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MASTER
« APPLIED LINGUISTIC STREAM »

The Integration of Bloom's Digital Taxonomy in EFL Context

Case study: Master EFL Students at Abdelhamid Ibn Badis University, Mostaganem

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2016/2017

Dedication

To my parents

To my family

To my friends

Acknowledgements

After an intensive period of seven months, today is the day: writing this note of thanks is the finishing touch on my dissertation. It has been a period of intense learning for me, not only in the scientific arena, but also on a personal level. Writing this dissertation has had a big impact on me. I would like to reflect on the people who have supported and helped me so much throughout this period.

My first, and most earnest, expression of gratitude and thankfulness go to my supervisor, Mrs. Benosman for being the ideal source of inspiration and motivation to embark on such research. It is for sure that this work would never have come to light without ALLAH's will and blessing first, then her guidance, support and encouragement.

I would like to thank the examiners Mrs Hammadi Samia and Mrs. Derraz for having accepted to read my work and being part of my committee.

I would also like to express my thanks to all my teachers of MASTER (Applied Linguistics) for providing me with the required knowledge and savoir-faire to function effectively inside and outside the classroom. My debt to them is incalculable.

My special thanks go to Ms. Giedre Sleziene for her acceptance to support this project, this research would never have been realized without her concern, enthusiasm, involvement and her warm welcoming.

My final heartfelt acknowledgment goes to my parents. Their encouragements and supports were important to me to carry on this milestone step in my education.

Abstract

In our days, EFL learning and teaching is facing a massive obstacles, challenges, and hurdles. Bloom's Digital taxonomy is more relevant to newer educational theories by combining both the cognitive process and knowledge dimensions. It took a step further by adding multimedia technology to the taxonomy and the associated learning opportunities that emerge from the integration of technology into the learning environment. Whereby different digital tools are aligned to the types of behaviours that can facilitate the process of learning, and where collaboration is a common thread running throughout. Bloom's Digital Taxonomy is a measurement tool that takes place in EFL classes in order to provide the best teaching quality for every single learner who seeks to foster his learning process. Indeed, Digital Taxonomies are considered as new educational phenomenon that can rapidly engaged and immerged into higher education. Therefore, in our research project, we have raised some crucial facts about unveiling the effectiveness of Bloom's Digital Taxonomy in EFL classes. Practically speaking, gathering students' attitudes and teachers' perceptions towards the implementation of Bloom's Digital Taxonomy in higher education pave the way to create a shift into flipped and digital classrooms rather than traditional ones. In the same phase, this dissertation is divided into three main chapters: the first one sheds the light on the assumptions and pedagogy of Bloom's Digital Taxonomy. The second chapter deals with the methodology that structures our investigation and empowers us to bring about clarifications through the use of questionnaires, interview, and an experiment to collect attitudes and responses about the incorporation of Bloom's Digital Taxonomy in EFL classrooms. The last chapter highlights the analysis and discussion of the final findings, outcomes, and results that we have deduced from both EFL students and teachers.

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General Introduction

General Introduction

Teaching and learning EFL (henceforth English as a Foreign Language) attest an overwhelming number of limitations. Many educational institutions and schools struggle to meet the students' necessities and respond to the meticulous demands of the LMD system. Moreover, students' learning process is far from fulfilling its demanding objectives such as accuracy, fluency, and mastery of the macro skills, self-directed learning, and autonomy. Accordingly, many scholars and language experts reckon that the new behaviors, actions and learning opportunities are emerging as a technological advance, and become more ubiquitous as a supportive tool to teaching and learning EFL, that can bridge the gap between deficiencies and brilliancy and promotes a significant change in EFL classrooms for the benefits of both teachers and learners.

Digitalization is regarded as being a catalyst for innovation and novelty in teaching and learning EFL. It is in fact a process which stands for virtual information and communication technology which provides a wide range of information to the wide community of students, teachers, researchers, and so on. Bloom's Digital Taxonomy as being part of the umbrella term Digitalization highly contribute to the change which education, especially higher education, witnesses across the world today.

Primarily, Bloom's Digital Taxonomy is an acronym which stands for massive open digital courses and manners of learning. Indeed, is not restricted to the cognitive domain rather it contains cognitive elements as well as methods. Its creation has not emerged coincidently or randomly but rather due to some pertinent reasons that led scholars and educationalists re-think about the future of education and the radical detour of which higher education will take in a world where digitalization is increasingly impacting people's lives and various domains. The reasons be for creating Bloom's Digital Taxonomy are that many students across the world are looking for a continuity in learning outside academic settings i.e. collaboration in its various forms that can be facilitated by digital media and are increasingly a feature of our digital classrooms. In addition, the LMD system stimulates learners to behave autonomously and be fully engaged in the various educational opportunities and through individual work. Moreover, Pappano, (2012) states that learners of the world are looking for access to reputable universities to benefit from a unique learning experience and a high quality of education; however these students are not

able to concretize such wishful thinking due to some substantial barriers as financial resources, accommodations, timetable, etc. In this prospect, Bloom's Digital Taxonomy can be a powerful tool which universities can use to spread quality education throughout the world in order to allow learners develop and foster different skills, expand intellectual imagination, and mainly build a strong learning network.

The term Bloom's taxonomy was proposed in 1956 by Benjamin Bloom, an educational psychologist at the University of Chicago. The terminology has been recently updated to include the following six levels of learning. These six levels can be used to structure the learning objectives, lessons and assessments of your course. Benjamin Bloom developed a high quality of courses delivery based on **Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation,** for the sake of every single individual who seeks the best teaching quality of some of leading prestigious universities. Moreover, Bloom developed his taxonomy of Educational Objectives. He proposed that learning fitted into one of three psychological domains (The Cognitive Domain, The Affective Domain, and The Psychomotor Domain).

Afterwards, In the 1990's, a former student of Bloom, Lorin Anderson with D Krathwohl, revised Bloom's Taxonomy and published Bloom's Revised Taxonomy in 2001. Key to this is the use of verbs rather than nouns for each of the categories and a rearrangement of the sequence within the taxonomy. This new form is based on Remembering, Understanding, Applying, Analyzing, Evaluating (Revised Position), Creating (Revised Position). Furthermore, Lorin Anderson with D Krathwohl have mushroomed a several digital educational platforms as an experiment to allow learners direct their learning process as well as connect with each other to develop new knowledge, future learn and many more.

After the success of the these researches ,European and American universities have started to create digital courses for free and for everyone, these courses include moderating, negotiating, debating, commenting, net meeting, video conferencing, posting, emailing, networking, contributing through Digital Levels of Bloom's Taxonomy. In 2012, Coursera had acknowledged that two million enrollees registered to Bloom's Digital levels of learning (Pappano, 2012), FutureLearn, a British company launched by the Open University, England, in 2012, provides also a set of free digital courses in various areas of

Taxonomy studies such as literature, education, science, etc. Participants study and complete the requirements of the course and can also obtain statements of participation or even specialized degrees from these prestigious universities. Even though, Bloom's Digital Taxonomy is gaining popularity among western universities, speaking of the Algerian university, the trend is still unfamiliar by an overwhelming number of students and teachers.

This phenomenon of Bloom's Digital Taxonomy is to a great extent unfamiliar; very few students and teachers are accustomed with this current educational trend which impacts higher education. The Algerian university struggles in meeting the demanding goals of the LMD system such as the integration of ICTs in EFL classrooms, allowing the learners' self-directedness, the macro skills are not mastered effectively and so on. Hence, we have raised three main issues to be explained during the investigation. They are cited as follows:

- How can Bloom's Digital Taxonomy be effective and beneficial once using it in EFL classrooms?
- What are the students' attitudes towards the incorporation of Bloom's Digital Taxonomy in learning process? (at the department of English, Abdel Hamid Ibn Badis University)
- What are the teachers' attitudes towards the incorporation of Bloom's Digital Taxonomy in their teaching process? (at the department of English, Abdelhamid Ibn Badis University)

Before answering these research questions, we speculate that Bloom's Digital Taxonomy can orders thinking skills and objectives EFL teachers and students; they allow teachers to be less centered and involve more students in learning. We may also hypothesize that EFL students can show interest towards the application of Bloom's Digital Taxonomy within learning, Accordingly, Benjamin Bloom in 1950 states:

"You cannot understand a concept if you do not first remember it, similarly you cannot apply knowledge and concepts if you do not understand them. It is a continuum from Lower Order Thinking Skills (LOTS) to Higher Order Thinking Skills (HOTS)"

That is why scholars such as Lorin proposed The Digital Taxonomies to have a better understanding of this aspect such as Collaborating, Video conferencing, net meeting, etc. Nevertheless, teachers would demonstrate reluctance to use them during their teaching and this may due to their technophobia, the fear and reluctance to use Digital Taxonomies in the classroom.

Thus, the purpose of our scrutiny is to disclose the potential of Bloom's Digital Taxonomies to the Algerian EFL students and teachers within a time where many universities, notably Abdelhamid Ibn Badis University hardly overcome their hurdles. In addition to that, this study aims at raising consciousness of EFL students and teachers and collecting their attitudes towards the integration of Bloom's Digital Taxonomies in teaching and learning EFL.

Our research is divided into three main chapters: chapter one provides a meticulous in-depth about the emergence of Bloom's Digital Taxonomy and its incorporation in education, especially higher education. In this chapter, we present, first, a broad review of the relevant literature relating to the fundamental considerations about Bloom's Taxonomy and the revised Digital one in learning EFL and we will end up with an overview about Bloom's Digital Taxonomy, the core of our research. The second chapter describes in detail the various methods and techniques we used in dealing with our corpus and collecting data. As for chapter three, we will discuss the feedback of the participants and the results attained. By interpreting the responses of both teachers and students, we will be able to come to a set of suggestions and conclusions, regarding how to make the best of digital courses in an EFL classroom, based on Bloom's taxonomies Levels.

Chapter one

Literature Review

1.1. Introduction

This chapter highlights the significant basic and key concepts related to the expansion of digitalization and its integration in the educational setting based on Bloom's Taxonomies. It gets the ball rolling with the emergence of Bloom's Taxonomy as a powerful concept which ignites an overwhelming number of domains, such as higher education. It also sets forth a meticulous discussion about the Revised Bloom's Taxonomy and its categories, followed by a consistent analysis about the shift from the traditional taxonomies to the digital one, known as Bloom's Digital Taxonomies, and the different objectives and manners that pave the way for learners to reach their individual needs. Finally, since Bloom's Digital Taxonomy is the core element of our investigation, it is of paramount importance to end up with its background, features, genres and the various educational platforms that provide an increasing performance within the educational system.

1.2. Bloom's Taxonomy: Emergence

The taxonomy of Educational Objectives is a framework for classifying statements of what we expect or intend to learn because of instruction. The framework was conceived as a means of facilitating the exchange of test items among faculty at various universities in order to create banks of items, each measuring the same educational objectives .Benjamin Bloom, the Associated Director of the Board of Examination of the University of Chicago initiated the idea, hoping that it would reduce the labor of preparing annual comprehensive examination. To aid in his efforts, he enlisted a group of measurement specialists from across the United Stated, many of whom repeatedly faced the same problem. This group met about twice a year beginning in 1949 to consider progress, make revisions, and plan the next steps. Their final draft[1] was published in 1956 under the title: Taxonomy of Education Objectives: The Classification of Educational Goals.

Hereafter, this is referred to as the original Taxonomy. The revision of this framework, which is the subject of this issue or Theory Into practice, was developed in

1 Handbook: Cognitive Domain (Bloom, Engelhart, Furst, Hill, and Krathwohl, 1956).

much the same manner 45 years later (Anderson, Krathwohl, 2001). Hereafter this is referred to as the revised taxonomy.

Bloom saw the original Taxonomy as more than a measurement tool. He believed it could serve as a:

- Common language about learning goals to facilitate communication across persons, subject matter, and grade levels.
- Basic for determining for a particular course or curriculum the specific meaning of broad educational goals, such as those found in the currently prevalent national, state, and local standards.
- Means of determining the congruence of educational objectives, activities, and assessments in a unit, course, or curriculum and so on.
- Panorama of the range of educational possibilities against which the limited breadth and depth of any particular educational course or curriculum could be contrasted.[1]

The original taxonomy provided carefully developed definitions for each of the six major categories in the cognitive domain.

1.2.1. Sub Categories of Bloom's Taxonomy

Bloom's Taxonomy is a classification of the different objectives and skills that educators set for their students (learning objectives). The terminology has been based to include the following sub categories of learning.

These categories can be used to structure the learning objectives, lessons and assessments of EFL course. Bloom created this Taxonomy to categorize the levels of reasoning skills required in classroom situations. There are six levels in the taxonomy, each requiring a higher level of abstraction from the students.

Accordingly, teachers attempt to move students up the taxonomy as they progress in their knowledge. Tests that are written solely to assess knowledge are unfortunately very

[1] - volume 41 , Number 04, Automn 2002 Copy riht 2002 College of education ; The Ohio State University.

common. However, to create thinkers as opposed to students who simply recall information, teachers need incorporate the higher levels into lesson plans and tests.

Knowledge: In the Knowledge level of Bloom's Taxonomy, questions are asked solely to test whether a student has gained specific information from the lesson. For example, have they memorized the dates for a particular war or do they know the presidents that served during specific eras in Algerian History. It also includes knowledge of the main ideas that are being taught.

Comprehension: The Comprehension level of Bloom's Taxonomy has students go past simply recalling facts and instead has them understanding the information. With this level, they will be able to interpret the facts. Instead of simply being able to name the various types of clouds, for example, the students would be able to understand why each cloud has formed in that manner. You are probably writing comprehension questions when you use words like describe, contrast, discuss, predict.

Application: Application questions are those where students have to actually apply, or use the knowledge they have learned. They might be asked to solve a problem with the information they have gained in class, this would lead to create a viable solution. For example, a student might be asked to solve a legal question in an Algerian Government class using the Constitution and its amendments. You are probably writing application questions when you use words like complete, solve, examine, illustrate, show.

Analysis: In the analysis level, students will be required to go beyond knowledge and application and actually see patterns that they can use to analyze a problem. For example, an English teacher might ask what the motives were behind the protagonist's actions during a novel. This requires students to analyze the character and come to a conclusion based on this analysis. You are probably writing analysis questions when you use words like analyze, explain, investigate, infer.

Synthesis: With synthesis, students are required to use the given facts to create new theories or make predictions. They might have to pull in knowledge from multiple subjects and synthesize this information before coming to a conclusion. For example, if a student is asked to invent a new product or game they are being asked to synthesize. You

are probably writing synthesis questions when you use words like invent, imagine, create, compose, etc.

Evaluation: The top level of Bloom's Taxonomy is evaluation. Here students are expected to assess information and come to a conclusion such as its value or the bias behind it. For example, if a student is completing a DBQ (Document Based Question) for an Algerian History course, they are expected to evaluate the bias behind any primary or secondary sources in order to see how that affects the points that the speaker is making. You are probably writing evaluation questions when you use words like select, judge, debate, recommend, etc.

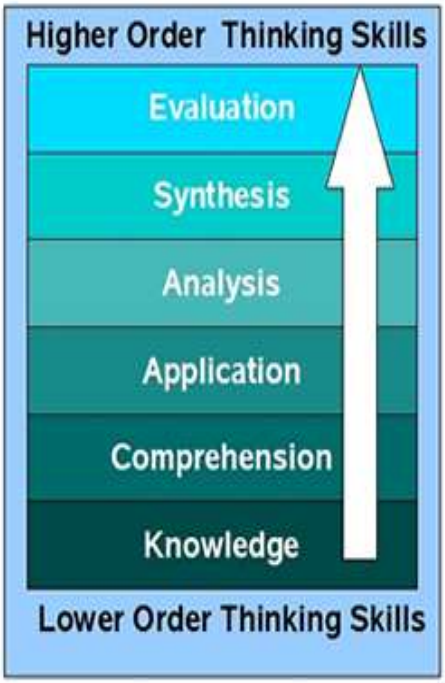


Figure 1.1. Bloom's Taxonomy Levels[1]

The reason that some teachers fail to move students up the levels of Bloom's Taxonomy are many. For example, a teacher might have low concerning the students' abilities. This is just sad and becomes a self-fulfilling prophecy. Another reason might be that it can become difficult and time consuming for the teacher. It is a complete truth that it is much easier to grade assignments based on the lower levels than on the higher levels. In

[1] - page 01 – Andrew churches http://www.edeteka.org/taxonomian Bloom Digital - php.

fact, as you move up Bloom's Taxonomy, you will find that rubrics become more important to ensure fair, accurate, and quick grading.

In the end, it is supremely important that we as educators help our students become critical thinkers. Building on knowledge and helping learners begin to apply, analyze, synthesize, and evaluate is the key to helping them grow and prosper in school and beyond.

1.3. Bloom's Revised Taxonomy:

In the 1990's, a former student of Bloom, Lorin Anderson, published this Bloom's Revised Taxonomy in 2001. It provides a carefully developed definition of each of the six major categories in the cognitive domain .Key to this is the use of verbs rather than nouns for each of the categories and a rearrangement of the sequence within the taxonomy. They are arranged below in increasing order, from low to high.

The names of six major categories were changed from noun to verb forms. As the taxonomy reflects different forms of thinking and thinking is an active process verbs were used rather than nouns. Indeed, the subcategories of the six major categories were also replaced by verbs and some subcategories were reorganized. The knowledge category was renamed; it is an outcome or product of thinking not a form of thinking. Consequently, the word knowledge was inappropriate to describe a category of thinking and was replaced with the word remembering instead. Comprehension and synthesis were retitled to understanding and creating respectively, in order to better reflect the nature of the thinking defined in each category.

1.3.1. Sub Categories of Bloom's Revised Taxonomy

Each of the categories or taxonomic elements has a number of key verbs associated with it Lower Order Thinking Skills (LOTS).

Remembering: Objectives written on the remembering level (the lowest cognitive level) requires the student to recall or recognize specific information. Below are verbs appropriate for objectives written at the remembering level. Recognizing, listing, describing, identifying, retrieving, naming, locating, and ending.

Understanding: Objectives written on the understanding level, although a higher level of mental ability than remembering requires the lowest level of understanding from the student. Below are verbs appropriate for objectives written at the understanding level. Interpreting, Summarizing, inferring, paraphrasing, classifying, comparing, explaining, exemplifying.

Applying: Objectives written on the applying level require the learner to use the information. Below are verbs appropriate for objectives written at the applying level. Applying, constructing, illustrating, giving examples.

Analyzing: Objectives written on the analyzing level require the learner to break the information into component parts and describe the relationship. Below are verbs appropriate for objectives written at the analyzing level. Comparing, organizing, deconstructing, Attributing, outlining, finding, structuring, integrating.

Evaluating: Objectives written on the evaluating level require the student to make a judgment about materials or methods. Below are verbs appropriate for objectives written at the evaluating level. Checking, hypothesizing, critiquing, Experimenting, judging, testing, Detecting, Monitoring.

Creating: Objectives written on the creating level require the student to generate new ideas, products and ways of viewing things. Below are verbs appropriate for objectives written at the creating level. Designing, constructing, planning, producing, inventing, devising, making.

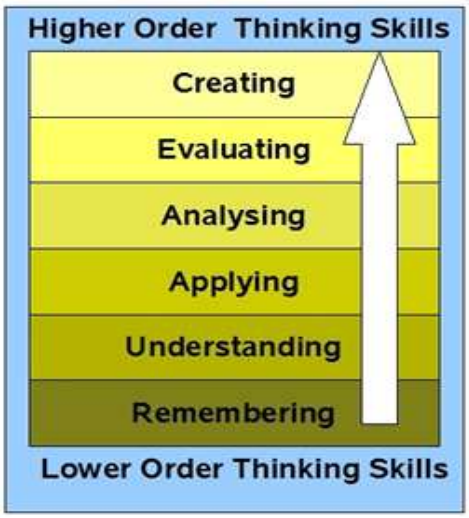


Figure 1.2. Bloom's Revised Taxonomy Levels[1]

The elements cover many of the activities and objectives but they do not address the new objectives presented by the emergence and integration of Information and Communication Technologies into the classroom and the lives of our students.

1.4. Bloom's Domains of Learning

In the 1950s, Bloom developed his taxonomy of educational objectives. He proposed that learning fitted into one of three psychological domains:

- Cognitive (processing information)
- Affective (Attitudes and feelings)
- Psychomotor (manipulative or physical skills)

1.4.1. The cognitive Domain

Bloom's Cognitive Taxonomy consists of six skill levels of learning, which increase in complexity starting with knowledge, comprehension, application, analysis, synthesis, and evaluation. Knowledge refers to the simple recall of facts, definitions, or terms. When facts are grouped, compared, described, or even explained, then this is comprehension. Building on knowledge and comprehension, one moves onto application, the ability to apply previously acquired knowledge to a new scenario. Analysis, the fourth skill level, requires one to scrutinize any supporting evidence and the resulting conclusion in an effort to reach a reasonable conclusion. With sufficient experience in the area of analysis, one can learn to develop one's own reasonable solutions; this is referred to as synthesis. The pinnacle of Bloom's taxonomy is evaluation, where one makes qualitative and quantitative judgments based on evidence; one thinks critically.

1.4.2. The Affective Domain

[1] - Levels revised by Anderson, L.W., & Krathwohl, D. R. (Eds.). (2001) A taxonomy for learning, teaching and assessing: a revision of Bloom's Taxonomy of educational objectives: Complete edition.New York: Longman, from levels originally developed by Bloom, B. D. and Krathwohl, D. R. (1956). Taxonomy of educational objectives: The classification of educational goals by a committee of college and university examiners. Handbook 1. Cognitive domain. New York: Addison Wesley.

Bloom's Effective Taxonomy sheds the light on the Growth in feeling of the emotional area (attitude). This domain is consisted of five levels of learning, starting with organization, internalizing values, responding to phenomena, receiving phenomena, and valuing.

1.4.3. The psychomotor Domain

Bloom's Psychomotor Taxonomy deals with the Para-linguistic features of the learner. In other words, how can the learner be involved actively in the classroom, and how he can be effective throw the use of his non-verb aspects? As the other domains, Bloom's Psychomotor Taxonomy consists of seven levels of learning, which are as followed; complex over response, adaptation, organization, mechanism, set, guided response, and perception.

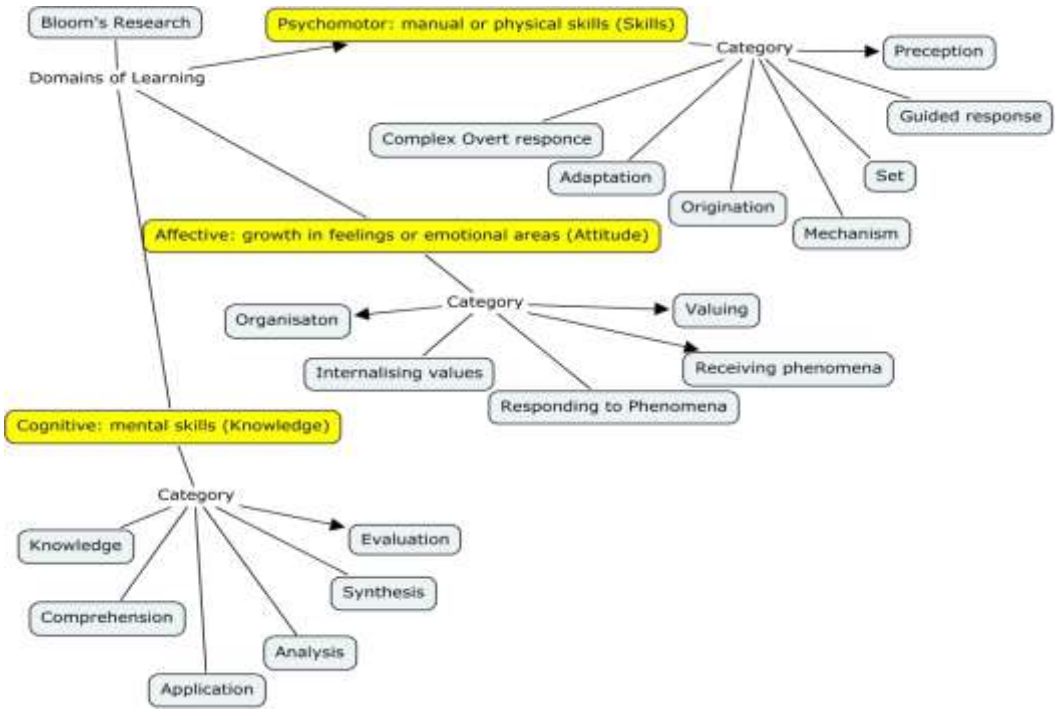


Figure 1.3. Diagram: Bloom's Domains of Learning[1]

1.5. Bloom's Digital Taxonomy

Bloom's Taxonomy and Bloom's Revised Taxonomy are key tools for teachers and instructional designers. Benjamin Bloom published the original taxonomy in the 1950s

[1] Bloom, B.S. (Ed.). Engelhart, M.D., Furst, E.J., Hill, W.H., Krathwohl, D.R. (1956). Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain. New York: David McKay Co Inc.

and Lorin Anderson in 2000. Since the most recent publication of the taxonomy, there have been many changes and development that must be addressed. Therefore, this is an update to Bloom's Revised Taxonomy to account for the new behaviors, actions, and learning opportunities emerging as technology advances and becomes ubiquitous. Bloom's Revised Taxonomy accounts for many of the traditional classroom and practices, but does not account for the new technologies and the processes and actions associated with them, nor does it do justice to the "digital learners" or as Marc Prensky describes them the "Digital Natives"[1].

The Original taxonomy and the revised taxonomy by Anderson and Krathwohl are both focusing within the cognitive domain. As a classroom practitioner, these are useful but do not address the activities undertaken in the classroom. This Digital Taxonomy is not restricted to the cognitive domain rather it contains cognitive elements as well as methods and tooling. These are the elements that as a practitioner I would use in my classroom practice. Like the previous taxonomies, the quality of the action or process defines the cognitive level, rather than the action or process alone.

While Bloom's Taxonomy in its many forms, does represent the learning process, it does not indicate that the learners must start at the lowest taxonomic level and work up. Rather, the learning process can be initiated at any point, and the lower taxonomic levels will be encompassed within the scaffolded learning task. An increasing influence on learning is the impact of collaboration in its various forms.

These are often facilitated by digital media and are increasingly a feature of our digital classrooms. This taxonomy is not about the tools and technologies, these are just the medium, instead it is about using these tools to achieve, recall, understanding, application, analysis, evaluation and creativity.

1.6. Bloom's Digital Taxonomy as a learning process

Digitalization, for improving and facilitating learning processes is everywhere. This includes for increasing performance within the educational system. It begins to change our vision of education at the moment a teaching-learning program with technology begins. It has been used in about every classroom, as becomes a part of the courses in

[1] From the horizon (MCB university press, Vol. 9 NO 5, October 2001) Marc Prensky

universities, high schools and middle and elementary schools all over the world. Thus, technologies as learning and teaching tools force teachers and students to use them, similar to learning a new task. For this reason, technology application in classrooms is essential to ensuring its efficiency and effective integration. Technology has now changed how teachers and students access, gather, analyze, present, and transmit information by giving them more power in the classroom (Dooley, 1999).

In 1956, Benjamin headed a large committee of educational psychologists who developed a method of taxonomy or "classification" of global educational goals and/or possible objectives in the classroom.[1]

Bloom's levels of complexity or intellectual behavior are important in learning, to the extent that students enjoy the learning experience. In other words, when they are engaged in the process, they become more productive. Bloom has depicted those levels as a stairway that looks like "the Food Guide Pyramid". This stairway leads many teachers to encourage their students to "climb to a higher level of thought" where creativity is the most important level to develop thinking.

The presentation of the Taxonomy as a pyramid (in both the original and revised versions) suggests that one cannot effectively begin to address higher levels of thinking until those below have been thoroughly addressed so that a learner can easily follow the process, and continue developing.[2] Nevertheless, Bloom's taxonomy is probably the most widely applied one in use today with all its levels. Besides, it has had a considerable impact on educational thought and practice all over the world. Furthermore, it also has been most often transformed into a basic reference for almost all educators.

To evaluate Bloom´s taxonomy and technology when teaching and learning a foreign language, it is important to remember the three domains of learning and technology as a learning tool. For instance, in pronunciation, the cognitive aspects are learnt by having them presented in an organized and interesting way, and can be tested by traditional pen-and-paper examinations (Griffiths, 2008). However, in psychomotor aspects of pronunciation, learners are required to speak.

[1] http://www.fitsuny.edu/files/pdfs/CET_TL_BloomsTaxonomy.pdf
[2] http://plpnetwork.com/2012/05/15/flipping-blooms-taxonomy/

Tests are clearly listening tests rather than tests of pronunciation. For example, learners are asked to discriminate recordings of phonemes, words, and sentences. The affective domain relates to the learners´ feelings about what is being learned and the learning situation (Griffiths, 2008). In many respects, affective considerations must be the most important issues for pronunciation teaching, for several reasons. Primarily, many teachers pay little attention to the affective side of language teaching. As a result, there is great potential of embarrassment, ridicule and loss of face, especially with such a physical activity as pronunciation (Richards, 1994). When learning the English language, it is much better if students are helped by technology. No matter if it is a CD player or a Rosetta stone CD-ROM, the point is that all students in the classroom have the opportunity to be immerse in an English-Speaking environment. Rosetta stone has online sessions where students are tutored by native speakers who will help master the English language. If students have a computer to practice pronunciation, listening, and recording of their voice, besides spelling, their second language acquisition will be a success.

Most of today´s universities have equipped labs to improve their students' competence and skills in language acquisition. Naturally, listening is crucial for language learning and the use of technology is essential to reach this goal. Altogether with technology, good language learners need to apply other skills such as concentration, motivation and empathy (self-encouragement or setting up rewards for their progress) to become effective listeners. In fact, successful learners take advantage not only of pre-recorded material on audio, video tapes, DVD or the Internet, but also, listen to native speakers to learn English. Nevertheless, they have to be aware of the role of a professor in the context of the classroom, because teaching and learning may also be influenced by the approach or methodology of the teacher.

1.7. The use of Bloom's Digital Taxonomy in the classroom

Each taxonomy requires a higher level of abstraction from the students. As a teacher, you should attempt to move students up the taxonomy as they progress in their knowledge. Tests that are written solely to assess knowledge are unfortunately very common. However, to create thinkers as opposed to students who simply recall information, we must incorporate the higher levels into lesson plans and tests.

Scholars have categorized Bloom's Digital Taxonomy mainly on grouping and connecting students as well as create knowledge through technology. On the other hand,

Digital Taxonomies pave the way for students who seek for the best digital tools to provide information and accompany students along their course experience. In this prospect, one has to have a closer look at the principles that guide both of these ideologies in educational technology.

The very first feature of Bloom's Digital Taxonomy in this discussion is connectivity, which have a unique educational philosophy based on networking as well as placing an emphasis on participants' own contribution to the content; Digital Taxonomy apply the theory of connectivism that states that learning takes place within a network. In other words,

"**Learners use digital platforms such as blogs, wikis, social media platforms to make connections with content, learning communities and other learners to create and construct knowledge"**. (Morrison, 2013).

When learners embark upon Digital Taxonomy, they are expected to collaborate actively and share knowledge between them. However, instructors act as facilitators by aggregating, reflecting upon students' participation and posing daily or weekly questions and afford different kind of resources and it is up to participants to make the Digital Taxonomy successful.

Lorin Anderson Highlights a major components of Bloom's Digital Taxonomy:

- **Autonomy:** self-direction of the learner is highly needed in the digital taxonomy since the learner, himself, chooses the content and the skills he/she would like to enhance.
- **Diversity:** it entails the wide variety of knowledge resources, tools, participants, and prior knowledge.
- **Interactivity:** it is a paramount feature of Bloom's Digital Taxonomy because it is the core of the digital taxonomy which is based on cooperative learning and interaction between users to build knowledge.
- **Openness:** "in terms of access, content, activities and assessment" (Bates, 2014)

In addition to that, what characterized the digital taxonomies is that they are less sponsored by high education institutions, but are set up by a group of users and educators

who share an interest towards a subject matter and attempt to connect, interact, share, and deepen their knowledge regarding the area of interest (Morrison, 2013). Thus, learning emerged as a shared knowledge between participants, rather than transmitting information from leading experts to a group of individuals.

1.8. Learning objectives via Bloom's Digital taxonomy

(Skiba,2013), he introduced the concept of Bloom's Digital Taxonomies and how one can use different technology tools and remember concepts This offers additional that we can use to engage students in the classroom and online specifically, he focuses on the use of videos to facilitate students' ability to evaluate and create, also reach their target objectives**.**

According to Krathwohl (2002), "Evaluation refers to making judgments based on criteria and standards". Mayer (2002) further explains that evaluation includes the cognitive process of checking which refers to judgments about internal criteria He goes on to state, "Critiquing lies at the core of what has been called critical thinking".

Digital tools can be used to spark discussion, serve as a basic for debate, or inspire the generation of new ideas and hypothesis. Videos on the Internet are abundant, and, indeed, the growth of YouTube videos is astounding.

TED[1] courses (Technology, Entertainment, and Design) began in the 1980s as a conference that spreads ideas world sharing. Speakers were invited to the first TED conferences and give 15 minutes or less to give the talk of their lives. Today TED is a not-for-profit devoted its catch phrase; Ideas world spreading. The initial TED concept has spread to create a host of conferences (www.temded.com)**.**

Therefore, Bloom's Digital taxonomy might be useful to spark conversations or debate on the pros and cons of an idea, technology, or treatment, or lead to the writing to the writing of a position paper on a particular topic. One of the speakers is Hans rosling, a professor at Sweden's Karolinska Institute, whose presentations are both entertaining and challenging. Rosling makes data come alive, statistics no longer boring. His videos can be used to challenge your students to think about data achieve their individual wants.

[1] Hefferman Virjinia (January 23, 2009) "Confession of a TED addict". The New York Time. Retrieved December 20, 2014.

Creating is one of the higher order learning in Bloom's Digital taxonomy, and it considered as the main objective for learner as Krathwohl (2002) explained, creating involves "putting elements together to form a coherent whole, or make an original product". In addition, as Mayer (2002) states, "Creating can be broken down into three cognitive processes: generating, planning, and producing". As a result, Bloom's Digital Taxonomy help the students to become involved in creating, and pave the way for them to translate their knowledge into practice in order to have a better meeting with their educational purposes.

1.9. Bloom's Digital Taxonomy and Collaboration

Collaboration is included as a separate element as well as some elements being shared. Collaboration can take many forms, and value of the collaboration can vary hugely. This is often independent of the mechanism used to collaborate. In addition to that, collaboration is not an integral part of the learning process for the individual, you do not have to collaborate to learn, but often your learning is enhanced by doing**.** Therefore, collaboration is a 21st Century skill of increasing importance and one that is used throughout the learning process. In some forms, it is an element of Bloom's Digital Taxonomy, and in others it is just a mechanism which can be used to facilitate higher order thinking and learning.

In a recent blog post from the official Google blog, Google identified the following as key traits or abilities in 21st Century Employees:

"Collaboration is not a 21st Century Skill; it is a 21st Century Essential communication skill".

Marshaling and understanding the available evidence is not useful unless you can effectively communicate your conclusions. Virtually, a small team runs every project at EFL. People need to work well together and perform up to the team's expectations.[1]

Collaboration is a key element of each of the four pillars of education:

- Learning to know

[1] http://googleblog.blogspot.com/2008/07/our-googley-advice-to-students-major-in.html

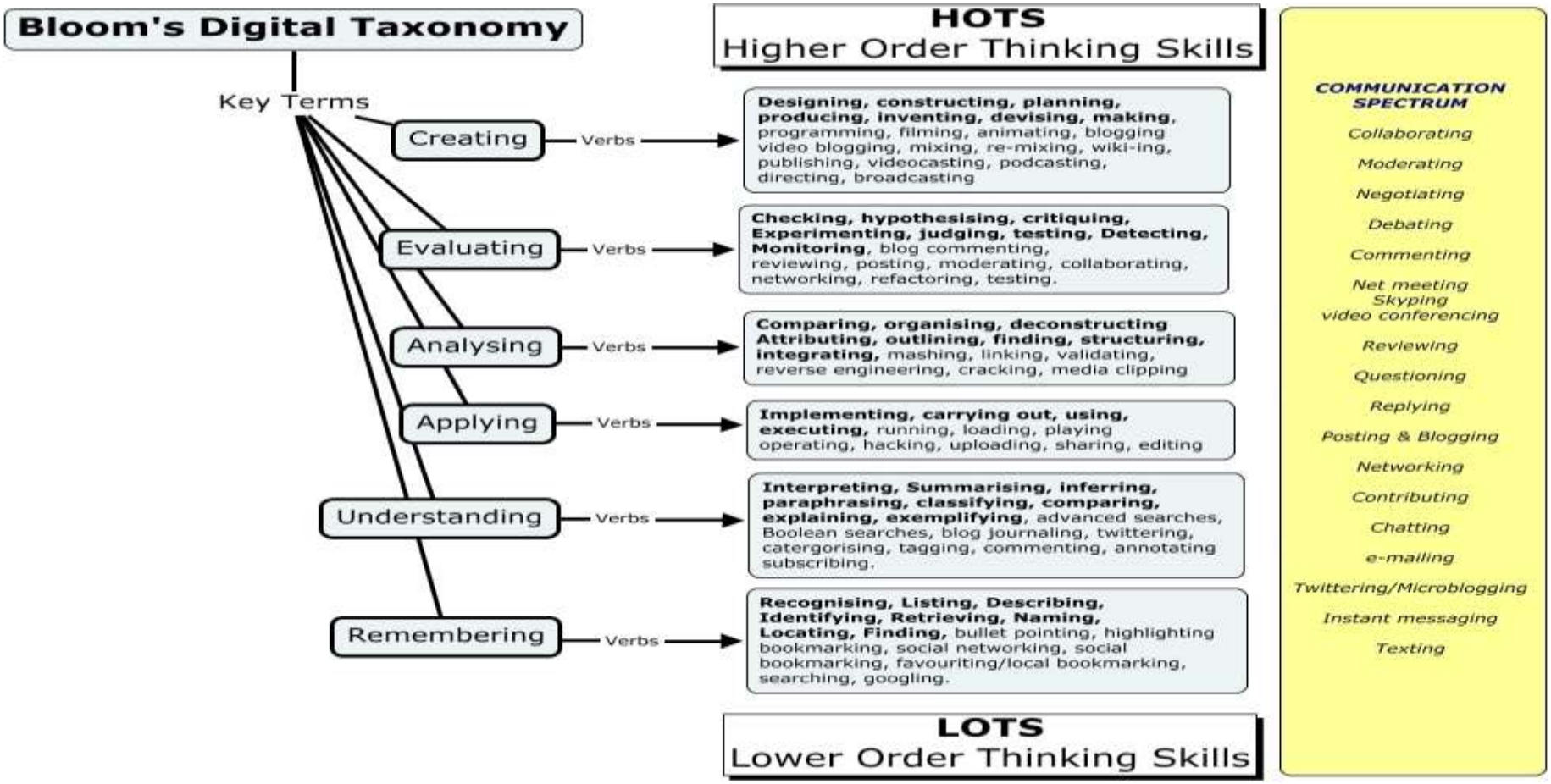
- Learning to do
- Learning to live together
- Learning to be[1]

Therefore, to prepare our students, our teaching should also model collaboration. A vast array of collaborative tools is available; wikis, classroom blogs, collaborative document tools, social networks, learning management systems**.** Many are available at no cost. If you have not yet tried them, look at:

- Classroom blogs – edublogs, classroom blog moister, blogger.
- Collaborative document tools – Google documents, zoho documents, adobe Buzzword.
- Social Networking.
- Learning managements systems – Moodle, Blackboard, Web CT, and First Class.

[1] http://www.unesco.org/delors/fourpil.htm

1.10. Bloom's Digital Taxonomy; Summary Map[1]



[1] Different kinds of experiences lead to different brain structures – Dr Bruce D Berry Baylor 1950 – Bloom's Digital Taxonomy Map.

1.11. Conclusion

The review of literature has provided us with a deep insight of educational digitalization with both of its theoretical and practical aspects. We started tackling the emergence of Bloom's Taxonomy. Then, we have also highlighted the several references that consolidate the clarification of the following key concepts: Bloom's revised taxonomy and its sub categories and Bloom's domains of learning, known as the cognitive, effective, and psychomotor domains. This chapter cites as well some of the experts and scholars' opinions and perceptions regarding the concept of Bloom's Digital Taxonomy which are the core of this investigation. We can notice that Bloom's Digital Taxonomy emerged as recent phenomena, not really well understood by the public, but they may influence education and shift the way individuals learn.

This literature review also tends to bring about some clarifications about the assumptions, the features and the types of Bloom's Digital taxonomy courses as well as the various objectives which respond to the students' needs, and enhance the quality of learning in an age where individuals and more particularly students use technology as an indispensable tool to learning.

Chapter Two

Research Methodology

2.1. Introduction

All the researchers in any scientific field are in need to an accurate way in gathering data as well as an appropriate method to be followed in terms of undertaking the investigations. As a result, this chapter is devoted to the presentation of the way we have followed to collect the fundamental data, including the procedure, the context, the population of our investigation, and the data collection instruments which encompass questionnaires. Then, an unstructured interview and teaching experiment done in order to adjust the project design in the light of unforeseen issues.

2.2. Research Method

Our research project is a tentative attempt to enquire into the effectiveness of Bloom's Digital Taxonomy and the perceptions of students and teachers towards their implementations in EFL context. The issues addressed in this study are as follow:

- How can Bloom's Digital Taxonomy be effective and beneficial once using it in EFL classrooms?
- What are the students' attitudes towards the incorporation of Bloom's Digital Taxonomy in their learning process at the department of English, Abdel Hamid Ibn Badis University?
- What are the teachers' attitudes towards the incorporation of Bloom's Digital Taxonomy in their teaching process at the department of English, Abdelhamid Ibn Badis University?

Burns and Grove (1999) reckon that quantitative method to research encompasses many key components as formality and objectivity. Hence, the quantitative paradigm aids the researcher to translate informants' responses.

In order to have an accurate answers for these questions, we have used both of qualitative and quantitative paradigms to transform participants' responses into numerical form, also we have and obtained accurate outcomes from participants' opinions and beliefs towards our target phenomenon; qualitative method is used by researchers who mainly seek individuals' perceptions and behaviors about a particular matter which is unknown or unstudied as our present enquiry about Bloom's Digital Taxonomy. On the other hand, the

quantitative method deals with gathering and analyzing information in numeric form derived from a large-scale of representatives. In other words, the data are classified and transformed into numbers in order to examine individual's hypothesis.

As an illustration, Bayram, (1988) argues, "…both of qualitative and quantitative approaches should be combined." Indeed, some scholars such as Creswell who couples the two research methods in one method which is mixed methods which are actually a conversion of qualitative and quantitative methods in a research. Croswell states, "Mixed methods research provides more comprehensive evidence for studying a research problem than either quantitative or qualitative research alone". Accordingly, researchers are allowed to use all the tools of data collection of both methods rather than being limited to one single type of data collection associated with either qualitative or quantitative research. In this prospect, we have handed out a questionnaire to teachers that includes both of open-ended questions and closed questions. Open-ended questions are being asked to collect the necessary data and written narratives, these questions are about a list of questions that enable respondents to answer questions in their individual words, whereas closed questions limit respondents with series of options to be chosen according to their perceptions; the informants can tick either one single response or many. Essentially, a random or unstructured interview was also used to reinforce the quality of our investigation.

2.3. Participants

We have selected 10 EFL teachers from the department of English at Abdelhamid Ibn Badis University, who are accustomed with the concept of Bloom's Digital Taxonomy and its variations and levels. On the other hand, we have also selected purposefully a sample of M1 and M2 students to contribute in a presenting and working on an experiment in order to have further description and analysis for our subject matter.

2.4. Procedure

In the field of the target procedure of our research, we have conducted an experiment with our case study, M1 and M2 students of English at Abdelhamid Ibn Badis University, Mostaganem, with whom we experimented a teaching experience concerning Bloom's Digital Taxonomy and their perspective toward our target investigation through the use of instruments and discussion.

2.5. Context

Abdelhamid Ibn Badis University- English department, Mostaganem, was the right location that we have selected for our investigation. This suitable location could provide us with a significant information that would contribute to answer the study's issues, because it has a better meeting with the target criteria of our experiment.

2.6. Data Collection Instruments

The tools and the different procedures used in this project are:

- Questionnaires given to EFL teachers in order to gather and collect their feedback and responses concerning Bloom's Digital Taxonomy and its integration in EFL context.

- An experiment based on distinctive stages with M1 and M2 students in order to contribute them in the achievement of our investigation, also the reason of their contribution in this research was to check whether they support the use of Bloom's Digital Taxonomy in their learning process or not.

2.6.1 Experiment: Presenting and investigation the concept of Bloom's Digital Taxonomy with specific courses in M1 and M2 classes.

Any researcher who is interested in a particular field of research, the target type of research leads him to reinforce his findings with empirical method based on experiments and observations. The design of our experiment and the available equipment were about, Projector (data show), Laptop, Notebook, and Lecture-class. At the very beginning, we have designed a significant stages in order to put our experiment into practice.

. Stage one: we took into consideration the design of the presentation, highlighting the key concepts, and the determination of the time scale in order to fit the target objectives of our research.

. Stage two: the target aim at figuring how and what Bloom's Digital Taxonomy can bring to EFL learners is to improve their four macro-skills and discovering their wants, needs, and necessities. Consequently, the researcher has decided upon the hypotheses.

According to William M.K. Trochim(2006). "A hypothesis is a specific statement of prediction. It describes in concrete (rather than theoretical) terms what you expect will happen in your study. Not all studies have hypotheses. Sometimes a study is designed to be exploratory .There is no formal hypothesis, and perhaps the purpose of the study is to explore some area more thoroughly in order to develop some specific hypothesis or prediction that can be tested in future research. A single study may have one or many hypotheses". Similarly, our dissertation is about the integration of Bloom's Digital Taxonomy, we hypothesize that Bloom's Digital Taxonomy can orders thinking skills and objectives for EFL teachers and learners; they allow teachers to be less centered and involve more students in learning. We may also hypothesize that EFL students can show interest towards the application of Bloom's Digital Taxonomy within learning.

. Stage three: in order to put our hypothesis into practice, we have specified our target population to work on. Group of teachers who are specialized in teaching EFL have been chosen to reinforce the credibility and validity of our results, also we have selected a sample of M1 and M2 students to test and examine our theories and put our hypothesis into practice (i.e. course experiment).

. Stage four: After the design of the experiment, the application part took place. To perform an experiment most efficiently, a scientific approach to experiment planning must be employed. Statistical design of experiments means that the experiment is planned to provide appropriate data, collected and analyses by statistical methods. Accordingly, Mohsen Hakim claimed in his book:

"There are two related aspects to any experimental problem: the design of the experiment and the statistical analysis of data. The method of analysis depends directly on the applied design". (Mashhad, 1992, page 88)

. Stage five: Last stage is to establish the relationship the researcher's hypotheses and his gathered findings and outcomes via the interpretation and the analysis of his final results.

2.7. Organization of the Experiment

At the very beginning, we had tried to introduce and present the concept of integrating Bloom's Digital taxonomy in EFL classrooms in the shape of an experiment that goes through several well-designed stages. We were concerned with the analysis of data generated from an experiment. It is wise to take time and effort to organize the experiment properly to ensure that the right type of data, and enough of it, is available to answer the questions of interest as clearly and efficiently as possible. This process is called experimental design.

Easton and John H. McColl's state, "The specific questions that the experiment is intended to answer must be clearly identified before carrying out the experiment. We should also attempt to identify known or expected sources of variability in the experimental units since one of the main aims of a designed experiment is to reduce the effect of these sources of variability on the answers to questions of interest. That is, we design the experiment in order to improve the precision of our answers".

"This experiment deals with M1 and M2 students, and it is about four courses based on exercises[1] followed by presentation, experimentation or observation, and evidence in order to conduct some answers for a specific questions, or to test our main hypothesis. Essentially, this experiment is run through main levels".

- **Design of the experiment**
- **Application of the experiment**
- **Findings of the experiment**

The major objective of this experiment is to aid learners with every step of the research process, from facilitating the learning process, putting theories into practice, evaluating their prior knowledge, analyzing new items, acquiring higher mental abilities through criticism, and developing a hypothesis and finding sources to writing up and presenting one's finding. Concerning the practical part, these courses will give the opportunity to negotiate meanings and share one's thoughts with fellow researchers from the wide community in order to supply feedback and reflections on others' work. In the very last phase of the experiment, we used the participant's responses and feedback to

[1] See appendix 1. Exercise of the experiment.

disclose first the efficacy of Bloom's Digital Taxonomy, and its influence on EFL learning and teaching. Most importantly, their help to improve EFL learning. During the experiment, we have chosen two classes of Master students (M1, M2) as a sample of EFL learners. The experiment's levels are demonstrated as followed:

Table 2.1. The design of the experiment.

Level	Date	Content	Objectives
The design of the Expriment	Week 1:February 25th, 2016	- Diversity of resources (primary sources, secondary sources). - Massive reading and observation in order to come up with a basic concept about Bloom's Digital taxonomy. - New knowledge about Bloom's Taxonomy and its formation. - Formulation of a meaningful question or hypothesis to which an answer may be found through a suitably designed experiment. - Significant questions have to be taken into consideration such as: a) Does the student exhibit sufficient background understanding of the principles and concepts involved in Bloom's Digital Taxonomy? b) Are they familiar with basic concept of Bloom's Digital Taxonomy? c) Are the subject matter and the backbone question clearly stated? d) Is there a significant basic thought in the project? e) Is there any formal hypothesis? f) Is the scope of the problem sufficiently limited to permit a meaningful experiment? - Planning the time schedule for the course. - Final step, organizing the presentation's slides to improve an effective ways of expressing and communicating scientific ideas.	- This experimental design aims to provide learners with guidelines for exploring Bloom's educational objectives. - Simple experimental design is given to learners in order to differentiate between the taxonomies' levels. - Discussion about some specific questions and examples which goes along with common misconceptions that students typically bring to the experiment design process. - Maximizing the learners' production via the features of our experiment design. - Minimizing the effects of inter individual variation. - Allowing reduction of the experiment, and describing the presentation. - Suggesting classroom implementation that emphasizes student-centered learning. - Asking constructive questions to help students discover and name the basic principles of Bloom's Digital Taxonomy. - Speculating some hypotheses that pave the way for participants to precise their wants, discover their necessities, and achieve their target objectives design for themselves, are included with an answer key.

Table 2.2. The application of the experiment.

Level	Date	Content	Objectives
Application of the experiment	Week 02/ Week 03: 2nd – 22nd March 2017	- Series of equipment such as: a projector, speakers, and a laptop, are used to replenish the experiment. - Developing the research project - Presentation of the concept Bloom's Digital Taxonomy. - Introduction to the course content. - Classification Bloom's domains of learning. - Raising the main issues during the investigating which were citerd as follows : - How can Bloom's Digital Taxonomy be effective and beneficial once using it in EFL classrooms? - What are the students and teachers attitudes towards the incorporation of Bloom's Digital Taxonomy in learning process at the department of English, Abdel Hamid Ibn Badis University? - Speculation about the target hypotheses. - Comparison between the original taxonomy and the digital one.	- Familiarizing students with the course content. - Getting students speak about their expectations. - Activating prior knowledge about basic concepts in Bloom's Taxonomy. - Providing carefully developed definitions for each of the major levels in Bloom's Digital Taxonomy. - Common language about learning goals to facilitate communication across persons, subject matter, and grade levels. - Means of determining the congruence of educational objectives, activities, and assessments in a unit, course, or curriculum and so on. - Collaboration and pair work in order to negotiate meanings. - Stimulating students' brains by reminding them how to be critical towards a material. - Creating discussions around debatable topics.

Table 2.3. The finding of the experiment.

Level	date	Content	Objectives
Findings of the Experiment	Week 04: 2nd April 2017	- The learners are required to : - Recognize the given information by listening, identifying, and naming. - Use the given data to apply, construct, and give examples. - Break the information into component parts and describe the relationship by comparing, outlining, and finding. - Make a judgment about materials or methods by experimenting and testing. - Generate new concepts, outcomes, and ways of viewing things by designing, planning, and devising. - Increase the performance within the educational system by collaborating, moderating, negotiating, commenting, net meeting, posting and plogging, questioning, and e-mailing. - Achieve the educational purposes and the target objectives.	- The major components of Bloom's Digital Taxonomy: - Autonomy: self-direction of the learner is highly needed in the digital taxonomy since the learner, himself, chooses the content and the skills he/she would like to enhance. - Diversity: it entails the wide variety of knowledge resources, tools, participants, and prior knowledge. - Interactivity: it is a paramount feature of Bloom's Digital Taxonomy because it is the core of the digital taxonomy which based on cooperative learning and interaction between users to build knowledge. - Openness: in terms of access, content, activities and assessment.

2.8. Description of the Teachers' Questionnaire

During the investigation of our research project, a specific questionnaire[1] was given to 10 teachers from Abel Hamid Ben-Baddis University. This questionnaire is mainly based on qualitative research which aims to qualify the gathered information for examining and analyzing in order to conclude with outcomes which have a better meeting with our hypotheses. As a result, we give clarification about the gathered results then transform it into statistical form in order to narrow the distance between our suggested hypotheses and final results.

On the other hand, we have also used qualitative research so as to explore the other side of the teachers' trends and assumptions through descriptive data and report word by word what they actually think of the integration of Bloom's Digital Taxonomy in their EFL classrooms. The combination between all these factors may lead to discover how EFL teachers would welcome the implementation of Bloom's Digital Taxonomy in their classes. Thus, we have chosen them purposefully because they are accustomed with the concept of our research project so can they provide us with numerical and descriptive data.

In terms of the structure of the questionnaire, it is made up of ten questions, including both of open-ended and closed questions; each type of questions is selected purposefully to suit best the aim behind the questions, the questions include multiple choices and spaces to leave teachers justify, comment and expand some of the issues. The questionnaire is divided into two categories. The first characterizes questions of some individual and personal data such as the gender and subjective trends in teaching, target objectives, and research interests. By contrast, the other category of our questionnaire deals with our subject matter i.e. the integration of Bloom's Digital Taxonomy in EFL Context. Essentially, this category made up of 10 questions that contains yes-no questions and open-ended ones, they are cited as followed:

Question 1: characterizes the gender of the informant.

Question 2: has been designed to explore the target objectives and the research interests of EFL teachers.

[1] See apendix 2. Teachers' Questionnaire.

Question 3: is very crucial because it aims to investigate whether the teachers take into account the cognitive domain of learning.

Question 4: aims to know if teachers believe that the integration of Bloom's Digital Taxonomy aids to enhance teaching and learning EFL in higher education and it could provide students with good self-directed learning skills.

Question 5: investigates the different procedures that teachers apply to stimulate learning in EFL classroom**.**

Question 6: attempts to know if teachers use any digital sources once they are planning or designing their lectures and lessons.

Question 7: is somehow personal because it deals with the individual experience and personal understandings. However, this question attempts to discover if Bloom's Digital Taxonomy is an effective and beneficial method once using it in EFL classroom.

Question 8: investigates the learning targets which can Bloom's Digital Taxonomy benefit EFL learners from a teacher's perspective.

Question 9: intends to explore how teachers would implement Bloom's Digital Taxonomy in their classrooms.

Question 10: concludes with recommendations, feedback, and attitude toward towards Bloom's Digital Taxonomy as a concept that can benefit EFL learners and facilitate the teaching process in Abedlhamid Ibn-Baddis University.

2.9. Interview: Ms Giedre Sleziene, researcher at LCC International University in Klaipeda, Lithuania.

In modern scientific and academic researches, using Interview is one of the fruitful techniques in reaching the target findings. In this prospect, we have used the structured genre of interviewing. We were so honored to have Ms. Giedre Slezien as a sample in order to collect the data needed in our investigation. The main aim of our interview is to reveal the effectiveness of Bloom's Digital Taxonomy in teaching/learning EFL.

Nonetheless, we will have more detailed data concerning the concept of teaching and learning EFL traditionally i.e. without the use of Bloom's Digital Taxonomy. We have minutely gone through questions described below:

- Welcome to the interview.
- Introduction to the research project.
- How to design a research project and outline?
- To what extent can Bloom's Taxonomy be effective once using it in EFL classroom?
- How to share solutions to a problem, and comment on other people's contributions that join the learning community?
- How to describe and apply a method for reaching a decision, and identify patterns in data/evidence?
- According to your experience, how would learners collect and analyze any given topic?
- What are the best methods to explore a case study or situation through a simulation?
- What are the best procedures to practice a basic skill or process in a simulated environment, e.g. to prepare using it in the field, lab or workplace?
- How technology and digitalization can support the different phases?
- What are the best solution to start up an online community or take an existing community into a new area and invite others to contribute Reflect?
- How to explore a new way of using digital technology to support your research or studies, and demonstrate this to others?
- Is there any solutions to explore the implications of using digital technology to address a particular research or study?
- As EFL learners, how can we moderate a discussion and draw conclusions linked to evidence?
- At last, we would be very grateful if you could provide us with some recommendations.

2.10. Conclusion

Throughout this second chapter, the analysis steps and the discussion parameters of our populations' responses were based on quantitative and qualitative methods. Therefore, we have clarified the research methodology that was carefully followed and meticulously structured, also we have highlighted the significant purposes of this research project. Indeed, this chapter sheds the light on the multiple techniques, procedures, methods, and approaches that we have used to enhance our project. In the same phase, this part gives a deep insight on the application of our experiment with our target participants, the data collection instruments, the informants, the context, and the description of teachers' questionnaires. The combination between all these factors pave the way to a well-designed research project based on a methodological and systematic structure.

Chapter Three

Data analysis and Results

3.1. Introduction

The main objective of this last chapter is to give a deep insight in order to come up with a detailed analysis about the research methods. In addition to validate the concept which claims that Bloom's Digital Taxonomy is an effective and beneficial method that aids EFL learners to order their thinking skills and objectives, similarly allow teachers to be less centered and involve more students in learning. We have expand our investigation and devised this chapter into multiple parts: data analysis and in-depth glimpse at the target experience by discussing the students' perceptions and attitudes toward the incorporation of Bloom's Digital Taxonomy in teaching and learning EFL. Whereas the other parts are about the discussion of the findings, the interview with Ms Giedre Sleziene, researcher at LCC International University in Klaipeda, Lithuania**.** The last step was about a statistical analysis represented by list of tables and graphs that expresses our populations' perceptions and responses about the integration of Bloom's Digital Taxonomy in EFL classrooms.

3.2. Data Analysis

The diversity of research methods that we have used in this research project pave the way to gather several responses from our population i.e. teachers and students. Consequently, we begin to discuss and analyze the participants' perceptions and attitudes that foster the incorporation of Bloom's Digital Taxonomy in EFL context. Therefore, we have dealt with an experiment that tests the students' degree of satisfaction of classifying their wants, discovering their necessities, and achieving their target objectives, as well as their individual point of views regarding the way EFL courses are presented. Most of the students' responses acknowledgements were cited as follow:

3.2.1. Student's Responses:

"The components of Bloom's Digital Taxonomy lead to facilitate communication across learners, subject matter, and grade levels."

"This measurement tool provides a carefully developed definition for each of the major domains of learning."

"The levels of Bloom's Digital Taxonomy familiarize the student with the course content and stimulate their prior knowledge."

"The integration of Bloom's Digital Taxonomy into EFL courses attempt to determine the learners' assessments, objectives, and activities."

"The essence of Bloom's Digital Taxonomy is pair work and collaboration, the latter maximizes the learners' capacity of sharing knowledge and negotiating meaning."

"We consider this taxonomy as a supportive tool in learning process because it varies the distance between learners and teachers, also we have absorbed that it focuses on the practical side of learning and it provides an incalculable amount of information."

"The components of Bloom's Digital Taxonomy can foster learning and allow students to partly self-direct the process as well as teachers can lessen their Teacher Talking Time (TTT)[1] to leave space to student' autonomy."

"The core of the digital taxonomy is based on cooperative learning and interaction between users to build knowledge."

"The diversity of procedures and techniques on this digital taxonomy provides a wide variety of knowledge resources, tools, participants, and prior knowledge."

"Fostering critical thinking skills is always a challenge in learning EFl, but Bloom's Taxonomy offer a massive digital tools, specific tasks, and key components that can help in developing such skills."

These were the main comments and responses of our participants during and after the experiment course. Accordingly, through these responses we can figure out that learners are bias to autonomy and collaboration in order to have a better meeting with their target needs. Yet, they prefer to involve communication spectrum, technology, and ICT into their learning process. For instance, questioning, moderating, networking, video conferencing, instant messaging, reviewing, posting and blogging. However, learners are highly needed to these factors to stimulate successfully with the subject matter and improve their macro skills.

[1] TTT often means that the teacher is giving the students information that they could be finding out for themselves, such as grammar rules, the meanings of vocabulary items and corrections.

3.2.2. Statistics of the experiment:

After collecting several responses through a typical investigation with students, we have tested the acceptability of Bloom's Digital Taxonomy among students, as well as the enhanced skills throughout the use of digital taxonomy. Essentially, we have clarified the teachers' perspectives and suggestion toward the integration of Bloom's Digital Taxonomy in EFL context. These purposes are cited as follow:

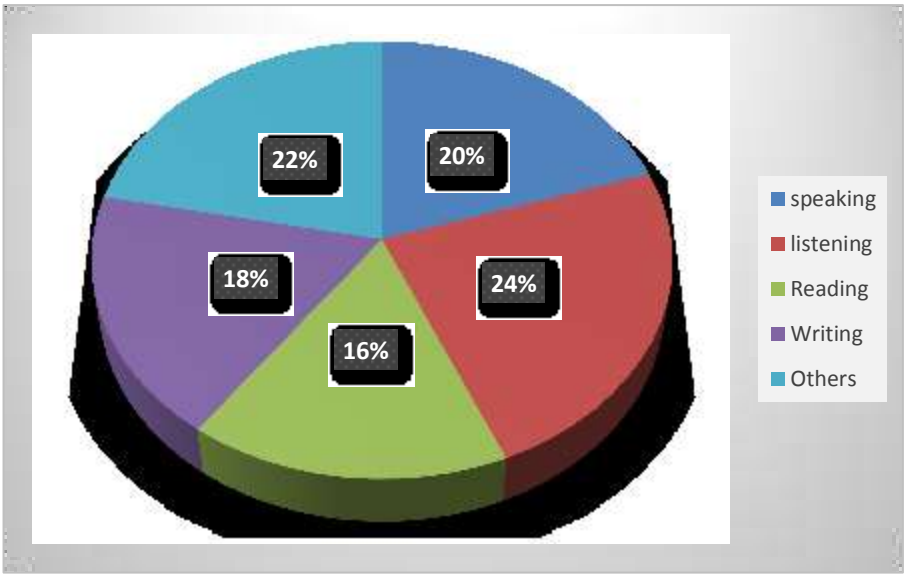
- The impact of Bloom's Digital Taxonomy on the four macro-skills.
- The acceptability of Bloom's Digital Taxonomy among students.
- Teachers' perceptions toward the integration of Bloom's Digital Taxonomy in EFL context**.**
- Teachers/Learners motivation toward the integration of Bloom's Digital Taxonomy.

The following table and graphs clarify the enhanced skills through the use of Bloom's Digital Taxonomy in EFL learning.

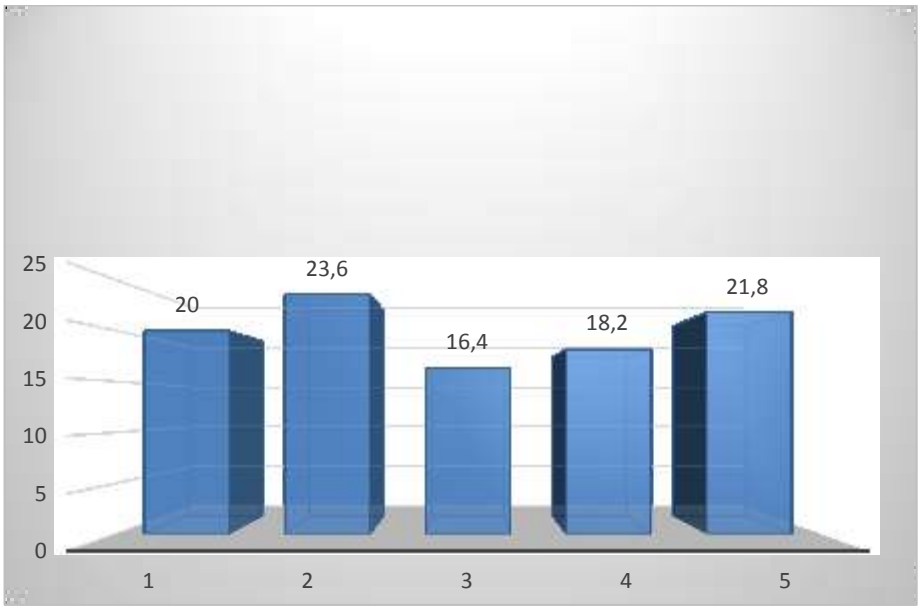
Skills	Number	Percentage (%)
Speaking	**11**	**20**
Listening	**13**	**23,6**
Reading	**09**	**16,4**
Writing	**10**	**18,2**
Others[1]	**12**	**21,8**

Table 3-1: Enhanced Skills in Bloom's Digital Taxonomy

[1] Others: Critical Thinking, Self-regulation, Evaluation, collaboration, etc.



Graph 3-1: Enhanced Skills in Bloom's Digital Taxonomy



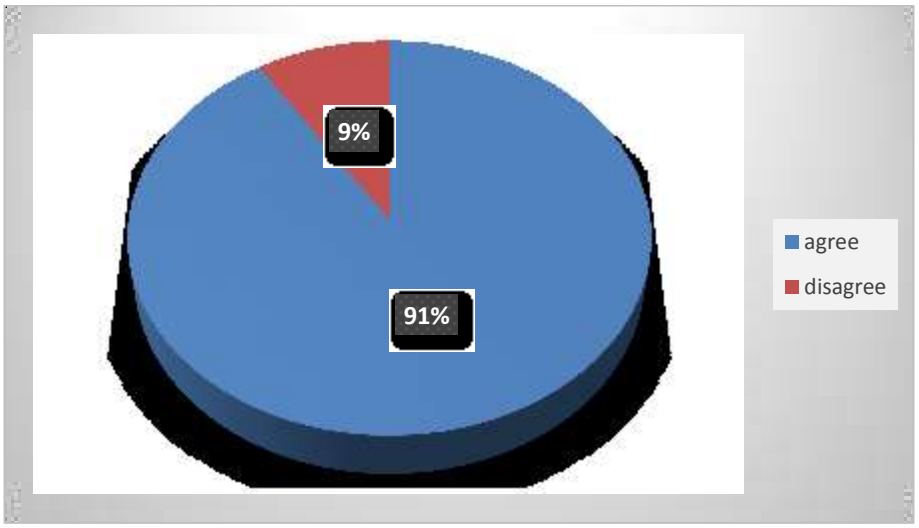
Graph 3-2: Enhanced Skills in Bloom's Digital Taxonomy

The two graphs and the table presented above clarify that 13 students (23.6%) reckon that listening is highly enhanced in Bloom's Digital Taxonomy, followed by speaking, writing then reading. Surprisingly, 12 students acknowledge that other skills such as cooperative learning, critical thinking, and self-learning is developed using bloom's levels and its digital tools.

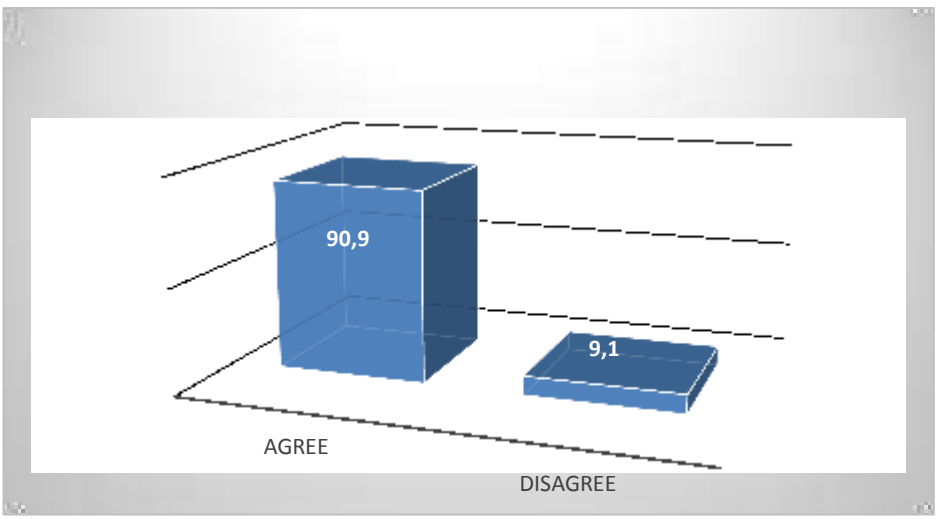
The next analysis is concerned with the acceptability of Bloom's Digital Taxonomy in learning EFL. In addition to that, the following table and graphs pinpoint the obtained findings:

Acceptability	Number	Percentage (%)
Agree	**50**	**90,9**
disagree	**5**	**9,1**

Table 3-2: Learners' acceptability towards Bloom's Digital Taxonomy



Graph3-3: Learners' Acceptability towards Bloom's Digital Taxonomy



Graph3-4: Learners' Acceptability towards Bloom's Digital Taxonomy

Through these numerical statistics, we have noticed that 50 students (90.9%) express that they are highly engaged into EFL learning when being taught with Bloom's Digital Taxonomy procedures. Essentially, they clarify that their macro skills are enhanced and improved while having EFL. By contrast, 05 of the informants (9.1%) showed a great interest and engagement towards the traditional method of teaching and learning EFL.

3.2.3. Teachers' Responses:

After collecting several responses teachers via our structured questionnaire, we begin now to analyze first teachers' perceptions and attitudes towards the implementation of Bloom's Digital Taxonomy in learning process; we have interrogated teachers about their target objectives and research interests while teaching EFL, and how would they integrate digital taxonomies in their classes? As well as their personal perception about considering Bloom's Digital Taxonomy as a method that orders thinking skills and target objectives for EFL students, stimulates interactions in the classroom. Then, we have asked teachers to enlighten our findings with recommendations on how educationalists and pedagogues can take benefits of Bloom's Digital Taxonomy to enhance EFL students learning. Their responses are cited as follows:

"To develop the most relevant method of teaching , also to be updated with regard to the latest challenges, issues, and the related solutions/suggestions. "

"It helps and encourage the development of strategies that are useful for the modern survival."

"One of the main principals of TEFL is linking the language teaching/learning to real life situations and contextualized use/purposes."

"We need to train people who can be ready/trained to face new situation and implement strategies to achieve efficiency."

"It helps learners to apply life-coping skills in different domains."

"Peer evaluation, pair work, visual presentations, and interviews are devise strategies where learners are encouraged to implement them intensively and extensively."

"Help student to be aware of their own objectives in learning. Involve more students in their own learning to be autonomous, and developed their skills as much as possible."

"The concept is beneficial in the sense that it orders the development of the intellectual skills from the simplest to the most complex, providing different opportunities to develop them. Hence, the effective factors are involved positively."

"It explains all the objectives of the course, implementing what is helpful for the variety of students and giving them the opportunities to be part in their own learning in order to get more autonomous."

"The aim of teaching EFL is not simply to provide students with knowledge, but mainly to help them how to use that knowledge."

"It offers useful ways to mediate critical thinking."

"Provide learners with online tools or access to digital materials, assessments, and strategies for an ongoing process of learning."

"Bloom's Digital Taxonomy should be integrated in all specialties because it is an essential element in teaching and learning EFL."

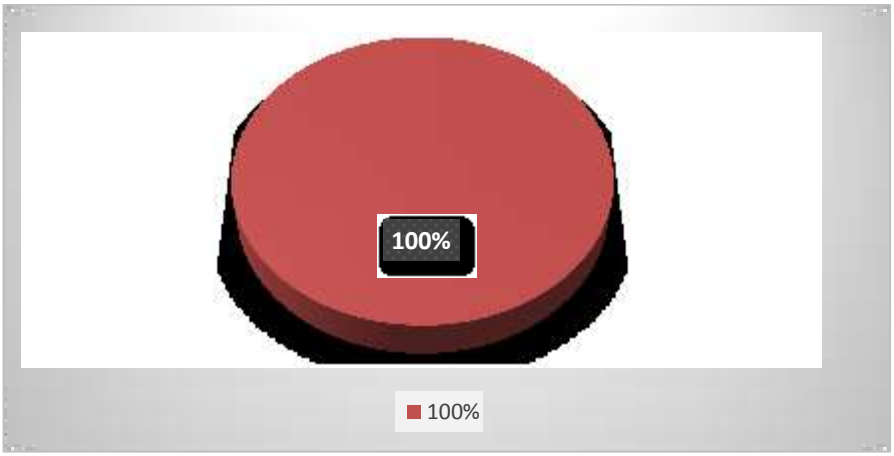
According to teacher's responses, we have notices that the majority of EFL teachers encourage the implementation and the incorporation of Bloom's Digital Taxonomy on their classes, because it permits both teachers and learners to access digital equipment and strategies in order to assess their production during the process of learning/teaching EFL.

3.2.4. Statistics of the questionnaire

We consider the teachers' reflections, perceptions, and responses as the backbone of our investigation, because they foster our research project and strengthen our clarification. Fort his prospect, the following table and graph demonstrate the results.

Reflection	Number	Percentage (%)
Yes	10	100
No	00	00

Table 3-3: Teachers' Perception towards the Integration of Bloom's Digital Taxonomy.



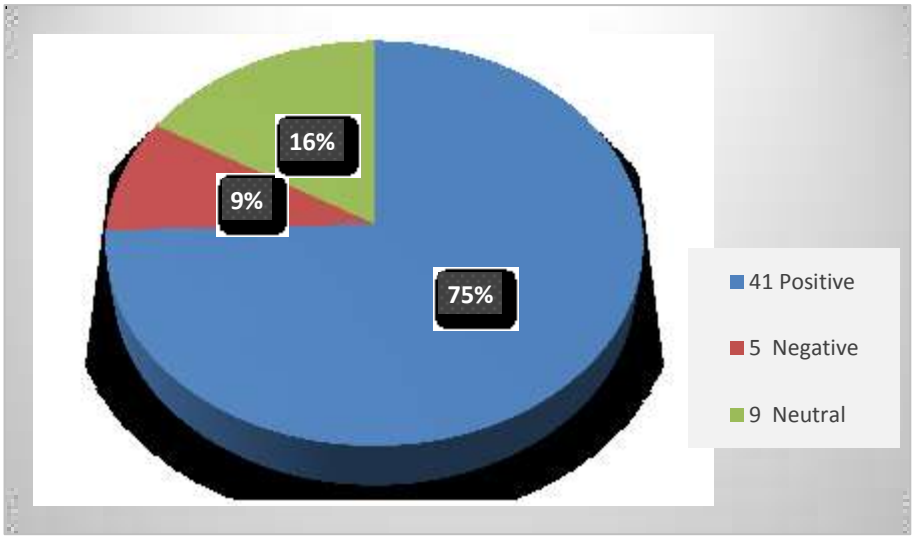
Graph 3-5: Teachers' Perception towards the Integration of Bloom's Digital Taxonomy.

Successfully, our initial predictions, expectation and hypotheses relatively matches the obtained results. Similarly, all the responses and attitude of the teachers (100%) confirmed the objectives of our investigation in this research project. Their responses reveal that Bloom's Digital Taxonomy construct new form of students' learning and offer modern and skillful teachers who believe in the potential of Bloom's Digital Taxonomy and apply it meaningfully within EFL courses.

The last analysis is based on both teachers and learners motivation toward the incorporation of Bloom's Digital Taxonomy in EFL teaching/learning**.** The following table and graph present the findings and illustrate better the results.

Number	Motivation	%
41	Positive	74,55
5	Negative	9,1
9	Neutral	16,37

Table 3-4: Teachers/Learners Motivation



Graph 3-6: Teacher/Learners Motivation

The table and the graph above specify that the majority of both teachers and students are highly motivated to adopt this effective method. Therefore, 41 informants (75%) were optimistic since they are convinced of the effectiveness of this aspect and accustomed with the use of digital tools and ICTs, as well as they can literally show applied it meaningfully. Whereas, 9 students (16%) decide to have neutral decision because they are not familiar with full virtualization of their learning.

3.2.5. The analysis of the interview; Ms. Giedre Sleziene, researcher at LCC International University in Klaipeda, Lithuania

After gathering several responses from Ms. Giedre Sleziene, (researcher at LCC International University in Klaipeda, Lithuania) via our structured interview, our aim is to have a discourse analysis on her perceptions and attitudes towards the implementation of Bloom's Digital Taxonomy in teaching/learning EFL. At the very beginning, Ms. Giedre introduces with a flashback about the emergence of the taxonomies, and then she claims that the most educators are familiar with Bloom's Taxonomy, a model that classifies different levels of human cognition and thinking, learning, and understanding. We have deduce that teachers are likely to use this taxonomy to guide the development of curriculum, assessment, and instructional strategies. Nevertheless, how this model is effected in the age of digital technology? How might it influences the instructional design?

The taxonomy has become an important model for instructing students learning processes. However, the effect of technology on this model leads to digital taxonomy. This updated version aims to expand upon the skills associated with each level, as technology become more ingrained and essential part of learning. For instance, some propose that new action verbs can be applied in each level. If we take a look at creating which learners are designing, inventing, and constructing a piece of work that shows what they know, learner can add new digital verbs to creating like blog, remix, or program. These refer to possible learning activities that incorporates digital technologies in which students are creating. Adding digital verbs to the taxonomy also promotes twenty first century skills like communication, collaboration, creativity, and critical thinking. Others have taken the six levels of the taxonomy and aligned them with technology tools that foster each level. For example, teachers can think about how to integrate apps and websites that help students to remember content such as flash cards or drilling practice tools. There are tools that help students analyze and make sense of content like reading charts, graphs, and mind maps, or they can think about what tools support creation like producing, blogging, coding, editing, and many more. With these examples, the focus should not necessarily be on the tools themselves, but on how the tools can be vehicles in transforming students thinking at different levels.

Throughout this fruitful analysis, we have deduced that teachers must weave technology into teaching in order to support different cognitive levels, also use the appropriate tools that help to address Lower Order Thinking Skills, and challenge students Higher Order Thinking Skills. In short, Bloom's Digital Taxonomy maximizes the student's engagements, and attempt to identify new ways and design rich learning experiences for students via the use technology.

3.3. Discussion of the Results

Throughout the discussion of the results, we have noticed that the key elements of Bloom's Digital Taxonomy made teaching and learning EFL effective and successful according to both student and teachers, because it provides a solid knowledge and expand the use of technology in achieving objectives. On the other hand, this method minimize the teachers' dominance and expertise on the course as well as create new atmosphere for learners to be more autonomous and self-direct. Accordingly, Benjamin Bloom claims, "If

ever the adequate teacher's method, teacher's personality and expertise had not been applied meaningfully". In other terms, the use of the digital taxonomies pave the way to weave mutual satisfaction from both teachers and learners in the process of learning.

From the teacher's comment on the implementation of digital taxonomies in learning and teaching EFL, we have concluded that more students are engaged and involved at the learning process. Yet, the numerical statistics of students increased and they show more interest in learning due to the use of this successful method. The results show that EFL students are satisfied with their individual achievement through the integration of digital taxonomies. Students began to differentiate between the traditional manner of presenting item and the suggested one, they realize that they can active their scheme and remember their prior knowledge, also they realize that they are able to have an individual assessment or evaluation for their own outcomes. In other words, learners have acknowledged that they felt partly involved in their learning process, especially when the teacher has allowed them to raise items or deliver presentations. Furthermore, we have deduces that the digital taxonomy levels suits the learners to a certain extent, it has a great meeting with their necessities. Especially, a massive development has been shown concerning the four macro skills (listening, speaking, writing, and reading) and others such as collaborating, criticizing, debating, and many more. As a result, the involvement of higher levels and digital tools lead to create thinkers who are solely assess knowledge, recall information, and exchange meanings. Thus, Digital Taxonomies pave the way for students who seek for the best digital tools to provide connectivity and accompany students along their course experience. In this prospect, one has to have a closer look at the principles that guide both of these ideologies in educational technology.

As a part of the LMD system, raising awareness about the significant of EFL is considered as a backbone for the sake of students' interests and involvement in the classroom. Therefore, we need to re-think about the used methods in teaching and the surrounding circumstances in order to make learner's mere involved and less bored. After the investigation of our questionnaire, we have noticed that all of teachers' responses are positive toward the integration of Bloom's Digital Taxonomy in their classes, in terms of applying bloom's teaching levels via the use of digital tools. Accordingly, their aim is to enhance the students' critical thinking and improve their public speaking skills. In addition to that, students declare that digital taxonomy is modern measurement tool that offers an

authentic language with accurate tools that leads to a leading learning process. So it is clearly obvious that the majority of EFL learners are optimist and support the concept of the integration of Bloom's Digital Taxonomy.

However, critical thinking is one of the missing skills among EFL learners, scholars and linguists consider it as a vital skill or a fundamental pillar in learning skeleton. Thus, the implementation of Bloom's Digital can train students and expose them to real english. As for creating and evaluating, those two skills are also enhanced through collaboration, interactions and feedback, in other terms the students themselves contribute to a massive extent in making learning process successful, while the role of the teacher is taken as facilitator or mediator. Moreover, Bloom's Digital Taxonomy offers a digital learning community where the students participate, practice their four skills (i.e. listening, speaking, writing, and reading), and are regarded to prepare items in order to be discussed in the classroom, and respond to students' questions. Consequently, the students stimulate successfully in the learning process as well as they have a better meeting with their expectations.

The combination between this analysis and the interview discussion leads to conclude that today's education has become globalized and digitized due to several factors, also we have discovered that both students and teachers reckon that the integration of Bloom's Digital Taxonomy will match the demanding goals of EFL populations. According to our participants Bloom's Digital Taxonomy is about "achieving your target objectives" because they found an opportunities to learn and reinforce an overwhelming amount of information and understand better academic research, also comprehend distinct information-related concepts, and share their opinions, and most importantly match the new knowledge with the prior one in order to have flexibility in learning. In this regard, Ms. Giedre reckons that learning is about "Know How to say What to Whom at the right Time in the right Place with the best Tool", through the analysis of this quote, we have discovered that Bloom's Digital Taxonomy support the students to develop their cognitive skills and make them aware of their prior knowledge, also target their objectives in any given task and speculate about how to use the acquired skills to learn what they ignore.

At last, the cradle of our results and outcomes was about a modern scientific research and a massive effort made all along the research project starting with net

meetings, interviewing, questioning, and experimenting. All these stages have been made only to encourage and support both students and teachers believe in the incorporation of Bloom's Digital Taxonomy in EFL context.

3.4. Perspectives toward the Incorporation of Bloom's Digital Taxonomy in Teaching/Learning EFL

Although Bloom's hierarchy is often taught as though it were educational objectives, Bloom himself never considered it the final word on either theory or practice. Instead, he judged its value by four criteria of usefulness:

- **Comprehensiveness:** Does it cover most learning behaviors?
- **Communicability:** Does it provide a common language for those who want to promote and assess learning?
- **Provocativeness:** Does it help researchers identify problems, develop hypotheses,plan learning, and identify methods and metrics? Can it be used to organize the literature and correlate varied programs and curriculums?
- **Acceptability:** Is it used by learners in the field?

According to Bloom's own criteria, his work has stood the test of time. Neither the original nor the digital taxonomies provide an all-encompassing theory of learning. However, his work made educators aware of the need to write objectives that target desired learning behaviors. His cognitive levels, properly applied, provide a workable framework for targeting two essential types of learning: foundational knowledge and higher-order cognitive processing.

Conversations about objectives and lower- versus higher-order thinking are now routine. This in itself is a desirable outcome. This does not mean the tendency to overemphasize memory and comprehension has been corrected. However, critical thinking is receiving greater emphasis. When Bloom first published his hierarchy, over 70 percent of instruction was drill-and-kill. Today that percentage is closer to 90 percent; critical thinking is now the most important survival skill for knowledge workers, according to Trilling and Hood. In addition, some companies want evidence of a return on their investment in training, which requires trainers and instructional designers to consider how to develop higher order thinking skills.

Airasian considers the concept of cognitive levels to be Bloom's major contribution because it gave teachers a new sense of the "range and depth" of what could be accomplished in the classroom and has spurred the development of assessments that measure more than rote learning. While his work has not been as influential among curriculum planners, Sosniak credits Bloom with encouraging reflection on how curriculum should be developed and what the outcomes of learning should be.

Bloom's work continues to provoke thought, as he had hoped. "Properly used, a taxonomy should provide a very suggestive source of ideas and materials for each worker and should result in many economies of effort," he wrote in 1956. His work continues to be used as a metric, planning tool, and inspiration for new research or assessment tools.

3.4.1. Raising Awareness

Since teaching is after all a human activity, and teachers play an important role to shape students' way of learning, TEFL should have a great care. For this prospect, we highly recommend EFL teachers to incorporate Bloom's Digital Taxonomy in all domains of EFL teaching and learning. Thus, they should be familiarized and accustomed with its philosophy and application within the classroom. Indeed, we also recommend future researchers concerning EFL to devote their further studies on bloom's levels and tools of learning.

3.4.2. Personal-Development

Bloom's Digital Taxonomy is taking a place of pride in the field of ELT (English Language Teaching). It is high for teachers to adopt another path in teaching TEFL. EFL platforms are in need to such modern and effective methods in order to get rid of absentminded and passive learners. Through our structured interview, we have discovered that most international universities and EFL institutions stimulate and advocate their teachers to take initiatives into digital taxonomy. Thus, it will develop their adequate skills to deal with this process by having peer preparation, professional development programmers, appropriate tools that encompass digital and technological techniques. These standards will help teachers to be trained to know what the best course content that can suit learners' needs and how to select it, also provide an ideal opportunity to acquire various skills in order to be applied in the classroom. One of the key developments of TEFL

teaching/learning in Abdelhamid Ibn Badis University is the incorporation of Bloom's Digital Taxonomy in EFL courses.

3.5. Conclusion

After a massive analysis and discussion on the final findings and results, we have deduced that both EFL students and teachers support the incorporation of Bloom's Digital Taxonomy in EFL course. Instrumentally, our data collection approaches and techniques leads to the same optimistic reflections and attitude from our participants. They reckon that the implementation of digital tools and methods into EFL teaching will help students to stimulate successfully in the course, also enhance their creativity and flexibility in learning. Essentially, most of the teachers' recommendation involved a set of tips and suggestions toward the integration of Bloom's Digital Taxonomy.

General Conclusion

General Conclusion

Throughout this research project, the main investigation and the target analysis is significantly highlight the integration of Bloom's Digital Taxonomy in EFL context. The core debate leads to conclude that Bloom's Digital Taxonomy is a set of educational levels and measurement tools that facilitate first the process of teaching for teachers and offer a solid knowledge for their students, also understand their individual mindset, interests and expectations. Whereas the learners will have a successful engagement or involvements in learning. The aim of our dissertation is to have further studies concerning the integration of Bloom's Digital Taxonomy, so we attempt to attempt to maximize the knowledge backgrounds from a diversity of perceptions concerning this concept. Especially, we have involves a sample out of the country as a source of new knowledge in order to globalize our dissertation's findings. Many schools and universities struggle to meet the students' needs and respond to the meticulous demands of the LMD system. Moreover, students' learning process is far from fulfilling its demanding objectives such as autonomy, self-directed learning, the mastery of the macro skills, etc. Accordingly, many scholars and language experts reckon that Bloom's Digital Taxonomy as a supportive tool to teaching and learning EFL that can bridge the gap between deficiencies and brilliancy as it can promote significant changes in EFL classrooms for the benefits of both teachers and learners. Consequently, we have concluded that the integration of Bloom's Digital Taxonomy is highly needed in EFL learning.

The cradle of this dissertation began with theoretical background i.e. Chapter one. In this chapter, we have faced many obstacles and difficulties in terms of finding reliable sources that review the historical emergence and background of this research project. Resourcefully, this investigation was based on a diversity of articles, multiple journals, bookstores, and interviews. All these key concepts provided us with a consistent review of literature.

Throughout this academic research project, we have followed and applied the fundamentals of both Quantitative and Qualitative methods as well as a systematic experiment and structured interview have been used in conducting this research. These approaches enlighten the researcher with further understandings and tangible tools concerning the target concept with M1/M2 students at the level of English department of

Abdelhamid Ibn Badis University. During this investigation, we have handed a questionnaire for ten EFL teachers in order to gather their feedback and perceptions concerning the integration of Bloom's Digital Taxonomy in teaching EFL. On the other hand, well-structured experiment have been presented and negotiated with student for a whole two weeks under the concept of using digital tools and bloom's levels to improve their skills in learning. Last feature in research methodology was about an interview with M.s Giedre Sliezen in order to bridge the limits and narrow the distance between the global learning of EFL and the adopted system of teaching/learning EFL at the level of English department of Abdelhamid Ibn Badis University.

The discussion of the results leads to explore that teachers' attitude is to a great extent positive since Bloom's Digital Taxonomy fit into learners' needs and what and how they should learn. Students are always exited to experience something effective and beneficial for them, especially when it is related in all ways with what they have been learning. Through bloom's levels and its digital tools, they can even catch up what they have been missing in the classroom through consulting the lessons and instructions. In this prospect, educators encourage the teachers to adopt this educational phenomenon and include it into teaching and learning to vary the atmosphere during the class; this is going to help student to be engaged and have various insights about different course contents, approaches, and methods. Consequently, learners will be exposed to a higher quality of learning and teachers become more technologically skillful in terms of delivering a successful course based on the incorporation of Bloom's Digital Taxonomy. In other words, the majority of our target population acknowledge that they are optimistic with this concept and the virtualization of their learning process.

Successfully, we have conclude that our initial predictions, expectation, speculations, and hypotheses relatively matches the obtained outcomes. Similarly, all the responses and attitude of our population confirmed the essence of the integration of Bloom's Digital Taxonomy in EFL context, which is about shaping new form of students' learning and offer modern and skillful teachers who believe in the potential of Bloom's Digital Taxonomy and apply it meaningfully within EFL courses.

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Appendices

1. **Teachers' Questionnaire:**

The integration of Bloom's digital taxonomy in EFL context

Dear teacher,

This questionnaire is designed to investigate the teachers' perceptions and attitudes towards the integration of Bloom's Digital Taxonomy in EFL context.

"Bloom's Digital Taxonomy is an acronym which stands for massive open digital analysis and manners of learning. Indeed, is not restricted to the cognitive domain rather it contains cognitive elements as well as methods. Its creation has not emerged coincidently or randomly but rather due to some pertinent reasons that led scholars and educationalists re-think about the future of education and the radical detour of which higher education will take in a world where digitalization is increasingly impacting people's lives and various domains".

1. Gender

Male ☐

Female ☐

2. What are your target objectives and your research interests while teaching EFL?

3. Do you take into account the cognitive domain of learning?

Yes ☐

No ☐

Why?

learning skills. As a university teacher, are you for or against its incorporation in your teaching?

For ☐

Against ☐

Why?

5. What are the different procedures that you apply to stimulate learning in EFL classroom?

Interviews ☐

Peer evaluation ☐

Pair work ☐

Presentations ☐

Others

6. Do you use any digital sources once you are planning or designing your lectures and lessons?

Video conferencing ☐

Net meeting ☐

Collaborating ☐

Coursera ☐

Universities websites (UK, USA, CA) ☐

7. According to your individual experience and personal understanding, can Bloom's Digital Taxonomy be effective and beneficial once using it in EFL classrooms?

8. Bloom's Digital Taxonomy orders thinking skills and target objectives for EFL teachers and students, Stimulating interactions in the classroom, and exposing students to authentic language (English). Are you for or against this concept?

For ☐

Against ☐

Why?

9. How would you integrate Bloom's Digital Taxonomy in your EFL classroom?

10. We would be very grateful if you could provide us w

Your assistance is greatly appreciated

2. Exercise

Verbs kick-start the learning process; each category is part of a framework of learning, and assessment with a number of dynamic verbs associated with it:

Original	**Knowledge**	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Revised	**Remembering**	**Understanding**	**Applying**	**Analysing**	**Evaluating**	**Creating**
Verbs NB. This list is not exhaustive	Arrange Define Describe Label Order Recognise Select	Classify Describe Discuss Explain Identify Paraphrase Rewrite	Apply Demonstrate Discover Interpret Practise Prepare Produce	Breakdown Categorise Compare Criticise Examine Outline Question	Assess Choose Compare Explain Interpret	Arrange Combine Connect Produce Publish Rewrite Summarise

While these verbs cover many learning activities, they don't address digital activities the learner may already be performing. Andrew Church added to the revised taxonomy to include digital verbs such as 'blogging, 'posting', 'reviewing', 'linking', 'sharing', 'editing', 'podcasting', 'tagging', 'twittering', 'commenting', 'social networking', 'social bookmarking', 'googling', and 'favouriting' and aligned them to Bloom's taxonomy: creating, evaluating, analysing, applying, understanding and remembering. These verbs are knowledge-driven and are integrated in instructional design.

Your e-learning strategy may already be aligned to Bloom's Taxonomy, but it's worthwhile considering how you can integrate Andrew Church's digital taxonomy into your instructional design

Choose activities which support digital learning:

- ask learners to create a learning blog (creating)
- consider discussion tools such as wiki forums (evaluating)
- incorporate mindmaps for brainstorming (analysing)
- ask learners to create an info map of specific job tasks (applying)
- ask learners to define job terms (understand)
- learners could use Google Drive to share information (remembering)