities in practical situations can give teachers and students deep insights into their capabilities and point out areas where they can develop (Butler 1987).

2-7-9- Checklists and Rubrics

By using checklists or rubrics, teachers can evaluate their students' work in accordance with predetermined standards and provide them precise comments on their strengths and areas for development (Eshun et al, 2014).

2-7-10- Digital tools and online platforms

The use of technology-based resources, such as interactive learning platforms, online forums, and quizzes, enables quick feedback, self-paced learning, and data analysis.

2-8- Designing formative assessments using Bloom's Taxonomy

Bloom's Taxonomy is a popular framework for creating assessment tasks that effectively target higher-order thinking skills. It can be very helpful while learning English as a second language (EFL) to develop language abilities beyond memorization and recall.The revised Bloom's taxonomy has been utilized as a framework to assess English curriculum (Arvianto et al, 2020), language learning (Köksal&Ulum, 2018; Rosell-Aguilar, 2017). Here is an illustration of how to create a formative assessment in an EFL classroom using Bloom's Taxonomy:

Level 1- Remembering: In the beginning, ask students to recall and state a definition of terminology, events, and theories. Example: Students will be asked to recall significant aspects from a story, such as character names and plot events.

Level 2-Understanding: Integrating prior knowledge, taking into account prior knowledge through comparison and explanation. Example: The major idea or theme of the story should be explained by the students to show that they have understood it.

Level 3 - Applying: Making use of what has been learned in a variety of unique ways. Students will be required to use what they have learned about the narrative to solve new problems, such as writing summaries or recounting the tale in their own terms.

Level 4 Analyzing: Applying the knowledge in various, unique ways. As an illustration, students will be encouraged to assess the narrative by spotting any recurring themes, patterns, or literary devices.

Level 5 - Evaluating:combining, connecting, grouping, evaluating, and criticizing ideas. **Example**: Students are required to assess the efficacy, applicability, and impact of the narrative.

Level 6 -Creating:generating something fresh through preparation and production. Example: based on their comprehension of the story, students are invited to create something new, such as creating a sequel or redoing a significant scene.

Teachers may make sure they are focusing on higher-order thinking skills and giving their students meaningful opportunity for growth and development in their language abilities by using Bloom's Taxonomy to build formative assessment. Students can demonstrate their understanding at different cognitive levels, synthesize knowledge,

and create innovative products when FA is used during education. Students can assess their own work, as well as the work of their peers and themselves, using rubrics (Greenstein, 2010).
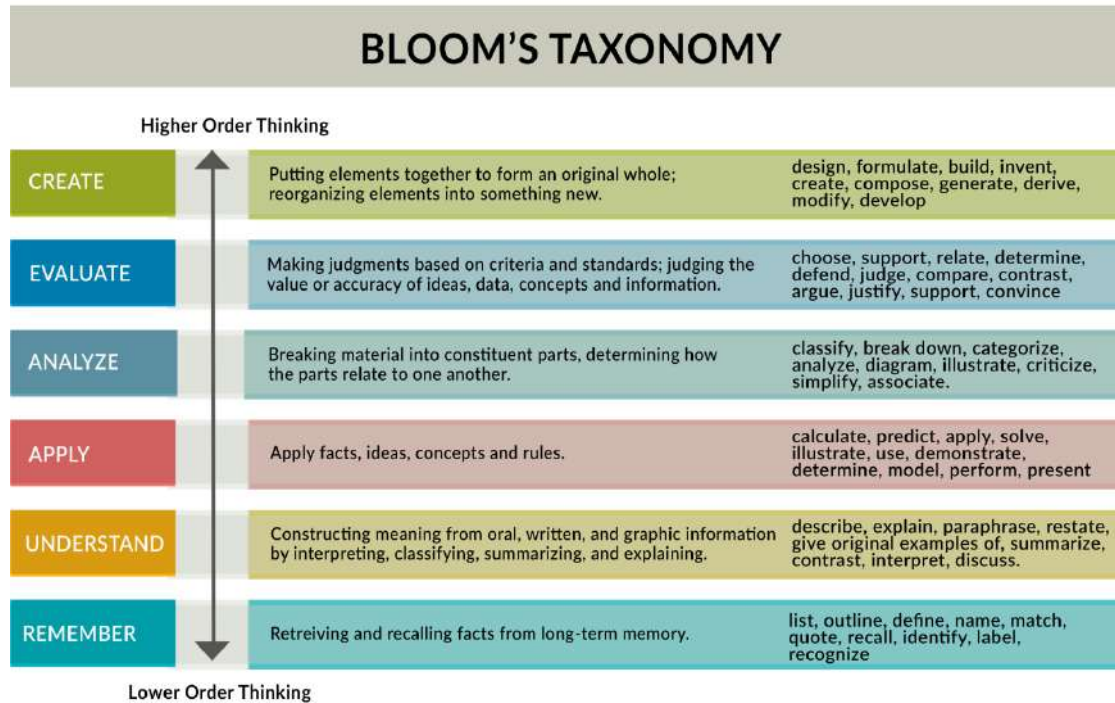
Figure 12:Bloom's Taxonomy thinking Skills levels (Anderson, krathwohl, 2001)

2-9- The Development of high order thinking skills in formative Assessment

Learner's high-order thinking skills (HOTS) can be encouraged and assessed through the use of formative assessment. Critical thinking, analysis, evaluation, problem-solving, and creativity are all examples of cognitive processes known as HOTS. Teachers can promote and improve students' development of HOTS by implementing formative assessment techniques that are specifically created to focus on these abilities. Here are some illustrations of formative assessment methods that encourage higher-order thinking:

2-9-1- Socratic Questioning

Involving students in Socratic conversations fosters analytical and critical thinking. Teachers can ask students challenging questions that help them assess knowledge, draw connections, and defend their positions (Williams & Ryan, 2000).

2-9-2- Problem-Solving Tasks

Presenting actual issues or complicated situations forces learners to use their analytical and problem-solving abilities. Through observation and comments, teachers can evaluate the ways in which student's think, plan, and solve problems (Calfee, 1994) .

2-9-3- Case studies

Giving students real-world examples of situations they may study and assess will help them use their conceptual understanding and come to wise judgments. The ability of students to recognize important concerns, examine the evidence, and offer logical solutions can be evaluated by teachers (Mayer, 1992).

2-9-4- Peer Feedback

Holding peer feedback sessions motivate students to assess and offer helpful criticism on one another's work. As they evaluate the merits and shortcomings of their peers' work critically, this process strengthens their evaluative abilities and promotes meta cognition (Graham 1990).

2-9-5- Project-based assessments

Encourage higher-order thinking by giving students assignments or tasks that call for them to conduct research, design, or produce something. Teachers can evaluate their learner's capacity for planning, research, knowledge synthesis, and unique creation (Wraga, 1994).

2-9-6- Create concept maps

Teachers prompt students to create concept maps help students to organize and graphically communicate their comprehension of difficult concepts. Teachers can assess students' levels of understanding, their ability to categorize material, and the connections they establish between topics.

2-9-7-Reflective Journals

Encouraging students to keep reflective journals gives them the chance to assess their own learning, assess their own thinking, and create goals for growth. Teachers can

evaluate their learner's metacognitive skills, critical thinking, and developmental progress (Wolf, 2007).

2-9-8- Performance-Based assessments

Including performances in assessments, such as presentations, debates, or simulations, encourage students to use higher-order thinking skills. Teachers can evaluate their students' capacity for critical thought, knowledge, synthesis, and effective communication (Meece, Anderman, and Anderman, 2006). "…the degree to which evidence and theory support the interpretations of test scores entailed by proposed uses of tests" (Miller & Linn, 2000, p. 367)

By posing HOTS-based questions, EFL teachers should be able to motivate their students to use the HOT. To gauge learner's unique skills, teachers should offer a sufficient assessment that covers a range of cognitive levels. Students' Lower Order Thinking Skills should not be the only aspect of a good and appropriate formative assessment. Teachers should encourage the use of functional assessment tools to assess students' learning skills and critical thinking in accordance with Bloom's taxonomy's six phases in order to deal with this problem.

2-10- The Significance of Formative Assessment in Education

In the subject of education, formative assessment is essential since it gives teachers insightful information about how well students are learning new material and helps them decide what to teach them. The importance of formative assessment in fostering student development and enhancing educational results is examined in this essay. We will examine the advantages and implications of formative assessment, stressing its transformative potential in the classroom, drawing on research and professional viewpoints (López-Pastor & Sicilia-Camacho, 2015; Nieminen et al., 2020; Ruiz-Primo &Furtak, 2006; Zhao, 2018). FA Enhance Learning and Feedback: According to William (2011), formative assessment encourages learning by giving students feedback that enables them to comprehend where they stand in their learning, where they need to go, and how to get there. By promoting a learner-centered approach, formative assessment enables teachers to give students timely and targeted feedback that directs their knowledge, skill development, and academic success.

Regular assessment procedures, Students become more aware of their strengths and areas for development, which gives them the confidence to actively participate in their own learning. In addition to, FA Targeting Individual needs the link between teaching and learning is formed by formative assessment, which enables teachers to tailor their lessons to the requirements of particular learners. (2000) Black and William, Formative assessment enables teachers to pinpoint specific strengths and challenges by continuously gathering evidence of student development. This understanding enables education to be modified to match the various learning requirements of students, ensuring that they get the support and framework required for academic achievement.

FA developing Met cognitive capabilities in order to monitor their progress, set goals, and modify their tactics as necessary, students need to learn how to be self-regulated learners through formative assessment (Heritage, 2010). Formative assessment encourages students to reflect on and assess themselves, which develops their met cognitive abilities. They increase their awareness of how they learn, obtain a better grasp of how they think, and gain the capacity to make decisions that will enhance their learning outcomes. Also, FA informing the making of instructional decisions to make sure that teaching practices are responsive to students' needs, teachers use formative assessment data to aid them as they make in-the-moment instructional adjustments (Hattie,2012). Making decisions about instruction is aided by the useful information provided by formative assessment. In order to promote students' success, teachers can pinpoint problem areas, modify instructional tactics as necessary, and provide targeted interventions. This flexible approach encourages an inclusive learning environment and maximizes the effectiveness of training. Fostering Student engagement and motivation: "Formative assessment encourages student engagement, as students see the relevance and purpose of their learning and are motivated to improve." (Brookhart, 2017).Formative assessment encourages a sense of ownership and involvement by actively including students in the evaluation process. When students consider assessment as a tool for progress rather than just a judgment of their abilities, they are inspired to take ownership of their learning. Their whole learning experience is improved by this inherent desire.

Since FA gives students strength, informs instruction, and encourages a culture of continual growth, formative assessment is of utmost importance in the educational process. Teachers may develop engaging, learner-centered classrooms where students actively participate in their own learning by embracing formative assessment techniques.

Conclusion

Language learners must learn specific 21st-century skills in order to keep up with the fast-paced evolution of the modern world. Along with the four skills and strong subject matter knowledge, learners need to have the necessary skills to make decisions, work with others to solve problems, set priorities, strategize, and come up with original, creative ideas (HOTS). Any study field's instructors must certify their learners as professionals according to that study area. Due to this, appeals for educational institutions to foster students' HOTS through the teaching, learning, and assessment processes are frequently heard (Mainali, 2012; Schulz & Fitzpatrick, 2016). Formative assessment is a vital component of the educational process since it helps to gauge student learning, assess the effectiveness of instruction, and guide educational decision-making. In order to assess learners' knowledge, talents, and development, data of those competencies must be gathered. It includes a wide variety of assessment techniques, such as exams, quizzes, assignments, portfolios, observations, and self-evaluations. Assessment primarily serves to provide feedback and direct educational methods, enabling educators to pinpoint areas of strength and those that need more assistance. Assessment also acts as a tool for accountability, allowing educational systems and institutions to keep track of and assess the success of their initiatives. The various types and goals of assessment will be covered in this chapter, along with best practices for creating and putting into practice tests that accurately reflect student learning outcomes. Educators may design relevant and reliable tests that support student learning and promote continual improvement in education by understanding the assessment concepts. The purpose of formative assessment is to support the growth of student's HOTS, creativity, and autonomy to overcome various challenges related to their course contents. Since the condition will prepare them for the competitive era, teachers'

evaluations are intended to promote HOTS so that students will satisfy employment standards or other professional expectations once they graduate. In a perfect world, teachers would give learners Bloom's taxonomy-appropriate HOTS-based assessments.**.**

CHAPTER III

Methodology and Results

Introduction

This chapter is devoted to the methodological design of the study in addition to the analysis and interpretation of the findings. After explaining the independent variables; Bloom's taxonomy and FA and their effect on HOTS. Firstly, The use of Bloom's taxonomy to develop EFL learners HOTS. Secondly, the use of FA as a process to assess learners HOTS. We have opted for choosing the descriptive analytical method since it seems to be the most suitable one. (Ranjit,2005). This study's aim is Investigating the Effectiveness of Using Bloom's Taxonomy to Develop EFL Learners High Order Skills in Formative Assessment. The mixed method is chosen to best answer the research questions, and achieve the stated objectives.

3-1 Research design and Methodology

This study (non-experimental) describes the extent to which the use of Bloom's taxonomy is effective to develop EFL learners HOTS in formative. Hence, it is both qualitative and quantitative were adopted in an attempt to answer the research questions and to achieve the already stated objectives. Adopting such mixed method is permited to use a variety of tools to different data.

3-1-1- Method Selection

The research is conducted through a mixed approach: quantitative and qualitative method to test the formulating hypotheses. This descriptive study involves qualitative interview data from teachers of English, and quantitative questionnaire data from first Year Students of English.

3-2 Population

Our study's target population is teachers of English and first year students of English, at the department of English, Kasdi Merbah Unevirsity of Ouargla.

3-3 Sampling

According to Blaxter et al. (2006), sampling is a crucial method for acquiring data and typically comes in a variety of forms, including probability samples, non-probability samples, stratification samples, and others.

Given the size of our target population, this study adopts a probability sample that is chosen randomly. The participants in our study are 50 first-year English language students and five EFL university teachers.

3-3-1 Teachers

On the basis of random selection 5 teachers of English of first year at the department of English are chosen (who teach first year English), KasdiMerbah University of Ouargla. That selection does not indicate information about gender, experienced or novice EFL teachers.

3-3-2 Students

We have chosen purposefully first year student of English. The study contains 50 students. The sampling were chosen randomly (the paritipants selected from first year students of English, all of them have a chance of being selected), the case study design is relevant to the aim of the study.

3-4- Data collection instruments

For data gathering, a structured interview is designed and administered to 5 teachers of English at the department of English at the University of KasdiMerbah – Ouargla-, to collect information about how HOTS are developed and assessed in a formative assessment by using bloom's taxonomy. Questionnaire as an indispensable instrument is also adopted and used, due to the type and nature of the research design , a questionnaires is designed and administered to students aims to investigate the development of EFL learners HOTS in FA.

3-4-1- Description of Teacher's interview

Structured interview is conducted and administered to five teachers of English (teach first year) at English department, KasdiMerbah university of Ouargla, includes twelve questions, and consists of two sections: The first contains personal information from question one to question four, concerning gender, Age, Experience in teaching English and module they taught. Whereas, the second section is the practical part that includes, from question five to question twelve, questions investigate the effectiveness of using Bloom's taxonomy to develop EFL learners HOTS in formative assessment. The questions check if teachers ensure HOTS developments in their classroom and the activities and exercises used, furthermore, the level of student's awareness about HOTS. In addition to using bloom's taxonomy to plan a lesson and design assessment to enhance student's HOTS. The interview was sent to teachers in their emails as a google form and receive their responds.

3-4-2- Description of students' questionnaire

The students' questionnaire has been designed in English and explained to the student's to guarantee the right understanding of the questions and topic, and then distributed to 50 first year students of English. The questionnaire is composed of fifteen questions and divided into two sections: the first includes personal information, from question one to question four, as far as gender, age, diplomas and job are concerned. The second section, from question five to question fifteen, elicit information about the development of student's HOTS in EFL class, with regard to the activities and exercises used in class to develop and assess their HOTS. Moreover, the section seeks to investigate monitoring students' knowledge and awareness about as well as the effectiveness of assessment in assessing and enhancing those skills. The questionnaire was distributed to first year students of English in two forms a written form and google form and they were asked to anwer questions.

3-5 Data Analysis / Discussion and Interpretation of the results

3-5-1- Analysis of Teacher's Interview

Section one

Personal information
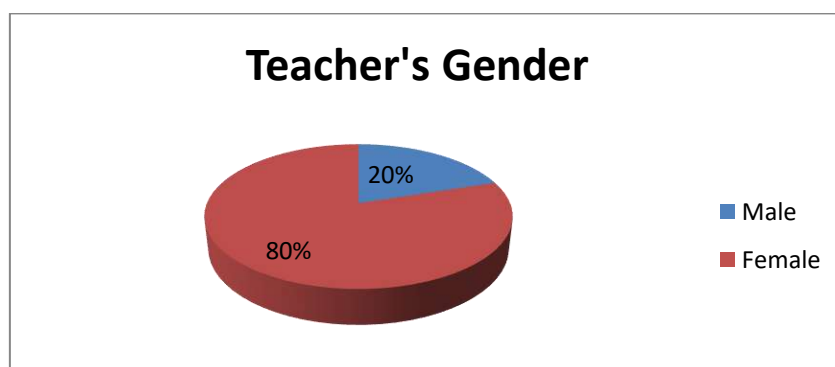
Question 1: Gender

Figure 01: shows teachers gender, the majority of the respondents are females (80%), and male (20%).

Question 2: Age
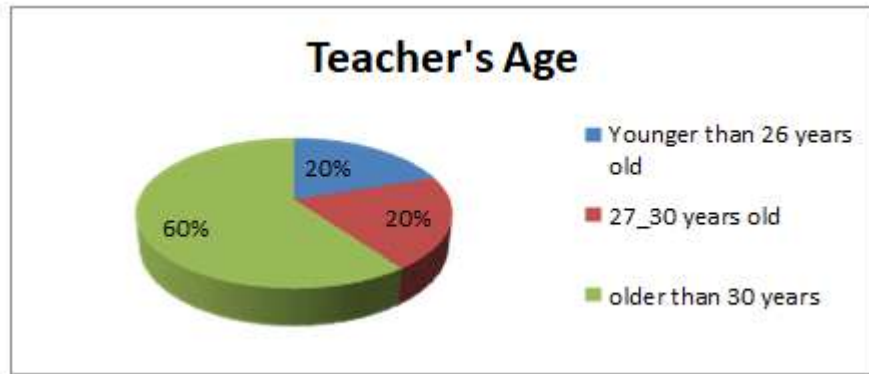
Figure 02: shows that (40%) teachers of are younger than 26 years old, and (20%) between 27 to 30 years old, While, (60%) are older than 30 years old.

Question 3: Experience in teaching English
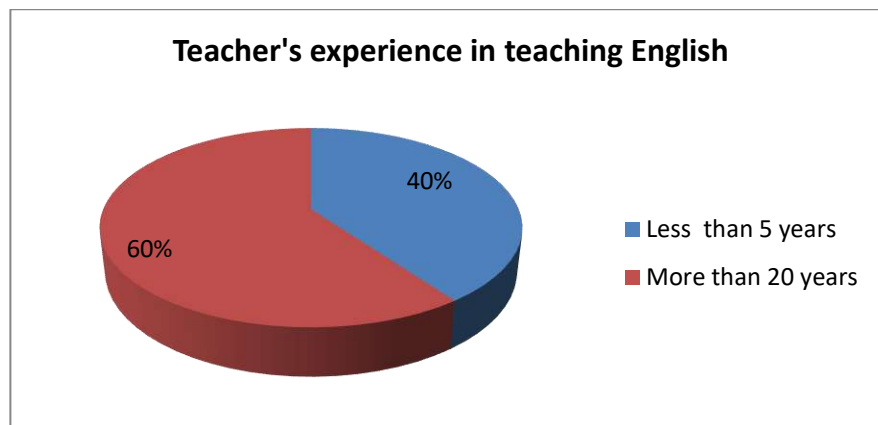
Figure 03: indicates that (40%) of teachers have less than 5 years of experience in teaching English at university, and (60%) have more than 20years of experience.

Question 4: The Module

The modules that teachers taught in university:

1st teacher: Writing, linguistics, methodology

2nd teacher: Oral Expression and Comprehension

3rd teacher: Oral, ESP, written, creative writing, discourse, phonetics

4th teacher: Civilization, Literature, language and culture

5th teacher: Oral Expression, writing Expression, linguistics

Section two

Question 5: Do you ensure high order thinking skills (HOTS) development in your classroom?

Teachers ensure HOTS development in the class

0%

100%

■ Yes
■ No
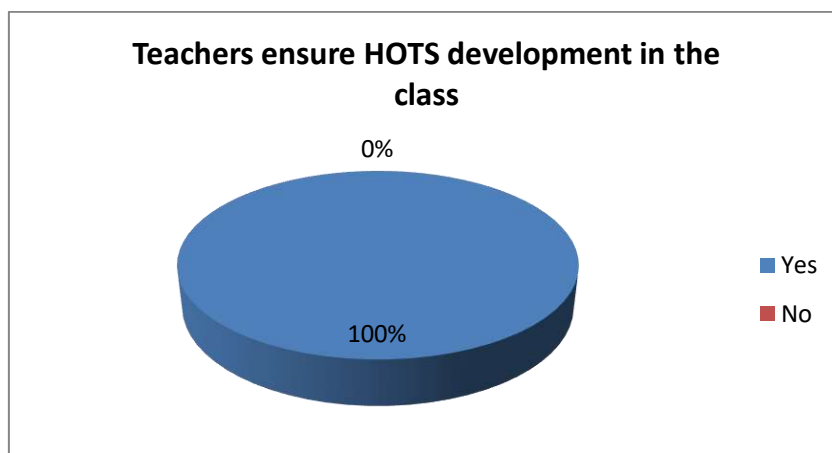
Figure 04: shows that all teachers (100%) ensure HOTS development in their classroom.

Question 6: How do you include HOTS in teaching English?

All teachers ensure HOTS through the different phases of the lesson. All teachers mentioned that they include HOTS by:" Creative activities, critical reading activities, problem solving situations". In addition to encourage the skills students are expected to know and learn idiomatic expressions, understand them within the context of a dialogue by native speakers, and develop their vocabulary to be used in conversations and oral speaking production. Trying to change the way we ask question (make the questions more problematic need motivate problem solving).

Question 7: What are the activities and exercises you use in the class to teach your students HOTS?

Activities and exercises used in class to taught student HOTS:

There are different activities and exercices used by teachers to teach their students high order thinking skills, here are teachers answers, The first teacher said:" Application of theoretical concepts in real tasks listening activities. Notes taking while listening.". 2nd teacher: "Reading and listening at the same time. True/false exercises, Vocabulary development through examining how the expressions are used and speech using the learned idiomatic expressions.". 3rd teacher answer:" Brainstorming, story building, debates, projects, mind maps, graphic organizers". 4th teacher: "Students are required to research a controversial topic, develop strong arguments, and defend their position". 5th teacher: "Role plays, puzzles, discussion".

Question 8: Did your students understand what HOTS mean?
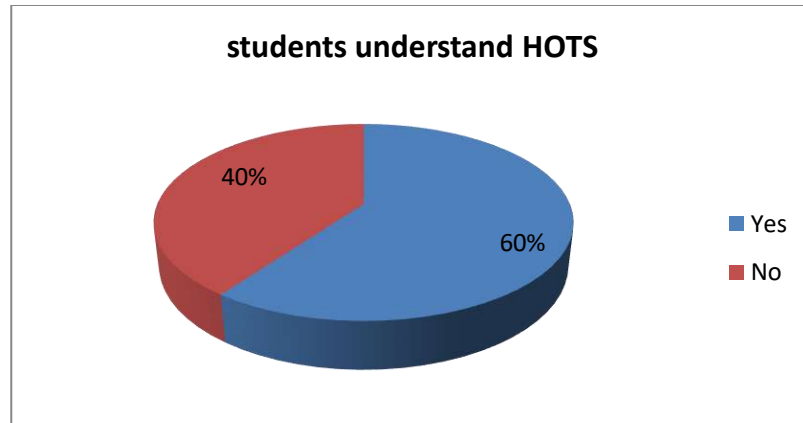
Figure 05: shows that most students (60%) didn't understand what HOTS mean. While (40%) understand what HOTS mean.

Question 9: How do you develop student's HOTS?

The activities and techniques (how) used by teachers in order to develop their student's HOTS:

1st teacher said: "Developing student's HOTS by involving them in thinking, analyzing and synthesizing information".

2nd teacher answer: "Directing them and increasing their motivation by setting specific objectives that let them know, understand, apply, analyze and interpret, and create (produce)".

3rd teacher stress: "Clear objectives, explicit teaching, learning by doing"

4th teacher said: "gradually release responsibility to students by providing support and guidance when introducing HOTS activities. Start with simpler tasks and gradually increase the complexity as students become more comfortable and proficient".

5th teacher state: "Pose questions at different levels of the taxonomy to stimulate critical thinking, debate, and analysis. This allows students to practice articulating their thoughts and engaging in collaborative dialogue".

Question 10: Do you use Bloom's taxonomy to plan lessons and designing assessments?

Using Bloom's taxonomy to plan lessons and design assessment

30%

70%

■ Yes
■ No
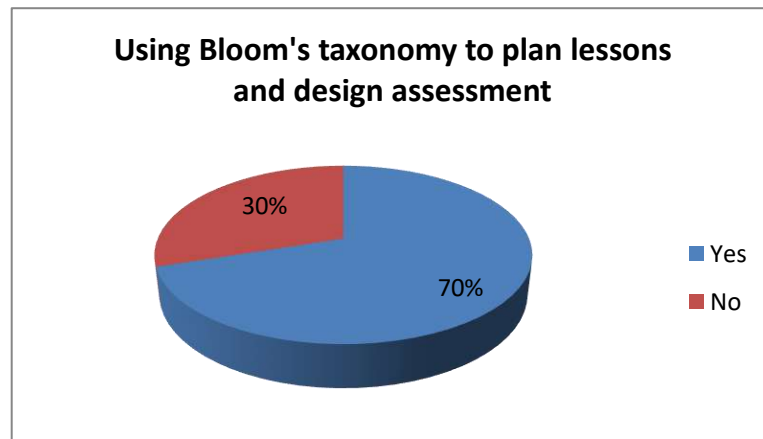
Figure 06: indicates that the majority of teachers (60%) use Bloom's taxonomy to plan lessons and design assessment. while, (40%) do not use Bloom's taxonomy.

10-2: Which type of assessment you use to assess and evaluate HOTS beside language skills?

Teachers' assessment of student's HOTS, all teacher use formative and continuous assessment (Incorporate group projects or collaborative tasks to assess student's ability to work together, communicate effectively, and solve problems collectively).

Question 11: To what extent is the use of Bloom's taxonomy effective in developing HOTS in formative assessment?

All teachers mention that:

- Bloom's taxonomy is very effective.

- Bloom's taxonomy is one of the essential critical and creative thinking provocative process that help learners to set objectives.

-To a great extent so the students develop their own models of learning and applying knowledge

- Using the taxonomy, teachers can scaffold students, learning, gradually moving them from lower-level thinking to more complex HOTS.

Question 12: On scale from 1 to 10 Rate your students HOTS development during EFL classroom
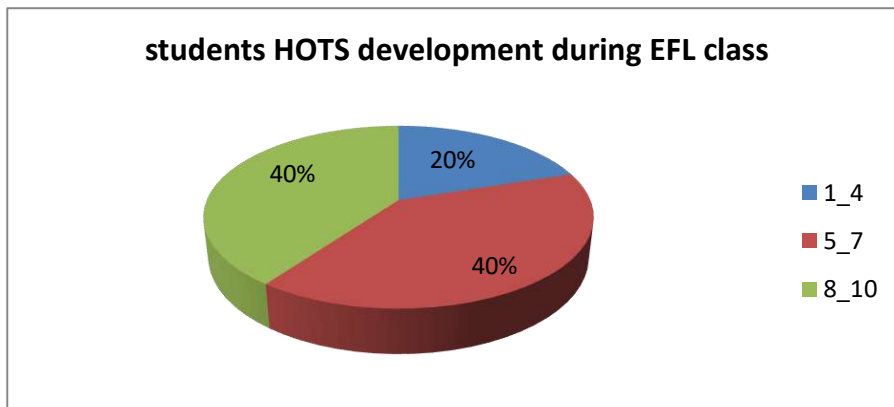
Figure 07: shows that (40%) of teachers rate their students HOTS development among 8 to 10, (40%) rate it among 5 to 7 While, (20%) rate their student HOTS development among 1 to 4.

3-5-2- Analysis of student's questionnaire

Section one:

Personal information

Question 1: Gender
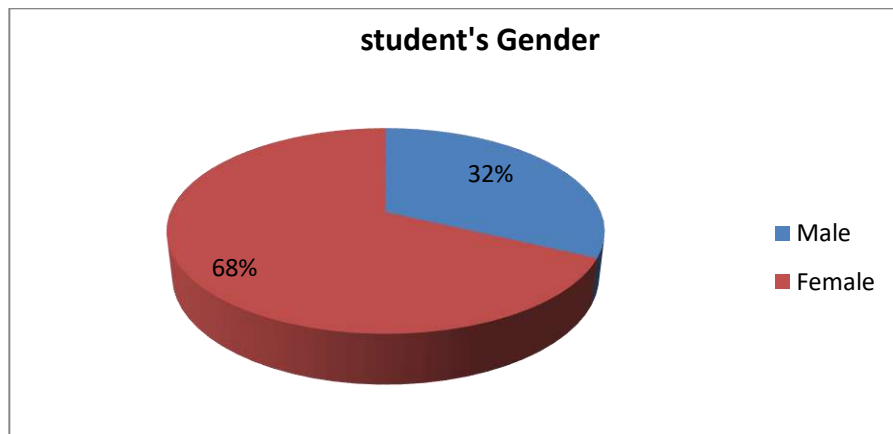
Figure 01: shows that the majority of respondents are females (68%), while males (32%).
Question2: Age
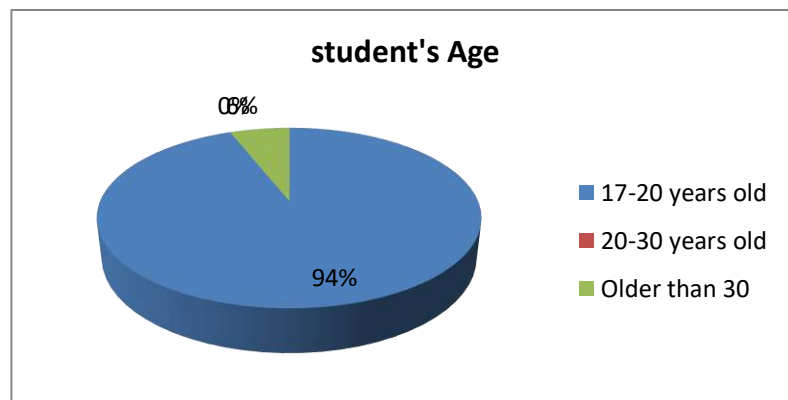
Figure 02: shows that the majority of students are young 17-20 years old (94%), while (6%) are older than 30 years old.

Question 3: Is it your first diploma?

students first diploma

6%

94%

- Yes
- No
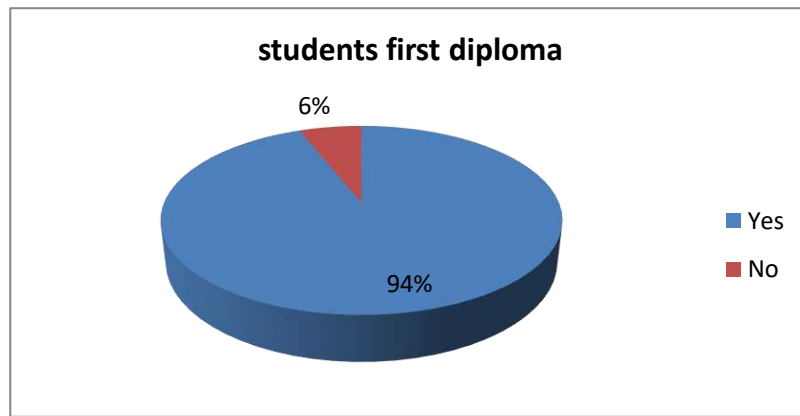
Figure 03: indicates that (94%) of students don't have another diploma, while (6%) have other diplomas.

Question4: Do you have a job?

Students have a job

6%

94%

- Yes
- No
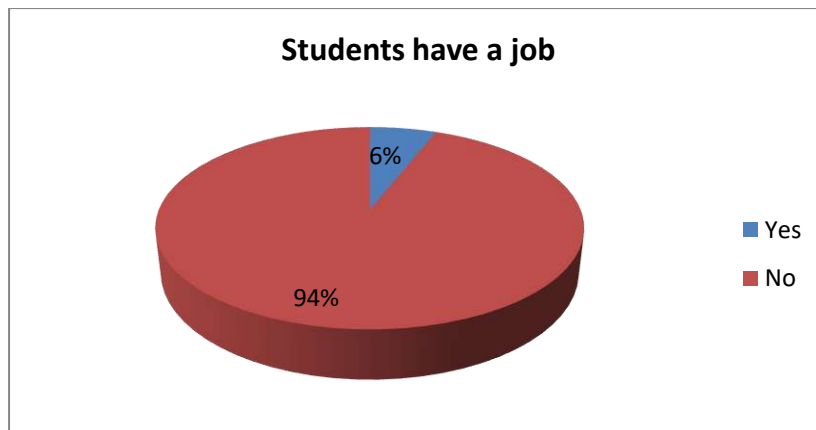
Figure 04: demonstrates that (94%) of students don't have a job (they don't work), and (6%) of them have a job.

Section two

Question 5: According to you are the four skills (listening, speaking, reading and writing) are enough to learn English language.

Four skills are enough

40%

60%

- Yes
- No
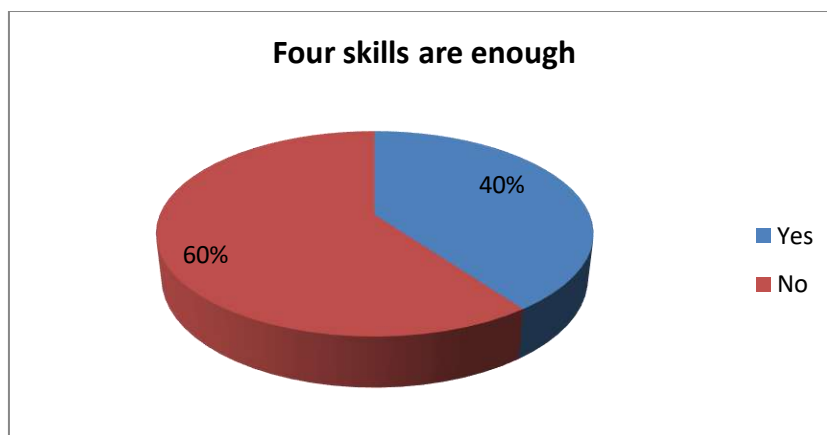
Figure 05: shows that (40%) of students said four skills are enough while (60%) said there is another skills in addition to the four skills.

5-2: If you choose four skills and another skills what are these skills?

The other skills

- Problem solving
- Critical thinking
- Communication
- Creative use of language

2% 2% 4% 1%
12%
41%
38%
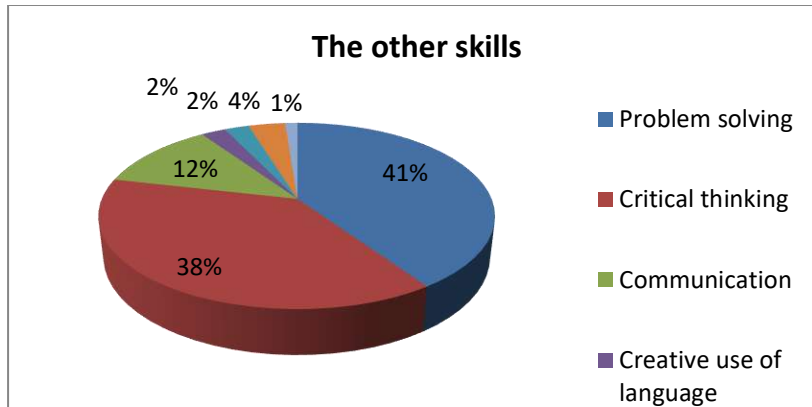
Figure 06: presents the other skills according to the (60%) students which, mentioned: Problem solving(41%), Critical thinking (38%), Communication (10%), Creative use of language (2%), Analyzing(2%), HOTS(4%), Creativity (1%).

Question 6: Do you know high order thinking skills (HOTS) before?

Do students know HOTS ?

40%
60%

- Yes
- No
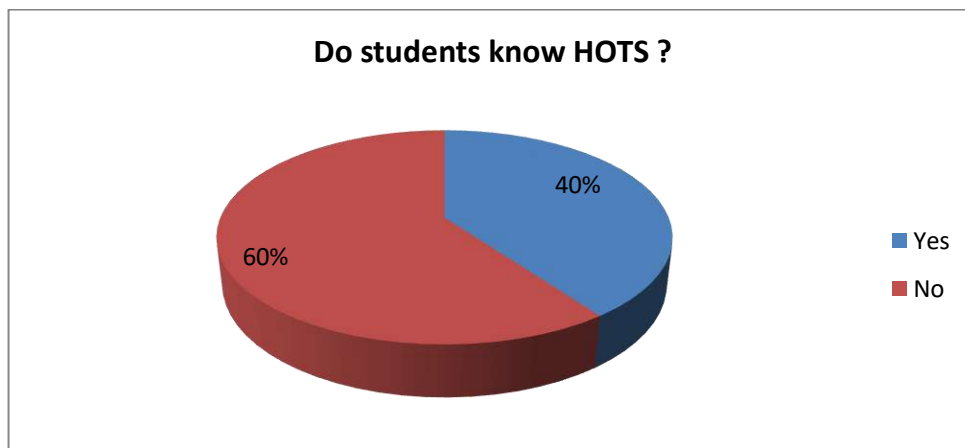
Figure 07: shows that the majority of students (60%) don't know what HOTS means, while, only (40%) of the students understand what HOTS means.

6-2: If yes what do you know?

The majority of students (50%) know HOTS as Critical thinking, creativity, and problem solving. (25%) answered that HOTS are Skills that help to improve learner English proficiency. (15%) It's a way to improve your learning they help learners in many real situation. While, (10%) answer: they refer to cognitive processes that involve critical thinking, problem solving, analysis evaluation, synthetic and creativity.

Question7: Do you enhance your HOTS?
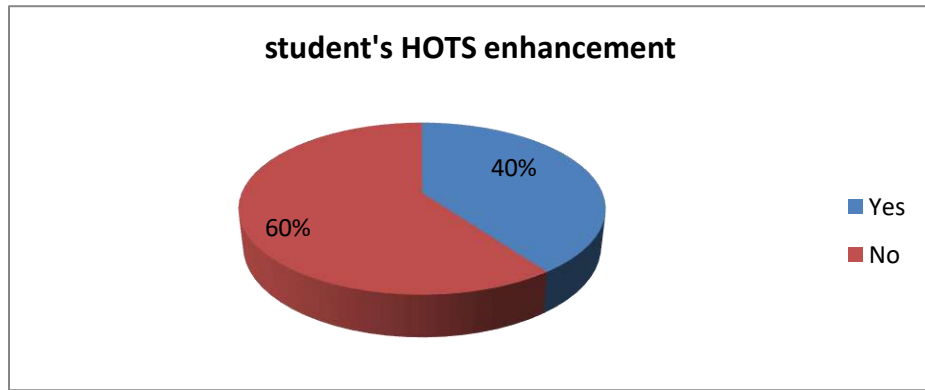
Figure08: indicates that the majority of students (60%) didn't enhance their HOTS, While, (40%) enhance their HOTS.

7-2: If yes how?

In order to enhance their HOTS (75%) of students attend workshops. While, (10%) read about HOTS, and (5%) Practice HOTS in virtual classes.

Question 8: Are HOTS used in your classroom?
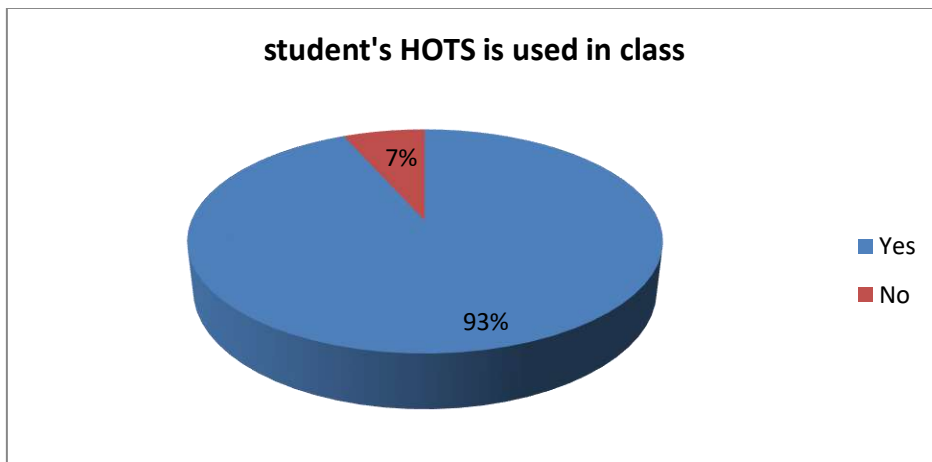
Figure 09: shows that the majority of students (93%) use their HOTS in the class. While, (7%) of student's didn't use their HOTS.

8-2: If yes in which module?
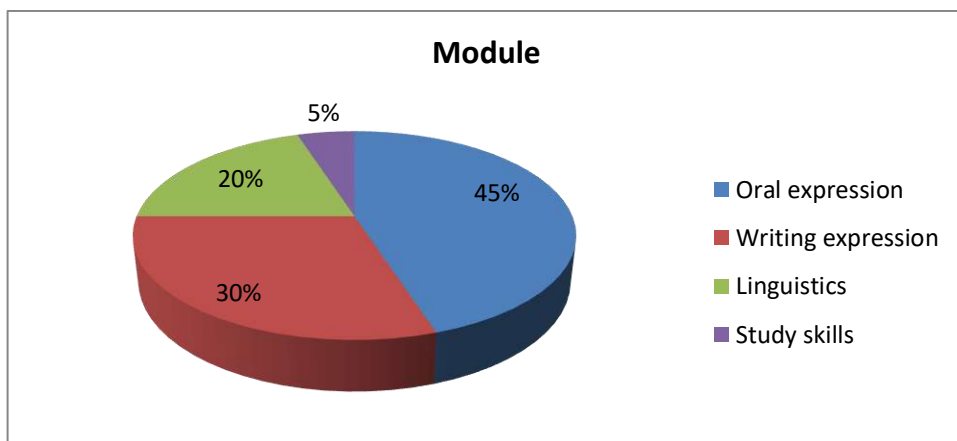
Figure10: shows the modules that able students use their HOTS, the major module students' use their HOTS is oral expression (45%) then, (30%) writing expression. (20%) linguistics and (5%) study skills.

Question9: Did you find any difficulties to develop those skills (HOTS) in classroom

students face difficulty to develop HOTS

16%

84%

Yes
No
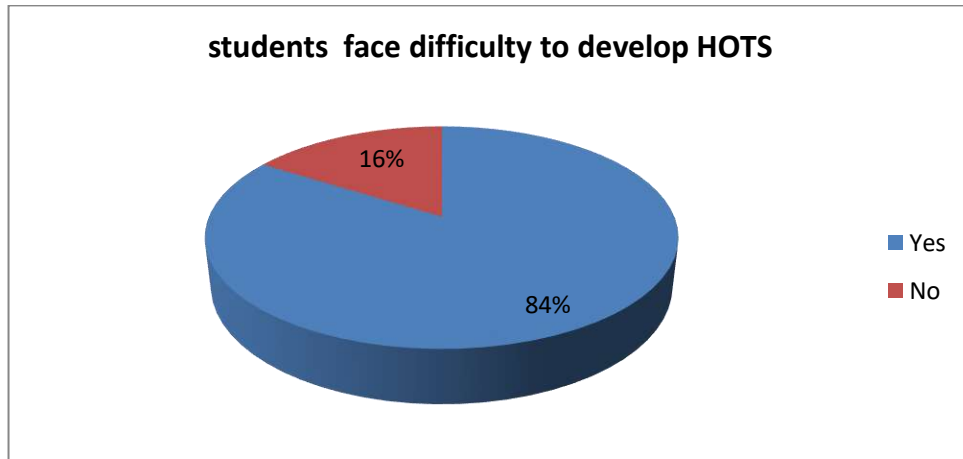
Figure 11: shows that most of students (84%) find difficulties to develop their HOTS, While, (16%) didn't face any difficulty.

9-2: If yes, what are these difficulties?

The difficulties that faced students HOTS development,(2%) answer:" It is hard to analyze and to think critically". the majority of students (22%) answer:" The methods of teachers in the class doesn't help in developing those skills (teacher experience)". (5%) state: "Misunderstanding". (13%) said:"Short Time (is not enough)". (14%) mention that:" Not sure about my progress". (9%) state that:"HOTS are difficult to measure". (8%) explain:" Lack of material". (7%) they didn't understand the concept of HOTS.

Question10: Do your HOTS progress in the class?

students HOTS progress in class

45%

55%

Yes
No
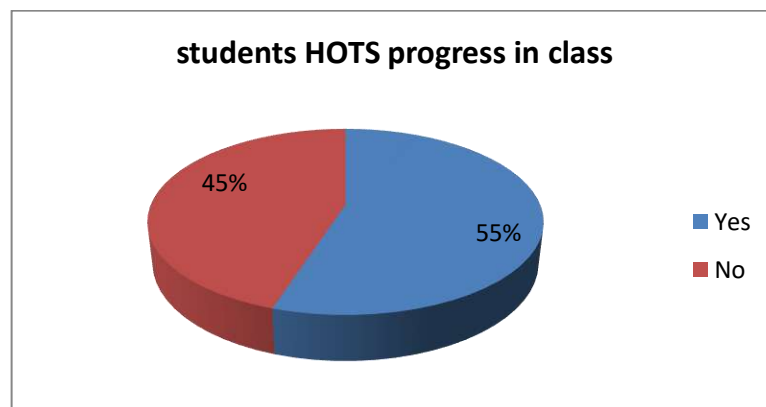
Figure 12: shows that the majority of students (55%) their HOTS progress in class. While, (45%) their HOTS didn't progress.

10-2: If yes how?

The effectiveness and HOTS progress; Good problem solver (25%), Creative use of language, communication (30%), Cooperative work (20%), Think critically (20%), analyze information in short time (15%).

10-3: If no why?

Reasons for student's HOTS lack of progress in the class, (50%) because of insufficient time, (15%) because of HOTS are difficult to measure, (30%) of students didn't know if their HOTS are developing, while, (5%) of students are not aware about what is the aim of HOTS.

Question 11: There are activities and exercises in the class aimed to develop your HOTS?

11-2: If yes what are those activities?

The activities and exercises in the class that aimed to develop student's HOTS; Giving instruction (8%), scaffolding (6%), Learning by doing (20%), Group work(18%), Motivating and encouraging students (15%), Role plays (10%), Discussion, debate and argumentation(8%), Problem solving activities(8%), Analyses of texts (8%), Write or present by student's own(2%).

Question 12: On scale from 1 to 10

12-1: Rate your HOTS requirement in the class
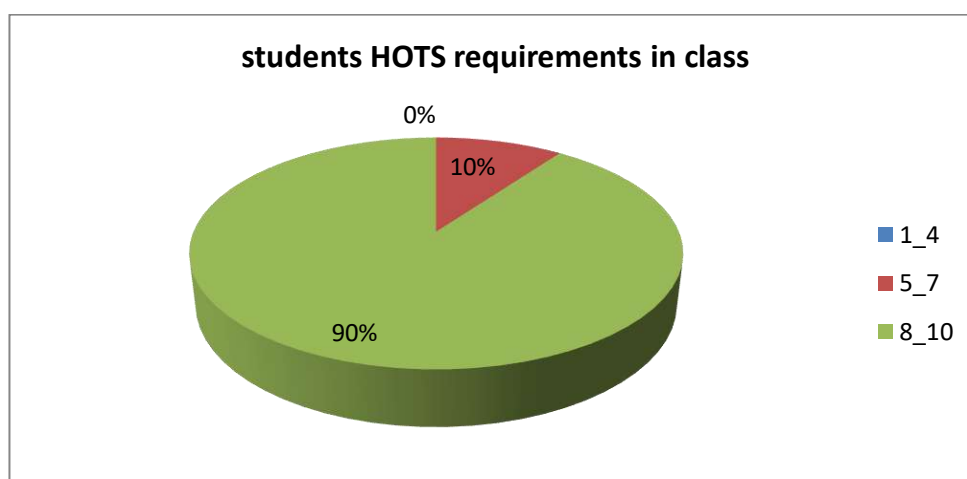
Figure 13: shows student's HOTS requirement in the class. The majority of students (90%) rate their requirement among 8 to 10, while (10%) rate their requirement among 5 to 7.

12-2: Rate your HOTS development during EFL classroom
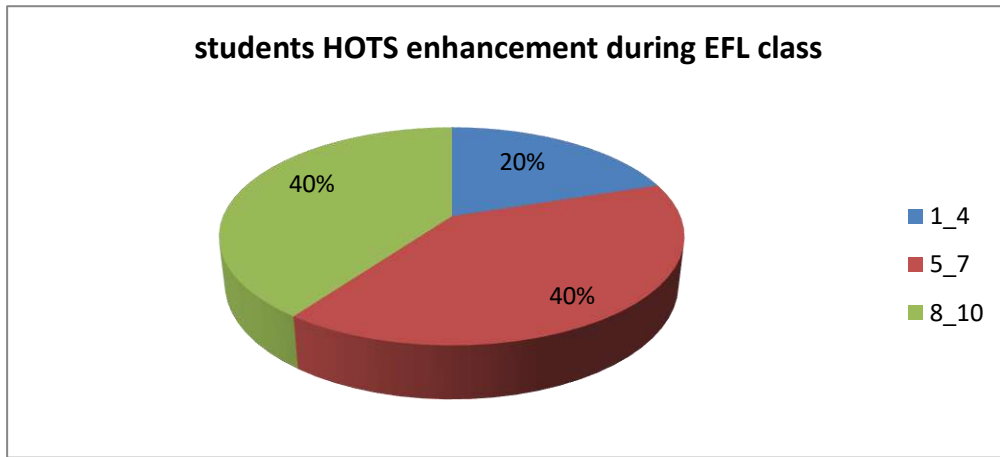
Figure 14: shows student's HOTS development during EFL class. The majority of students (40%) rate their HOTS development among 8 to 10. (40%) among 5 to 7, While, (20%) rate their HOTS development among 1 to 4.

Question 13: How teachers assess your HOTS beside language skills?

Teachers assess student's HOTS; (30%) assess student's HOTS by Give instruction and observe our performance, (17%) assess student's HOTS by using quizzes, (19%) assess by using assignments, (18%) by ask questions, (10%)using tests and exams and (6%) use homework.

Question 14: Is this assessment?
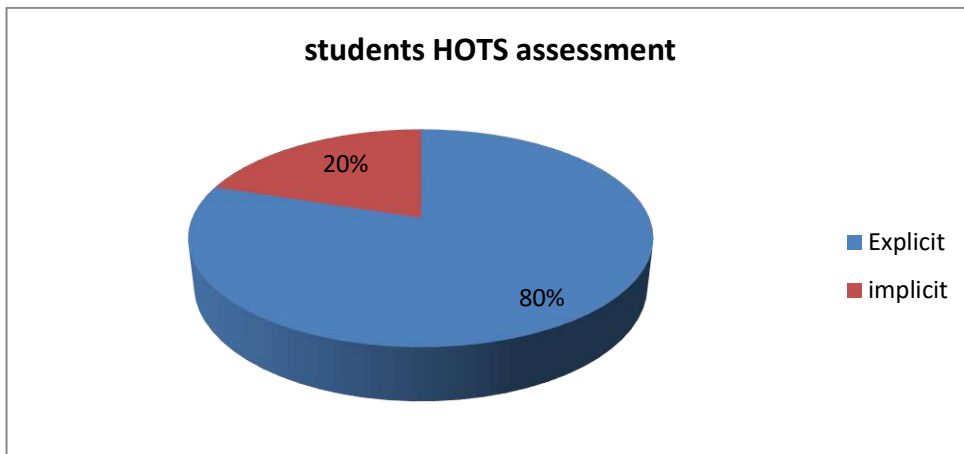
Figure 15: indicates that the majority of students (80%) mentioned that assessment is explicit. While (20%) mention that assessment is implicit.

Question 15: To what extent does the improvement of HOTS affect your language learning?

All students (100%) answer that; to great extent the improvement of HOTS affect language learning.

3-5-2- Discussion and Interpretation of teachers' interview results

The major points tackled in the interview reveal relevant facts on teachers' attitudes towards HOTS implementation (activities exercises and assessment)in EFL classroom, and investigate the awareness of teachers' about the role formative assessment in developing student's HOTS. Answers to questions have revealed that the use of Bloom's taxonomy is very effective to design a formative assessment to develop student's HOTS .On the one hand, students are in need to be aware about their HOTS and assessment process .On the other hand teachers need to be familiar with the FA techniques and tools to improve student's HOTS achievement. There is a consensus among teachers about the importance of employing FA as an integral part of teaching /learning HOTS.

The analysis of data obtained from the teachers' interview revealed enough information about teachers' conceptions, attitudes and awareness concerning HOTS and its implementation in EFL context to enhance students' achievement and the use of Bloom's taxonomy and formative assessment to develop student's HOTS .In this regard, the majority of the respondents are females. Our study revealed that gender is not a variable that may affect the results though we expected different attitudes from both genders towards HOTS. Further, in question 3 majority of teaches are more than 30 years old, age can effect HOTS teaching; the young teachers adopt HOTS development in their EFL class better but also old teachers are experienced and up to date. Furthermore, in question 3, the majority of teachers are experienced which helps in designing a good FA in order to promote student's HOTS.

Data reveals that all of teachers are teaching different skills-based modules that needed HOTS. The 5th question all teachers ensure HOTS development in their class and this is very important and positive point for the study, these millennial and the next generations demand life skills, real-life experiences, application and engagement to help them in this dynamic and robust workplace. Besides possessing excellent content knowledge, individuals must own the demanded skills like decision making, collaborative problem solving, prioritizing, strategizing, and making innovative and creative ideas (Mishra &Kotecha, 2016).

Teachers include HOTS in teaching English through Creative activities, critical reading activities, and problem solving situations. In addition to encourage the skills Students are expected to know and learn idiomatic expressions, understand them within

the context of a dialogue by native speakers, and develop their vocabulary to be used in conversations and oral speaking production. Trying to change the way we ask question, by making instead of the question, and making it like a problem .

Teachers provide us with activities and exercises they use to develop student's HOTS High Order Thinking Skills activities and exercises in the English as a Foreign Language classroom aim to develop critical thinking, problem-solving, and reasoning abilities in students. One example of an EFL HOTS activity is a debate in which students must present arguments for and against a controversial topic.This activity requires students to analyze the issue, apply logic and reasoning skills, and present their arguments coherently. Another example could be a group project in which students research and analyze an issue or problem, then present their findings and proposed solutions to the class. This exercise requires students to utilize their research skills, critical thinking abilities, and communication skills in order to present their findings in an organized manner. Another HOTS activity that can be effective in the EFL classroom is a problem-solving task. For instance, presenting a real-life scenario in which students must identify the problem and present practical solutions using their critical thinking abilities. This allows students to apply their knowledge and understanding of the language in a meaningful context while utilizing HOTS to come up with solutions that can be applied beyond the classroom setting. Incorporating technology is another effective strategy to engage students in HOTS activities.

The majority of students are unaware of HOTS and their purpose in learning a foreign language. According to Anderson and Krathwohl (2001), HOTS refers to a cognitive level of thinking activity that encompasses analyzing, evaluating, and generating skills. It is based on the Bloom's taxonomy. A collaborative effort between the teachers of all subjects is required to improve students' higher-order thinking skills; A specific subject cannot alone improve Higher-order thinking skills can be taught to students at all levels of learning by incorporating problem-solving, critical thinking, and decision-making activities into their studies.

Results show that all teachers use Bloom's taxonomy to plan lessons and design assessments. Educators have used Bloom's Taxonomy extensively to create learning objectives, lesson plans, and assessments. The usage of Bloom's Taxonomy is essential for helping students develop higher-order thinking abilities.

Teachers use formative assessment in order to encourage and assess learner's high-order thinking skills (HOTS). Formative assessments that assess student's HOTS are conducted using learning strategies and activities like questions and answers, daily tasks and quizzes, and even non-test assessment methods and techniques. The primary idea of FA of student's HOTS is emphasized in the construction of such learning activities. This tries to alter the idea of evaluation such that it is not just a matter of evaluating students' abilities but also helps the students use their HOTS to solve their impending difficulties. Teachers must therefore respect the efforts and reactions made during assessment processes. Teachers must keep this in mind when conducting assessments in class to ensure that the targeted assessment serves to facilitate students' learning, provide a joyful learning environment, and create respective teaching without losing a chance to achieve the learning objectives and goals. A formative assessment is an important tool that provides feedback for teachers in adjusting their teaching and learning to achieve students' learning objectives students are challenged to experience assessments that develop their HOTS.

According to the results Bloom's taxonomy is effective in developing EFL learners HOTS. Bloom's Taxonomy is a tool used by educators to help students become independent thinkers who can apply their information in meaningful and relevant ways. It encourages students to engage in in-depth reflection and produce well-thought-out responses by posing questions that demand analysis, evaluation, or synthesis. Additionally, educators can design learning tasks and projects that provide opportunities for learners to apply their knowledge in real-world scenarios. By fostering high-order thinking abilities, educators enable students to take an active role in their own education, enabling them to face problems in the real world and make valuable contributions to society. Bloom's taxonomy is one of the essential critical and creative thinking provocative classification that help learners to set objectives.Using the taxonomy, teachers can scaffold students, learning, gradually moving them from lower-level thinking to more complex HOTS.

3-5-3- Discussion and Interpretation of student's questionnaire results

The first question shows different answers from both genders. It is crucial for teachers to be able to employ various teaching tools effectively and appropriately, especially when they are connected to rapidly evolving technological advancements.

Although there is no statistically significant difference in high-level thinking skills between male and female students, learning students' high-level thinking skills (HOT), both male and female students, are the same according to the findings of research presented by Sari et al. (2020). In the 2nd question the majority of students are younger than 20 years old; they are still acquiring their HOTS. In the 3rd and 4th questions the majority of students didn't have another diploma or job, students who have a diploma or job they have already high order thinking skills and they are better in developing and using it.

Most of students think that four skills are enough for mastering English language, because of the lack of knowledge about high order thinking skills, and as teachers mentioned in the interview students are not aware about what HOTS mean.

Students who know HOTS mentioned that the majority of students know HOTS as Critical thinking, creativity, and problem solving. HOTS are Skills that help to improve learner English proficiency. HOTS are way to improve your learning they help learners in many real situation. HOTS refer to cognitive processes that involve critical thinking, problem solving, analysis evaluation, synthetic and creativity.

Critical thinking, problem-solving, analysis, synthesis and creativity are some of the complex mental activities included in the cognitive processes referred to as high-order thinking skills (HOTS). These abilities go beyond rote recollection and a cursory understanding of the material. In order to examine difficult problems, come up with creative solutions, and reach sound conclusions, they call on learners to engage in deeper levels of thinking, reasoning, and application. These talents, which go beyond merely remembering and processing information, require learners to participate in higher levels of thinking and application.

Students use their HOST in skills based modules, such as oral expression, writing expression, linguistics. Learners are asked to retain information, facts, and concepts as well as to comprehend analyze and assess its relevance.

Teachers create assignments and projects that give students the chance to apply their HOTS to real-world situations. By taking part in problem-solving activities, group discussions, and creative projects, students can develop and increase their high-order thinking skills. Some of activities and exercises used in the class that aimed to develop student's HOTS; Giving instruction , scaffolding, learning by doing , group work,

motivating and encouraging students, role plays, discussion, debate and argumentation, problem solving activities, analyses of texts, write or present by student's own.

Students face many difficulties to develop their HOST, The methods of teachers in the class do not support the development of those skills, teacher experience, students misunderstanding of the aim of activities, time is not enough to develop student's HOTS. Student are not sure about their progress, HOTS are difficult to measure and to assess, lack of material, students are unware about the concept of HOTS. In order to enhance their HOTS students attend workshops and courses to practice them.

Student's HOTS assessed in explicit and implicit way by using FA in order to develop student's HOTS by using problem solving situations, ask questions, analyzing, quizzes…

The 21st-century learning reform demands that students possess creative and inventive skills as well as communication, collaboration and problem solving skills. Developing student's enable them to take an active role in their own education, enabling them to face problems in the real world and make valuable contributions to society.

Conclusion

The teacher's interview and questionnaire have supported the study with critical data. The study was conducted to investigate university teachers' attitudes and competence towards HOTS. It found that all teachers of English expressed a positive attitude towards HOTS and saw it as the most effective assessment. It was demonstrated in their judgments of the HOTS framework. As well as the use of Bloom's taxonomy to plan activities and exercises and design formative assessment in order to develop students' HOTS, despite the positive attitude towards HOTS's employment in assessment, the teachers' competence in developing HOTS adaptation and assessment is still low. This research is seen as a fundamental framework for teachers to improve their English teaching perseverance. It can be used as a teacher's reference for amending their assessment quality. Furthermore, HOTS's implementation of knowledge courses or training should be conducted progressively for English teachers, both pre-service and in-service teachers, to improve their knowledge to implement HOTS, particularly in English language study

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General Conclusion

Conclusion

The teaching and assessment of higher-order thinking skills in universities have to receive more attention. It is believed that in this era of technological advancement, students need to develop the appropriate critical thinking skills, creativity, and problem-solving skills to stay in line with this advancement. In this study, we investigate the effectiveness of using Bloom's to develop EFL learner's high-order thinking skills in formative assessment and promote higher-order thinking in the EFL classroom. The role of the teacher is to design assessments to develop students' HOTS. Formative assessment is a crucial aspect of the educational process, guiding decision-making and gauging student learning. It involves various assessment techniques like exams, quizzes, assignments, portfolios, observations, and self-evaluations. Assessment provides feedback, directs educational methods, and serves as a tool for accountability. It supports student growth in HOTS, creativity, and autonomy, preparing them for the competitive era and ensuring they meet employment standards. Teachers should provide Bloom's taxonomy-appropriate assessments to ensure students meet professional expectations.Bloom's Taxonomy is a well-liked taxonomy for designing assessment problems that successfully target higher-order thinking abilities. Having language skills beyond memory, recall, problem solving, and critical thinking can be very beneficial while studying English as a Foreign Language (EFL). Scholars used the revised Bloom's taxonomy as a framework to evaluate the English curriculum as well as design formative assessment. Through the use of FA, learners' (HOTS) learning can be promoted and evaluated. By using FA strategies designed expressly to highlight these skills, teachers can encourage and enhance students' development of HOTS. Teachers then engage students with instructional activities and tasks that are appropriate for eliciting higher-order thinking as well as an explicit and honest discussion. Formative assessment provides students with feedback that is appropriate, relevant, useful, and specific. When this happens, the students will use FA to restructure their thinking and modify their understanding as they move from lower-order thinking to higher-order thinking. Hence, to a great extent, Bloom's taxonomy is effective in developing high-order thinking skills in formative assessment.

Practical Recommendations

Depending on the results of the study the following recommendations are raised

- Ensure HOTS development in EFL classes at early stages.

- Clearly contextualized HOTS in the syllabus and curriculum.

- HOTS training and formations for university teachers.

- Raise EFL student's awareness about HOTS.

- Reinforce teacher's effort in classrooms by effective in-service training

Concerning assessment in general and FA in particular

- Use FA to assess student's HOTS.

- Raise teacher's attitude towards motivation, collaborative assessment and cooperative teaching.

Appendices

Appendix 1

Teacher's Interview

Dear teachers the present study provides insight into how high order thinking skills are developed and assessed by using Bloom's taxonomy in EFL classes the case of first year students of English.

Section one

Personal information

1-Gender

Male ☐   Female ☐

2-Age

Younger than 26 ☐   27-35 ☐   older than35 ☐

3-Experience in teaching English

…………………………………

4-The Module

………………………………..

Section two

5-Do you ensure high order thinking skills (HOTS) development in your classroom?

Yes ☐   NO ☐

6-How do you include HOTS in teaching English ?

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7-What are the activities and exercises you use in the class to taught your students HOTS?

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…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………

8-Did your students understand what HOTS mean?

Yes ☐   No ☐

9-How do you develop student's HOTS?

....

....

....

10-Do you use Bloom's taxonomy to plan lessons and designing assessments?

Yes ☐   No ☐

-Which type of assessment you use to assess and evaluate HOTS beside language skills?

……………………………………………………………………………………………

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11-To what extent the use of Bloom's taxonomy is effective in developing HOTS in formative assessment?

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12-On scale from 1 to 10 Rate your students HOTS development during EFL classroom

1 ☐ 2 ☐3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

*Any suggestions:

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Appendix 2

Student's Questionnaire

Dear students this study aims is to investigate the development of EFL learners high order thinking skills (creativity, problem solving, critical thinking, analyzing…) in formative assessment to first year students of English in KasdiMerbah university Ouargla.

Section one:

Personal information

1-Gender

Male ☐   Female ☐

2-Age

17-20 ☐   20-25 ☐   older than 30 ☐

3- Is it your first diploma?

Yes ☐   No ☐

4-Do you have a job?

Yes ☐   No ☐

Section two

5-According to you are the four skills (listening, speakin, reading and writing) are enough to learn English language

Yes ☐   Four skills and another skills ☐

If you choose four skills and another skills what are these skills?

……………………………………………………………………………

6-Do you know high order thinking skills (HOTS) before?

Yes ☐   No ☐

If yes what do you know?
…………………………………………………………………………………………
……………………………………………………………………………
7-Do you enhance your HOTS?

Yes ☐   No ☐

-If yes, how?

……
…………………………………………………………………………………………

8-Are HOTS used in your classroom?

Yes ☐   No ☐

If yes in which module?
……………………………………………………………………………..

9-Did you find any difficulties to develop those skills (HOTS) in classroom

Yes ☐   No ☐

If yes, what are these difficulties?

……
…………………………………………………………………………………………

10-Do you're HOTS progress in the class?

Yes ☐   No ☐

If yes how?
…………………………………………………………………………………………………..

If no why?
…………………………………………………………………………………………………..

11-There are activities and exercises in the class aimed to develop your HOTS?

Yes ☐   No ☐

If yes what are those activities?
………………………………………………………………………………………………….

12-On scale from 1 to 10
-Rate your HOTS requirement in the class
1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐
-Rate your HOTS development during EFL classroom

1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐
13-How teachers assess your HOTS beside language skills?

…….

14-Is this assessment?

Explicit ☐   Implicit ☐

15-To what extent does the improvement of HOTS effect your language learning?

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Summary

Résume:

Ce projet de recherche vise à étudier les opinions des étudiants et des enseignants du département d'anglais de l'Université Kasdi Merbah, Ouargla, quant à l'efficacité de l'utilisation de la taxonomie de Bloom dans le développement des capacités de réflexion de haut niveau des apprenants d'anglais comme langue étrangère. Afin d'étudier l'efficacité de la taxonomie de Bloom dans le développement des compétences de haut niveau des apprenants en anglais comme langue étrangère en évaluation formative, la conception suivante est formulée : la recherche est menée à travers une approche mixte de méthodes quantitatives et qualitatives. Un questionnaire a été administré à 50 étudiants de première année et cinq enseignants du département d'anglais ont été interrogés. On s'attend à ce que l'évaluation formative améliore les capacités de réflexion de haut niveau des élèves. Cette étude fait référence à l'évaluation formative impliquant les niveaux cognitifs de la pensée basée sur la taxonomie de Bloom. Les compétences de réflexion de haut niveau sont des compétences du 21e siècle nécessaires en classe et dans la vie réelle, et l'utilisation de la taxonomie de Bloom pour développer les compétences de réflexion de haut niveau des apprenants EFL dans l'évaluation formative améliore la performance, l'attitude et le comportement des étudiants en anglais en tant que langue étrangère. . De même, améliorer la capacité de l'enseignant à enseigner et à concevoir de bonnes tâches et rubriques d'évaluation formative. La recherche vise à développer et à améliorer les capacités de réflexion de haut niveau de l'étudiant en anglais comme langue étrangère lors de l'évaluation formative. Par conséquent, des capacités de réflexion de haut niveau aident les étudiants en anglais en tant que langue étrangère à penser, évaluer et créer plutôt que de simplement mémoriser, et cela améliore également leurs capacités cognitives. Les résultats montrent que malgré plusieurs contraintes situationnelles, telles que le manque de compréhension des élèves, les contraintes de temps et l'expérience des enseignants dans l'enseignement des compétences de réflexion d'ordre supérieur, tous les répondants, tant les enseignants que les élèves, ont partagé leur attitude positive envers les principes de l'enseignement supérieur. ordonner les capacités de réflexion sous plusieurs aspects. Malgré l'attitude positive des enseignants à l'égard de la mise en œuvre d'une évaluation basée sur les compétences de réflexion d'ordre supérieur, il y avait encore un manque de connaissances parmi les élèves sur les compétences de réflexion d'ordre supérieur. Cette étude a révélé que les enseignants utilisent la taxonomie de Bloom pour promouvoir et évaluer l'apprentissage des apprenants, améliorant ainsi leur développement de capacités de réflexion d'ordre supérieur. L'évaluation formative fournit aux élèves une rétroaction pertinente, utile et spécifique, leur

permettant de restructurer leur pensée et de modifier leur compréhension lorsqu'ils passent d'une pensée d'ordre inférieur à une pensée d'ordre supérieur.

Summary

ملخص:

يسعى هذا المشروع البحثي إلى استقصاء آراء الطلاب والمعلمين في قسم اللغة الإنجليزية بجامعة قاصدي مرباح بورقلة حول فعالية استخدام تصنيف بلوم في تطوير مهارات التفكير عالية المستوى لدى متعلمي اللغة الإنجليزية كلغة أجنبية. من أجل التحقيق في فعالية تصنيف بلوم في تطوير مهارات متعلمي اللغة الإنجليزية كلغة أجنبية رفيعة المستوى في التقييم التكويني ، تمت صياغة التصميم التالي: يتم إجراء البحث من خلال نهج مختلط من الأساليب الكمية والنوعية. تم إرسال استبيان إلى 50 طالبًا في السنة الأولى جامعي لغة انجليزية ، وتم إجراء مقابلة مع خمسة مدرسين من قسم اللغة الإنجليزية. من المتوقع أن يؤدي التقييم التكويني إلى تحسين مهارات التفكير عالية المستوى لدى الطلاب. تشير هذه الدراسة إلى التقييم التكويني الذي يتضمن المستويات المعرفية من التفكير بناءً على تصنيف بلوم. مهارات التفكير عالية المستوى هي مهارات القرن الحادي والعشرين المطلوبة في الفصول الدراسية وفي الحياة الواقعية، واستخدام تصنيف بلوم لتطوير مهارات التفكير عالية المستوى لمتعلمي اللغة الإنجليزية كلغة أجنبية في التقييم التكويني يحسن أداء طلاب اللغة الإنجليزية كلغة أجنبية وموقفهم وسلوكهم. وبالمثل ، تعزيز قدرة المعلم على التدريس وتصميم مهام ونماذج التقييم التكويني الجيدة. يهدف البحث إلى تطوير وتحسين مهارات التفكير عالية المستوى لطالب اللغة الإنجليزية كلغة أجنبية أثناء التقييم التكويني. ومن ثم ، فإن مهارات التفكير عالية المستوى تساعد طلاب اللغة الإنجليزية كلغة أجنبية على التفكير والتقييم والإبداع بدلاً من الحفظ فقط ، كما أنها تعزز قدراتهم المعرفية. أظهرت النتائج أنه على الرغم من العديد من القيود الظرفية ، مثل عدم فهم الطلاب ، والقيود الزمنية ، وخبرة المعلمين في تدريس مهارات التفكير عالية المستوى ، فقد شارك جميع المستجيبين ، من المعلمين والطلاب على حد سواء ، موقفهم الإيجابي تجاه مبادئ ترتيب مهارات التفكير في عدة جوانب. على الرغم من الموقف الإيجابي للمعلمين تجاه تنفيذ التقييم المستند لمهارات التفكير عالية المستوى ، لا يزال هناك نقص في المعرفة بين الطلاب حول مهارات التفكير عالية المستوى. كشفت هذه الدراسة أن المعلمين يستخدمون تصنيف بلوم لتعزيز وتقييم تعلم المتعلمين ، وتعزيز تطوير مهارات التفكير العليا لديهم.

Summary

يزود التقييم التكويني الطلاب بتعليقات ذات صلة ومفيدة ومحددة ، مما يمكنهم من إعادة هيكلة تفكيرهم وتعديل

فهمهم أثناء انتقالهم من مستوى التفكير الأدنى إلى مستوى التفكير الأعلى.

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