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Exploring the Obstacles and Challenges of the Open-Source Platform Moodle
The Case of Sciences of the Language Teachers at Biskra University

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Declaration

I, Ikram CHEIKH, do hereby declare that the work presented in this dissertation is solely my own effort, and has not been submitted for any academic institution or university for any degree before.

This inquiry was conducted and completed at Mohamed Khider University of Biskra, Algeria.

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Dedication

All gratitude to Allah the Almighty

Who granted me the power to accomplish this work.

With a delicate heart filled with enormous love & appreciation, I dedicate this

Dissertation first & foremost

To my beloved ***parents****, who supported me all the way through this journey.*

To my dear sister ***Rania****, brothers* ***Seif*** *&* ***Tahar*** *who have showed me nothing but*

Love & Compassion.

For my lifelong accompaniments whom without this adventure &work would not have

been successful ***Melissa, Ramia, Manar, Sana*** *I am deeply thankful for your existence.*

Lastly, To my best friend who has been the source of all the support & happiness in

this journey, ***Safa*** *I was blessed to have you by me.*

In memory of aunts ***Nora*** *&* ***Souad****.*

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Abstract

The unparalleled growth of internet-based technologies has resulted in numerous approaches emerging in the area of education manifested in the exigency to use e-learning systems. Authorities devoted enormous efforts to supply higher education institutions with web-based systems to offer online courses, often to complement traditional teaching and learning methods. Accordingly, this study sought to explore the situation within the English Department at Biskra University, through exploring the obstacles and challenges of the open-source learning management system Moodle. The study seeks to highlight sources of difficulty in use and adaptation constraints among EFL teachers. In addition, in seeking answers to our research questions, the study pursued a qualitative approach within which a case study design was adopted. Moreover, semi-structured survey questionnaire served as the study's data collection tool, on which 12 teachers provided invaluable feedback. After carefully analyzing and interpreting the data collected, findings suggested that impediments exist due to the insufficiency and lack of administrative support and assistance in making the platform accessible and easy to use by both teachers and students, in terms of mobilizing the necessary mediums and training workshops. Findings also revealed that teachers prefer to rely on other e-learning tools which are easily manipulated and accessible to them.

Key words: ICTs, e-learning, Moodle, EFL, impediments, integration obstacles, Blended Learning.

List of Abbreviations and Acronyms

AMS: Assessment Management System

CALL: Computer Assisted Language Learning

CAT: Computer-Adaptive Testing

CK: Content Knowledge

CLS: Collaborative Learning System

CMC: Computer Mediated Communication

CMS: Course Management System

EFL: English as a Foreign Language

ELT: English Language Teaching

EOE: Education Object Economy

ESP: English for Specific Purposes

GPL: General Public License

HTML: Hypertext Markup Language

ICT: Information and Communication Technology

L2: Second Language

LCMS: Learning Content Management System

LMS: Learning Management System

LOM: Learning Object Model

MOOC: Massive Open Online Courses

Moodle: Modular Object-Oriented Learning Environment

PCK: Pedagogical Content Knowledge

PK: Pedagogical Knowledge

SCORM: Sharable Content Reference Model

SLA: Second Language Acquisition

TCK: Technological Content Knowledge

TK: Technology Knowledge

TPACK: Technological Pedagogical Content Knowledge

TPK: Technological Pedagogical Knowledge

VLE: Virtual Learning Environment

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General Introduction

Introduction

Education nowadays trespasses the traditional instruction which takes place within conventional classrooms, due to the rise of international interest in the 1970s' to disseminate education. Stakeholders have been devoting serious initiatives to develop methods that ensure easy access to education for all levels. Therefore, it is no longer possible to think of education without associating it with ICTs. E-learning platforms come in handy, as they are considered to be the easiest and most effective type of systems developed for learning. Generally, E-learning has been defined as the instruction delivered on a digital device intended to support learning in spoken or written forms with the implementation of supporting materials such as illustrations, videos and/or photos.

E-learning has rapidly become an integrated part of assessment and learning for higher education, various educational institutions around the globe rallied to benefit from the available e-learning programs. For this purpose, ministries have devoted considerable amounts of money for programs (such as teachers' training) to integrate the available educational platforms. In the Algerian context, there seems to be a challenge that faces the ministry in providing a better education which would meet the needs of the Algerian students especially after independence. It is undeniably true that tangible achievements were realized in the long run which led later on to the introduction of some distance education mediums, to minimize the shortcomings of educational framing and to keep up with the latest approaches in learning.

However, the teachers' use of educational platforms as part of teaching in Algeria is significantly lacking in terms of daily access, accreditation and general interest. Notwithstanding the fact that today's learners not only tend to rely heavily on internet-based means of obtaining the necessary sums of information, they also have gradually developed an interest in exploring the different learning platforms available to them.

1. Statement of the Problem

Teachers at the university level are expected to make available teaching content on the platform, in order to make sure that it is easily accessed and shared among students who are in turn, expected to be exposed and reliant on the Moodle platform for better learning and

enhancement of their performance. Through the platform, teachers may interact with the students, evaluate them via tests or quizzes and track their educational profiles in addition to several other tasks. However, it is noticeable that the level of teachers' dependence on the platform in the English division at Biskra University is relatively poor or non-existent, as the majority of them shy away from using Moodle.

It is worthy of note that the Moodle platform is solely used by teachers to upload English courses. Despite the utilities and services it can provide to learners and the endless number of facilities to teachers, the Moodle platform remains no more than an icon on the screen of Biskra's University's e-learning portal. Moreover, the majority of English students were to develop familiarity with the platform due to the current situation marked by the Corona virus outbreak, given that it was unrecognized by most of the English students of different levels who were asked about the platform prior to such circumstances. With regards to this, it is possible to say that the platform remains unknown by the majority of students and underutilized by most of the teachers.

Therefore, this current research is carried to explore the underlying obstacles preventing teachers from effectively using the Moodle platform, contrary to the fact that the platform has been introduced through a training program at Mohamed Khider University, according to a report on its official website stating that the different platform roles were introduced and its different tools were explained. Participants were provided with practical examples where they were also able to apply what they have learned in terms of adding, editing, inserting courses and files and incorporating resources to the platform. Significantly, it has been claimed that the training course was successful since it had garnered a considerable amount of engagement among the training teachers. In wide brief, is it safe to claim that the aims of the training program were fulfilled to cater for long term and effective use of the platform? Do teachers recognize the importance and utilities/functionalities of the Moodle platform to ensure the success of its integration to compliment the traditional teaching/learning process?

2. Research Questions

The main research questions that stem from all what has been already mentioned are as follows:

RQ.1.What is the English teachers' perceptions of Moodle as an educational platform?

RQ.2.What difficulties do teachers of English face in using/accessing the Moodle platform?

RQ.3.What makes the Moodle training program proposed by the administration insufficient for the teachers to efficiently make use of the Moodle platform?

RQ.4.Could Moodle as an educational platform, enhance the course of EFL teaching at the tertiary level?

3. Aims of the study

- **General aims**

The study at hand aims to uncover the hindrances that make it challenging for teachers to utilize the virtual educational system Moodle. It seeks to find out the type of obstacles the platform is facing that the teachers and students are encountering several difficulties in integrating it into the teaching/learning process.

- **Specific aims**

The study aims to specify and classify the sources of difficulties. It attempts to find out the degree of familiarity and knowledge the teachers possess about the Moodle platform. It also aims to understand teachers' perceptions about the adaptation of the Moodle platform to overcome deficiencies within the context of Biskra's University.

4. Research Methodology

This study lends its self to *Exploring the Obstacles and Challenges of the Open Source Platform Moodle.* It is an exploratory research because of its nature given that it is conducted to gain information and explore problems that EFL teachers and students at the English division, face in incorporating the e-learning platform as a supportive tool for teaching. It is noteworthy that our exploratory research as a qualitative study employs a descriptive method in order to obtain data from the participants.

5. Population and Sampling

The population involved in this study is LMD English teachers at the letters and foreign languages department in the English division. The researcher has opted for

convenience sampling which refers to the individuals who happen to be the most accessible to the researcher. Moreover, individuals are selected based on non-random criteria, where participants are not equally eligible to be selected. In this study, teachers from the English division will be provided a survey questionnaire in order to infer their perceptions, use and knowledge about the Moodle platform. For convenience sake, the selected sample is 12 teachers teaching different levels at the English department.

6. Research Instruments

The researcher has mainly relied on a single instrument in collecting data from the sample, which is survey questionnaire. The questionnaire is administered to the relevant sample and data is collected based on a variety of questions (multiple choice questions, Likert scale questions, open ended questions and close ended questions) about the topic under investigation.

7. Significance of the study

Research in the area of ICTs with reference to higher education is considered to be of great importance since it witnesses a considerable amount of investments in terms of financial, material and qualified human resources. With electronic learning being a relatively newly introduced method of teaching in Algeria, the ministry of higher education has initiated considerable endeavours to supply the sector of higher education with the necessary modern technologies, to support curricula and expand access to technology-based learning.

The findings of this current study benefits both teachers and students considering that the Moodle platform can play an important role in EFL teaching at the tertiary level. The greater demand of distance learning justifies the need for more effective and efficient platforms that tend to facilitate the process of teaching. Thus, universities and institutions are recommended to apply and use Moodle to grant all learners an access to the learning content and materials at any time and place.

8. Limitations and Delimitations

We had the intention to conduct an interview with some members of Biskra's Center of Information Systems and Networks, Tele-teaching Communication and Distance Education; however, it was not possible due to several unsatisfactory factors imposed by the

Corona Virus outbreak. Hence, this study intended to operationally deal with the problem through teachers' and administrative perspectives.

The findings of this study cannot be generalized to the whole population, as data has only been drawn from the limited number of the sample.

9. Structure of the dissertation

In order to answer the afore-mentioned research questions, this present study is planned so as to include mainly three chapters, with the aim to exhibit the development of the study from theoretical to practical chapters.

First, **Chapter One** presents the main theoretical framework about the topic investigated; some concepts are presented throughout the chapter like theories in ICT integration, and Learning Management Systems.

Second, **Chapter Two** constitutes a learning situation analysis. i.e., it discusses theories in e-learning, e-learning trends and concepts and e-learning and ICTs status in Algeria.

Finally, **Chapter Three** deals with the collection and interpretation of data obtained from the analysis of the feedback obtained from the targeted participants of the study.

Conclusion

Learners often times tend to rely on internet-based means of learning to enhance their educational performance and educational platforms facilitate the process of delivering the educational input to them. However, teachers in our context do grant such practice much consideration, seeing that the platform of the Moodle remains unutilized and is urrently beset by a handful amount of hindrances which our study intends to search.

CHAPTER ONE:
LITERATURE REVIEW &
THEORETICAL FRAMEWORK

CHAPTER ONE: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Introduction

Living in the 21st century requires that we co-exist with the ways informational and technological modes are shaping the financial, political, social and cultural aspects of life. Students are expected to be functioning in a multidimensional environment that is technology-driven. Therefore, it became a necessity to ensure that access to technologies is a guaranteed asset to students regardless of their economic background.

Through Learning Management Systems which have become a distance and face-to-face learning medium, education is no longer a process restricted by time or place. These information systems facilitate teaching and learning and perform administrative tasks as well. They create a flexible environment for communication between educators and students. With the Moodle being the focus of this research it gradually incorporated features which have made it a world renowned open-source learning management system

This chapter lends itself to provide a view on the EFL teaching and learning pedagogies in the era of Internet and Communication Technologies. First, it elaborates on ICTs integration with focus on few integration models, to proceed with explaining pedagogy themes in relation to ICTs. Next, the focus is on the relatively new branch of Applied Linguistics Computer Assisted Language Learning. Furthermore, we introduced learning management systems and moved onto providing an account of the open source learning management system Moodle.

1.1. ICT: The Need for Integration

Research on the integration of ICT in teaching languages has been the topic of discussion for the past two decades; a considerable amount of literature established how it can make the learning and teaching experience more positive and greatly effective. However, within the process of integrating ICT, teachers are often expected to adjust their perceptions regarding their roles and develop skills which are specific to an ICT-supported learning milieu.

> "The use of information and communication technology in the educative process has been divided into two broad categories: ICTs for education and ICTS in education, ICTs for education refer to the development of information and communication technology specifically for teaching/learning purposes, while ICTs in education involves the adoption of general components of information and communication technologies in the teaching learning process." (Syed, 2005, p. 02)

This goes on to show that the integration of ICTs can be as broad as developing tools which are exclusively meant to enhance education, creating a totally new flexible learning model. Therefore, it is crucial to consider skills, learning activities and issues which may be generated from a learning activity to decide the type of ICT tool to use.

However, ICT integration is not an easy task since it requires considerable efforts and challenges to overcome in the process, whether cultural, environmental or educational. Therefore, it is necessary that instructors and policy makers understand how technology and the educational system reciprocally interact, so that authorities ensure that the integration is felicitous. Of the major reasons behind the unsuccessful integration of ICT is not integrating the educational system’s functions and procedures adequately; hence, the failure in assisting, and distributing knowledge and reaching application outcomes. There exists multiple techniques on paper defining the various ICT tools for the effective integration, yet it remains difficult to apply the literature (Patel & Patel, 2017, pp. 102-103).

1.1.1. Use Vs Integration

Using technology to teach or integrating technology into teaching, semantically it appears to be different wordings of a closely related concepts but that is not the case, states the Educational Technology and Mobile Learning website (2013) "technology integration in

the classroom we are talking about a planned and highly structured and purposeful use of technology whose ultimate goal is to engage students and help them develop new thinking skills" (para.01). Technology use, however, is not planned or highly structured but arbitrary; its aim is to merely inform students about the content to be learned and not to deeply engage them with the content ("Using technology vs technology integration-", 2013). Rao (2014) has concisely made a distinction between both activities summarized in Table.01 below:

Table 1 Using Technology Vs Integrating Technology Adapted from (Rao, 2014)

Using Technology	Integrating Technology
• Use is arbitrary, random & an afterthought.	• Use is planned & purposeful.
• Used sporadically for the sake of using technology in the classroom by the instructor in order to inform students on the content.	• Integrated as a routine part of the classroom environment to support curricula & learning objectives & is used by the students to engage them with content.
• Used to complete lower-order thinking tasks, to complete individual activities, which are feasible without the use of technology.	• Used to encourage higher-order thinking skills, to facilitate collaboration within & outside the classroom on activities difficult to carry out without technology.
• Used to deliver information & is peripheral to the learning activity.	• Used to construct knowledge & is essential to the learning activity.

Breed (2020) after elaborating on the major differences between use and integration ,she goes on to commend on technology integration into the classroom and how it was not as merely as using it. She points out the major features specific to tech integration, which enable students and teachers to function at their own pace. She explained that "Digital tools can be fitted in a number of creative ways to allow students to truly express themselves and grapple with the subject being taught" (Breed, 2017, para. 13), it also enhances teachers' workflow. Teachers are able to make use of ICT tools, after having considered a number of factors such as their teaching method, learner's learning styles, the subject matter and overall objectives

"Integrated learning management systems, internet resources and digital assignments that can be graded online, save educators valuable time...Streamlined processes make it easier to get down to the task of actually teaching" (Breed, 2017, para. 18).

1.1.1.1 Frameworks for Integrating Technology

Levels of ICT integration are how instructors employ technology on the different aspects of the course content. An ICT tool is used specifically in order to accomplish a course objective and the level of integration is bound to factors that are individual or contextual such as the knowledge about the technology to use, pedagogy, background and comfort levels. The course of compatible teaching with technology necessitates that educators alter current pedagogical and content practices, they are required to transcend knowledge about technology whilst thinking about their context to enhance educational practices, which in turn, incorporate the use of interactive technology, states Koehler et al. (2013) book editor.

Multiple authors have summarized levels of ICT integration, in the form of different ICT models or frameworks for effective technology integration in the classroom, the study at hand have dealt with three main models of ICT integration summarized below.

a) The TPACK ICT integration model

The TPACK Model stands for The Technological Pedagogical Content Knowledge Framework proposed by Mishra and Koehler (2006), which builds on Schulman's (1987) PCK approach referring to Pedagogical Content Knowledge, and includes technological knowledge as the new addition. They drew on the nature of technologies and the importance of their technology addition to the suggested ICT model (Asbere et al., 2017, p. 05). The TPACK model as illustrated in *Figure.01*, was developed based on the assumption that the content to be taught and pedagogy which is the "how you teach" are the pillar of what you plan to utilize as technology tools in your classroom to make learning more effective.

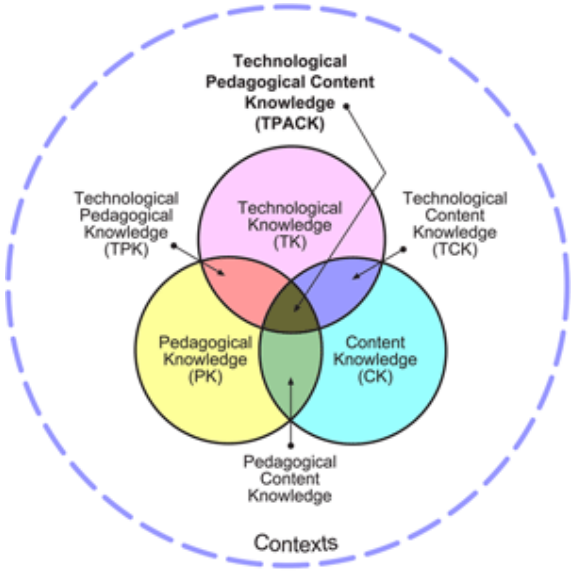

Figure 1 **The TPACK Framework by tpack.org ("Educational Technology," 2012)**

Shulman (1986) within his (PCK) framework, suggested that a special knowledge is required to make teaching effective, it was based on the idea that "the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to diverse interests and abilities of learners, and presented for instructions" (as cited in Koehler et al., 2013, p. 102). Mishra and Koehler (2013) in their development of the TPACK model set three main knowledge components, while elaborating on Shulman's (1986) framework which had given explicit consideration to the teacher's knowledge about technology for effective teaching. The three components were:

• Content knowledge (CK) represents the teacher's knowledge that he is supposed to teach as subject-matter

• Pedagogical knowledge (PK) represents the various strategies, practices and method in order to foster students' learning

• Technology knowledge (TK) represents the teacher's literacy about both traditional and new technology which can be incorporated as part of the curriculum.

They have further elaborated on how the previously mentioned components of knowledge interact, constrain and afford one another in the form of four components mentioned below:

• Technological Content Knowledge (TCK) represents the reciprocal knowledge of the relationship between content and technology; whereas, the disciplinary knowledge is determined and constrained by the technology's functionalities and representation capabilities

• Pedagogical Content Knowledge (PCK) is related to Shculman's (1986) notion of how topics, problems or issues are organized, adapted and presented to the learner's interests and capacities for instruction

• Technological Pedagogical Knowledge (TCK) is understanding that knowledge can both constrain and provide pedagogic practices

• Technological Pedagogical Content knowledge (TPACK) is knowledge of the highly structured relations of technology, pedagogy and content that make teachers able to create teaching strategies specific to the context.

The TPACK framework is not the solely developed framework that explains the educational use of technology, alternative approaches exist, which may advocate slightly different labeling. However, the approaches broadly agree that technology advancements necessitate that teachers acquire knowledge which enable connection between affordances (and constraints) and the (transformation) of content and pedagogy (Koehler et al., 2013, p. 102).

b) Activity Theory framework

According to Asabere et al (2017) the Activity Theory model views implementation as an activity system; the model is composed of three main processes of ICT integration which are selection, adaptation and change of practice (*Figure02*). The activity theory is a widely-spread approach for process development and learning, it includes individual, organization and technology altogether in a single framework. Russian psychologists such as Vygotsly (1978), Luria (1982), Leontjev (1978) and Engestrom (1987) were the major contributors to the activity theory with their development of the cultural historical social psychology in the 20th century. The theory has received major interests over the past 10-15 years that multiple authors have contributed to its development for pedagogical and software design such as Kari Kuuti (1996), who defined it as "a philosophical and cross-disciplinary framework for studying different forms of human practices as development processes, with both individual and social levels interlinked at the same time." (as cited in Nyvang, 2007, p. 02). Two views

on the activity theory were considered mainly, that of Leontjev (1978) and of Engestrom (1987).

Leontjev's main focus was on the concept of tool mediation where he originally explained how a tool withholds the outcome of the cultural historical development. Within this regard, a tool was also a mediator of the manner with which the user of the tool comprehends a given task. Furthermore, he distinguished three levels of an activity: activity, action and operation corresponding to three human behaviors: motive, goal and condition. He explained that motive is "the overreaching force" which is the drive behind our actions but it is often not provided with conscious attention. Goal is the current here and now which we pursue as being part of "a concrete action". Conditions on the other hand, are "the out of focus" but are crucial for an action. It is important to know that motive in an activity is possibly a goal in a different activity and that the development is the source of contradictions which oblige us to think of new practices, until contradictions are more complicated (Nyvang, 2007).

Engestrom considered both Vygotsky and Leontjev's views, however, less psychologically, the main concern was his definition of what was a developmental work. He established the triangular model that showcased the essential compositions and the mediating artefacts of an activity, "It is the implementation of ICT as the process leading from one practice to a new practice where the new practice is characterized by use of ICT can be elaborated" (Nyvang, 2006, p. 02). He further explained that an old practice could possibly be part of a new practice, since it was illustrated through artefacts, practices, culture, subjects or tools. Moreover, ICT implementation is not bound to the exchange of two tools only but also when a new tool sets new possibilities, practice conditions change which may lead to contradictions; consequently, introducing new practices. It is important to note that a newly developed ICT tool in a given context with a certain meaning could be defined differently, when implemented in a different context (Nyvang, 2007).

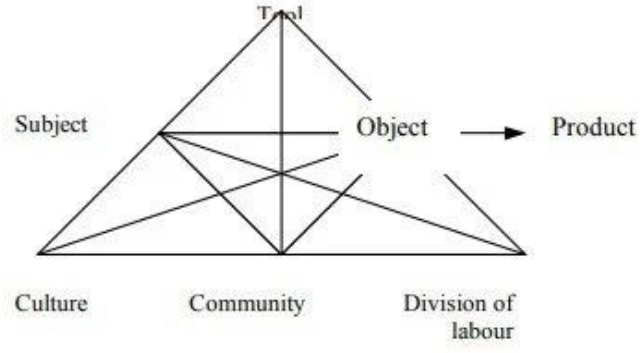

Figure 2 **Triangular model of an activity (Nyvang, 2007)**

c) The Generic Model for ICT integration

The generic model is composed of three main elements: pedagogy, social interaction and technology wherein an educational system is regarded as a blend of pedagogical, social and technological compositions as displayed by *Figure.03*. A pedagogical design requires process and it is not simply decided before a lesson, it must tackle not only the selection of appropriate content or activities but also how to make use of those resources effectively so that students learn efficiently. Moreover, pedagogical design must consider how to create an environment that satisfies learners' needs and fosters their learning intentions regardless of their background. It should also employ a variety of learning resources and activities that assist students in their learning and enables teachers to make learning easier (Chen, 2003; Kirschuner et al. 2004. as cited in Wang, 2008, p. 412).

Highlighting the social interaction element, Computer-mediated communication developments aid learners to perform social activities flexibly; their ability to use computers individually facilitates collaborative work and solves problem-based tasks. The learning environment's social design must be a safe place for learners to comfortably share information and communicate with others at ease (Wang, 2008, p. 412).

The technological element is the most distinguished in a technology-supported learning environment. Therefore, a web-based online learning environment must be accessible within any period to be convenient (Salmon 2004. as cited in Wang, 2008). The essential requirements for an online learning environment are to grant easy access and availability for users. Moreover, the interface design is a crucial factor that educators should consider given that it determines the extent of accessibility; hence, elements such as ease of use and

aesthetics must be granted an important amount of attention to make it attractive and ensure that it motivates and engages learners. Ease of learning is crucial for beginners whereas ease of use is gained through experience over time to become very important (Wang, 2008, pp. 412-413).

In sum, the three aforementioned elements are crucial for a technology-enhanced learning environment. The appropriate design of pedagogy and social interaction is based on the available technological support; technology is regarded as a basic condition for felicitous ICT integration. Henceforth, insufficient technological aids would hinder the implementation of several pedagogical and social activities such as simulations, or asynchronous online discussions. However, it is important to bear in mind that the primary factors which determine successful learning are the pedagogical and social designs (Mandell, Sorge, & Russel, 2002. as cited in Wang, 2008, p. 413).

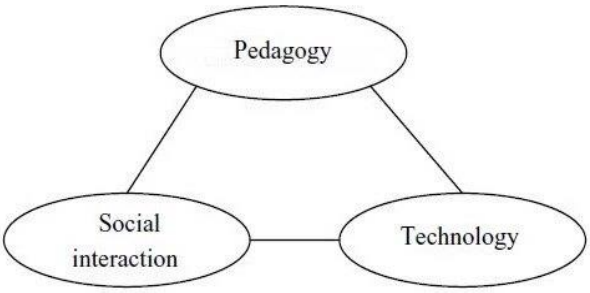

Figure 3 **Key components of the Generic model (Wang, 2008, p. 414)**

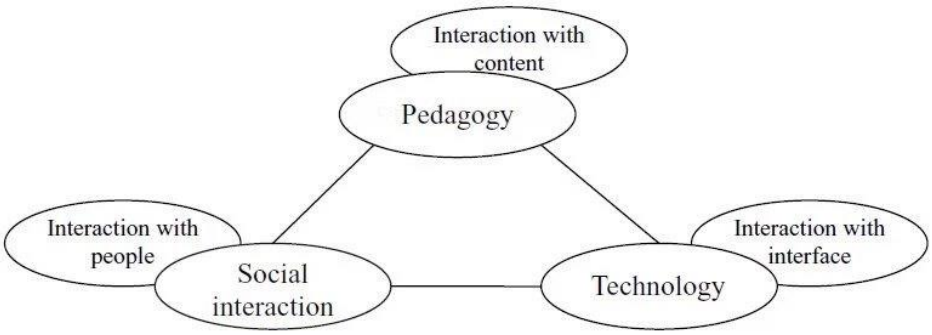

Figure 4 **Relationship between the generic model components & interaction (Wang, 2008, p. 414)**

1.2. Science of the Art of Teaching: ICT & Pedagogy

The more information and communication technologies continue to challenge modern educational applications, the more teachers are reluctant to make a change and adapt to its use and integration. Nevertheless, ICT redefines the concept of teaching and its practices to make it not only teacher centered but also involves student and make them able to define learning objectives and bear responsibility in achieving them; Hence, altering the traditional learning pedagogy as whole.

1.2.1. Understanding Pedagogy

Loveless and Ellis (2001) in their book chapter Pedagogy and ICT tried to develop an understanding of the complex context of pedagogy, they explained that the excessive use of ICT by educators is a chance to observe what teachers do and why. They provided an overview of current pedagogical perspectives and presented a workable model for discussion. Pedagogy was generally defined as the science of the art of teaching, or the "transformation of consciousness that takes place in the intersection of three agencies—the teacher, the learner and the knowledge they together produce" (Lusted, 1986. in Lather, 1991. as cited in Loveless & Ellis, 2001, p. 64). According to them, pedagogy is a focus on multiple aspects where teachers and learners are co-constructors of knowledge, these aspects can be the different teaching styles; context; learners, practitioners' and policy makers' outlook on learning and the purpose of education. Regardless of any contextual factors, the overall learning community is influenced by the teacher's approach to teaching, beliefs about the subject matter, content knowledge, organization and management skills (Loveless & Ellis, 2001, p. 64).

1.2.2. ICT and Pedagogy: Reciprocal Influence

Developments in educational pedagogy became interrelated with developments in educational technology. As the internet and World Wide Web have progressed, Vygotsky's social learning outlook aided educators who seek to design educational projects which target communicating groups (Basturk, 2005; Lane, 2001. as cited in Jha, 2017, p. 67). Shulman (1986, p. 08) posed several questions while observing gaps in knowledge development from a teaching perspective: Where do teacher explanations stem from? How do teachers make decisions? What to teach? How to teach? How to present it? How to question students about it? How to handle misunderstandings? (as cited in Jha, 2017, p. 67).

Loveless and Ellis (2001, pp. 67-68) stated that Knowledge construction from information is not about the mere ability to use various ICT techniques or skills with the newest software applications, it is more about the capability to access, interpret, analyze, create and deliver meaning from a given information which is known as 'IT capability' according to Loveless (1995). On the one hand, learners are required to develop an approach to ICT use that reflects readiness and initiative in order to develop several abilities, we mention: ability to filter, select and synthesize content from multiple ICT sources and ponder about its accuracy, plausibility and bias. On the other hand, how can instructors develop the necessary didactics to enhance this learning? In the pedagogical model of the interrelationship teaching factors suggested by Loveless and Ellis (2001), they seek to find out the kind of impact ICT can have on the components of such pedagogical model including "Subject knowledge, 'craft' skills in content organization and management, personal characteristics and perceptions of the current situation, teaching behaviors and the teaching context" (p. 66). With the use of ICT, teachers shift in the ways they manage and control activities; they also vary the nature of their interventions based on technical experiences and children's cognitive needs with relation to the employed tools (Ellis & Loveless, 2001, p. 69).

Language teaching in the era of globalization requires the exploration of new pedagogical models. Nevertheless, little agreement exists regarding what the new pedagogical models should include or exclude, students need to be prepared to adjust to collaborative and autonomous learning. The manner with which they gain knowledge should be more independent and it is necessary that any information is later on converted to accessible knowledge and skills through the use of a learning-by-doing-and-reflecting approach (Babalola & Bakare, n.d.).

Evidently, the most prevalent evidence on ICT effect on the educational content is when curriculums are expanded to contain subjects related to ICT for the purposes of avoiding overcrowded curriculums, to incorporate new subjects or to better deal with subjects which are allocated insufficient time within the classroom. Forms of ICT support in language teaching depend on language learning objectives and importance relativity of personal aspects such as fluency, grammatical accuracy, pronunciation…etc. For example, importance given to the area of pronunciation requires extensive practice and precise forms of feedback, this stresses the role of the teacher as a coach thanks to the other roles being covered by ICT tools. Regardless of the fact that the amount of available information through the use of ICT being

overwhelming, internet can guide learners to "search rather than surf" and develop their critical literacy (Kenning, 2007, pp. 111-132).

1.2.2.1. ICT and the teacher's literacy

Cox et al. (2003, p. 02) in their report about the research literature on ICT and pedagogy explained how the teacher's knowledge about the subject and about pedagogy influence the type of ICT resources to use "Teachers' pedagogies and pedagogical reasoning influence their uses of ICT and thereby pupils' attainment" (Cox et al., 2003, p. 03). They stated that the manner in which a teacher uses ICT in a lesson is the product of the teacher's knowledge about it and how ICT relates to the subject. Other teachers opt for ICT resources which have a relation with a given topic, whereas some teachers use ICT for the sole purpose of presenting learners' work in a creative way without the need for the direct application on the subject.

The report had established that the use of ICT had a better and direct impact on the students' achievement when teachers employ both of their knowledge about the subject and learners' comprehension of the subject. Additionally, when it challenges learners to question and ponder about their understanding through the individual use of topic-focused software, through pairs or collective class presentations, they grasp content better. However, due to the little research on the use of ICT in presenting and discussing students' work, the effects on their achievement were not yet clear. The report stated that the teachers' pedagogical beliefs and values also contribute to the ways technology-enhanced learning opportunities are shaped. The literature did not provide clear results about whether the technology was being employed as 'servant' to reinforce the existent teaching practices, or as a 'partner' which aimed to alter the ways teachers and learners interact with one another and with activities. Nevertheless, teachers are in constant need for specific ICT literacy to comprehend how to integrate it into lessons and there may be a need for the development of new pedagogies (Cox et al., 2003, p. 02).

The pedagogical applications of ICT vary from the little amelioration of approaches to the more essential modifications of the approach to teaching; for instance, a teacher uses an interactive whiteboard displaying content for classroom discussions in a traditional manner; whereas other teachers allow students to use the whiteboard to present footage of their production. Cox et al. have also established that the effectiveness of ICT use is prominent when the teacher and the software challenge learners' thinking and that if the teacher is

skillful in organizing and stimulating the ICT-based task, both collective and individual classroom work becomes effective. It is essential to know that above pedagogy and subject knowledge lays the range of ICT resources at the teachers' and students' reach, influencing the ICT integration to the curriculum and making it possible in the first place (Cox et al., 2003, p. 03).

1.2.2.2. A Didactic model for ICT application

Kozhuharova and Ivanova (2015) in their study presented a summary of didactic models for the application of information and communication technologies in education while concluding with a suggested didactic model for ICT use, its main structural elements were in terms of three areas: technological, pedagogical and organizational. An executive summary of the model would include: The internal structural units which are the innovative methods of learning relating to new multimedia tools, supporting creativity, participative learning and teaching approaches. The didactic model is composed of four main units as illustrated in *Figure.05*, the individual achievement enhancements supported by elements such as peer support, networking and community building which enhances borderless learning communities, institutional support which satisfies diversity factor and inclusive opportunities for lifelong learning in the society through multiple channels of access and participation (p. 466).

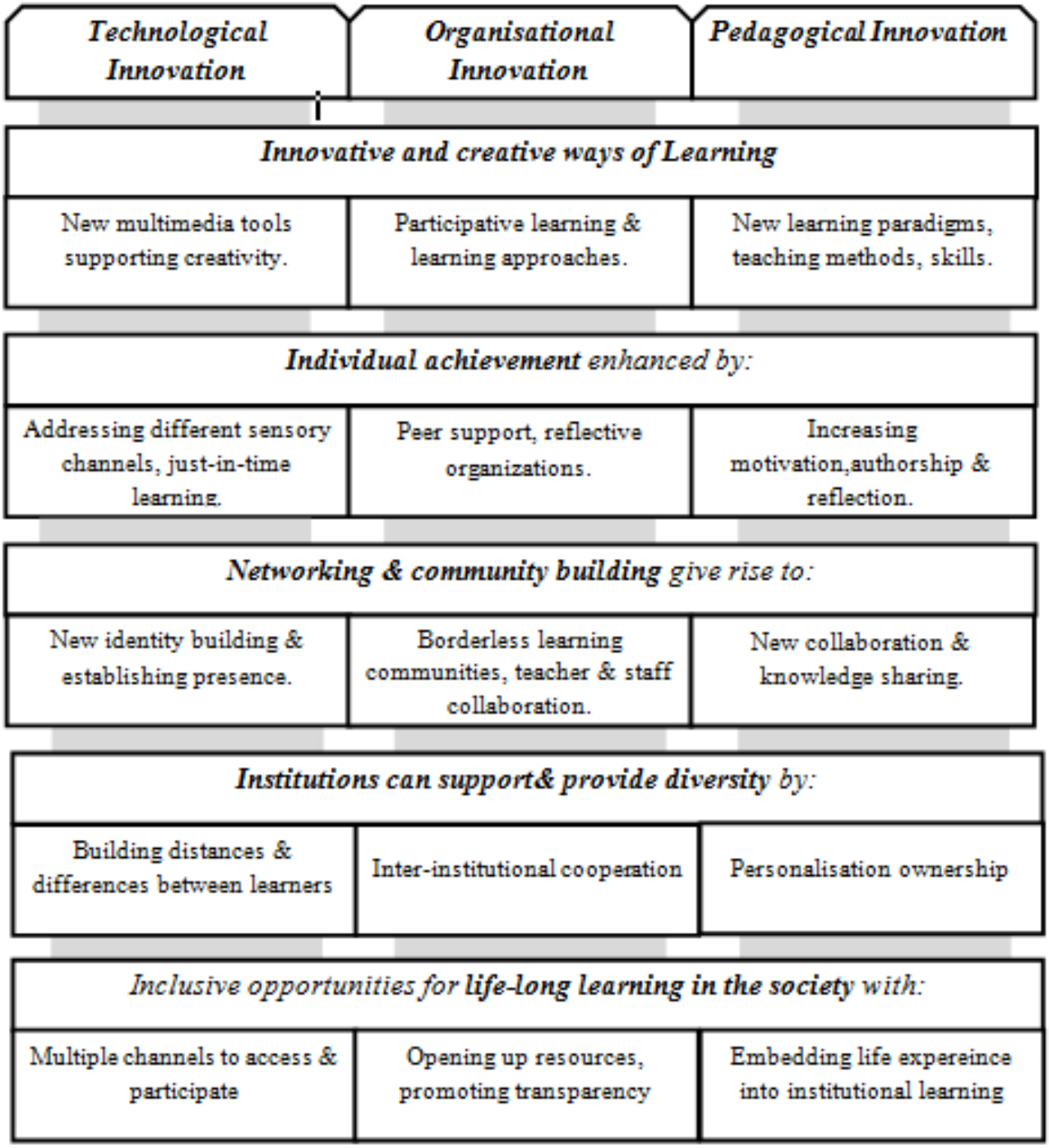

Figure 5 **A summarized didactic model for ICT application in education (Kozhuharova & Ivanova, 2015, p. 467)**

1.3. Computer Assisted Language Learning (CALL)

Computer Assisted Language Learning (CALL) had witnessed much application in the course of language teaching through the different technological resources available today. It is a relatively new branch of applied linguistics which is still in the course of establishing itself and is also closely related to other branches of studies within applied linguistics such as autonomy.

> "… the motion picture is destined to revolutionize our educational system and … in a few years it will supplant largely, if not entirely, the use of textbooks. … on average we get only about two-percent efficiency out of school books as they are written today. The education of the future will be conducted through the medium of the motion picture … where it should be possible to obtain a one-hundred-percent efficiency." (Edison, 1948. as cited in Donaldson & Haggstrom, 2006, p. 251).

Instructors who rely on new technologies to give students easy access to the target language are considered enthusiastic supporters of innovation; some instructors spend handful amounts of time researching methods to make language learning more motivating for students, hoping to overcome inadequacies of traditional teaching. The access to a myriad of technologies such as sophisticated computers and electronic gadgets made blogs, wikis, e-portfolios, social networking websites and plenty of other tools become basic learning and teaching tools.

The field of CALL is constantly witnessing change due the changing characteristics of computers and technological innovations, it has been described as an amorphous field of study due the fact that it is permanently developing in terms of pedagogy, computer literacy and software. Moreover, it often seeks to undertake research which refers back to old findings and challenges previously established knowledge about methods of carrying out teaching, and learning to create new ones; hence, its research agenda caters for various aspects involved in education such as material design issues, theories in pedagogy, instructional practices and technology. Computer Assisted Language Learning programs are not mere tools mimicking textbooks, its research and practice involves innovative applications which widen opportunities for teaching and learning in new ways. It can comprise materials which are purposefully made for language learning and materials which adapt already existent computer-based materials. Even though, the history of CALL is short enough to be fully

documented, it refers back to fields of study which are the product of fragmentation and little scientific evidence, making it impossible to do so. Advances in CALL did not undergo a linear process; in contrast, it exists between periods of ignorance and enlightenment. A definition of Computer Assisted Language Learning according to Beatty (2010) would be "any process in which a learner uses a computer and, as a result, improves his or her language", the definition suits the changing quality of CALL, it may appear as if it is not workable however, it covers CALL's broad spectrum of computer practices in language teaching and learning, an awareness of this spectrum will allow instructors, learners and researchers to identify methods and materials which are appropriate to adapt to the diverse teaching and learning styles (Beatty, 2010, pp. 16-23).

1.3.1. The Shift of Research Focus in CALL

The field of CALL distinguishes itself from other disciplines within applied linguistics in that the extents of changes occurring within the technological aspects intensely affect theoretical and practical research.

Beatty (2010) in one of his book series Teaching and Researching Computer-Assisted Language Learning, explained that interests in CALL were inclined to follow trends; the focus in early years has been on quantitative and qualitative vindications of CALL dealing with whether or not computers should be applied in language learning within the classroom. Notably, computers were compared against the teachers in terms of the effective teaching of discrete sets of knowledge, undermining computers' potential performances. An example would be a researcher measuring students' grammar acquisition through a computer with the acquisition of a control group through a teacher-led classroom. These studies are still in action with focus on specific hardware or software however not as frequent, since CALL became regarded as complementary to classroom teaching. The presence of different variations in computers' technological innovations are bound to stay as computers for education have evolved from a single unit in classrooms to labs to expand to individual ownership by teachers and students especially at the tertiary level, multiple university programs nowadays impose obtaining laptops as an essential condition to enrolment. Henceforth, current research in CALL leans toward what computers can be best used and for what purposes. Of the major challenges to CALL studies is the little empirical research and the delay in undertaking, reporting and publishing research due to the fast paced change in computer technology, meaning that the reported findings through the web, email or paper means will be out of date

before it is accessible to intended audiences. This delay created a cycle of extensive and repeated efforts and led to a lack of leadership acknowledgment when usual incremental advances are considered irrelevant if their software has been succeeded by newer versions covering earlier shortcomings (pp. 187-198).

> "…Integrative CALL…seeks both to integrate various skills (e.g., listening, speaking, reading, writing) and also integrate technology more fully into the language learning process. In integrative approaches, students learn to use a variety of technological tools as an ongoing process of language learning and use, rather than visiting the computer lab on a once a week basis for isolated exercises…." (Warschauer& Healey, 1998. as cited in Donaldson &Haggstrom, 2006, p. 258).

The present CALL research applications are to enhance tasks and content methods in an integrative authentic environment which widely differs from the earlier CALL research scope. According to Donaldson and Haggstorm (2006), structuralist methodology theories in 1980s which advocated communicative approaches were not able to support today's computer technology collaborative student-centered activities. Therefore, practices in CALL targeted written isolated drill and practices of computer technologies, leaving CALL with a narrow scope on its intersectional nature of context and on the evaluation of its effectiveness. The shift of focus is due to a change from using computer technology as a tutorial approach to its utilization as a tool that supports pedagogy and enhances the learning environment. The emphasis of CALL no longer focuses on technology but on pedagogical implementations and their effectiveness such as types of feedback and textual annotations. Consequently, assessment in CALL shifted its interest to the global and less quantifiable measures of foreign language learning such as the different types of competencies (communicative, pragmatic, cultural), purely qualitative socio-ethnographic studies of learners' reactions to technology-driven tasks and their interactions with the tutor and their peers (p. 258).

1.3.2. Computer Mediated Communication (CMC)

Through presenting images or videos and audio and various other types of input, CALL can build an authentic learning environment and simulate real-life-like situations which make users able to closely experience language in the target culture. Computer mediated communication (CMC) is one of the field terms peripheral to CALL and one of its widely spread activities. It includes communication through multiple, constantly developing

tools (emails, bulletin boards, chat lines, Multi-user domains object oriented MOO's, social networking services). CMC is when communication takes place through a computer-based discussion and it is not necessary that learning occurs, however possibilities for learning to take place are inherently present especially when it involves negotiation of meaning with native or non-proficient speakers using the second language. An example of CMC in practice could be a teacher of English asking students to collect information about each other through communicating online, language learning occurs through miscommunication and clarifications (Beatty, 2010, p. 69).

For Donaldson and Haggstrom (2006) CMC can also include mobile learning options, like cell phone and instant messaging. Quality terms in pedagogy shape technology adoption and use, these terms include time, space, materials, socio-cultural and individual related aspects. Temporal aspects include factors such as whether the technology is synchronous or asynchronous and its implications. Spatial aspects are in terms of active virtual worlds in simulated 3D communities for language learning. The material aspect considers layout and internal manifestations such as accessibility, mobility, range…etc. Socio-cultural aspects are the behaviors accepted and considered the norm in a particular mode of communication. Finally, the individual aspect includes personal background, preferences and factors that make users prefer certain technologies over others for specific communication purposes (pp. 03-04).

1.3.3. CALL and EFL Teaching

The customizable nature of instruction expanded opportunities to disseminate second language acquisition through software designs. CALL as a field can deal with the set of criteria of language acquisition proposed by Krashen (comprehensible, interesting and/relevant to the acquirer, not grammatically sequenced, delivered in sufficient quantity), in addition to the incorporation of sound images video and animation. Computers can ensure that the provided content is neither too easy nor too difficult for the learner through learner-driven elements such as selecting levels of comprehension or through key point answers to questions by the program known as 'Computer-Adaptive Testing (CAT)'. In creating a CALL model for SLA, there are underlying problems in the course of its development due to the large scope of what to consider from the field and its changing nature. A model either adapts to the broad definition of CALL or defines a narrower set of CALL aspects and considers them in the establishment of the model, the instructor then needs to consider a range of necessary variables and identify a current model for teaching to observe which variables require

reassessment (Beatty, 2010, pp. 88-144). Table.02 illustrates the functions computers can and cannot perform when integrated as a driving language teaching medium.

Table 2 What computers Can and Can't Do, adapted from (Meskill, 2002, p. 122).

Computers **CAN**	Computers **CANNOT**
·Judge predetermined right-or-wrong answers (multiple choice and fill-in-the-blanks)	·Judge unexpected input
·Provide immediate, yet fixed, feedback, suggestions, and encouragement	·Provide individualized feedback beyond a predetermined list of messages
·Provide authentic information through multimedia texts, images, sounds, videos, animations.	·Engage learner in rich negotiation of meaning characteristic of face-to-face interaction
·Motivate task persistence & Record learner's writing, speech, learning progress.	·Motivate depth and quality of engagement characteristic of human interaction

1.3.3.1. The integration of corpora

Corpus linguistics is a body of text composed of spoken and written samples of language, it can be a brief text or it can extend into millions of words in the form of single words or full structures, these bodies of texts can be referred to for grammatical or other functions such as the British National Corpus (*http://www.natcorp.ox.ac.uk*). However to access and utilize the corpus, the user needs a concordance which is tool that views the words individually or by groups then lists them with their respective contexts (Beatty, 2010, p. 67)

> "….Both teachers and learners can use corpus linguistics in various ways within the classroom. A teacher might collect a set of student assignments and use a concordancing program to analyse examples of learners' language looking for typical error patterns. Systematic errors in learners' writing can

> be used as a basis for the development of learning materials…." (Beatty, 2010, p. 67).

It is agreed that introducing corpus as part of the language learning process grants accessibility to rich amounts of data in authentic contexts, such exposure builds inductive and deductive learning which is impossible to reach in a traditional pedagogical classroom (Aston, 2001; Hunston, 2002. as cited in Levy et al., 2010, p.146). In an investigation conducted by Liu and Jiang (2009) dealing mainly with the effects of corpora use for lexico grammar teaching and learning, positive results were mainly elicited such as a better control over grammar rules and acquiring learning through discovery skills (Levy et al., 2010, p. 146).

1.3.3.2. The role of the tutor

E-tutors perform various roles in the learner's learning process that they themselves must be aware of, they are required to provide constructive guidance and behave like an ideal learner to become the students' model exemplary e-learner. According to Tammelin, Peltonen and Puranen (2007), the tutor can be a coach/trainer, an advisor, a supporter of learning goals, a motivator, and a creator of content and positive atmosphere (as cited in Levy et al., 2010, p. 233). Central tutor roles are also the skill to listen and interpret the meaning learners try to convey, to address unfavorable feelings or attitudes towards learning online and to provide instructions and guidance when they are faced by obstacles.

The tutor also needs to discover the right technological balance through decision making with regards to the learners' objectives and available resources. His practices arise from his perspectives about the nature of language learning to clarify learning objectives and the pedagogical approaches which lead to decisions like which language aspects to highlight and isolate. The tutor needs to be aware of how to appropriately apply technological resources and merge them with face-to-face interaction and be aware that particular technologies exercise its respective distinct effects (Donaldson & Haggstrom, 2006, pp. 01-02).

1.4. Learning Management Systems (LMS)

Amidst a world shaken by tremendous advancements whether relevant or not to education, informational and communication technologies continue to feed on the complexities these innovations bring. Design and application in the current educational trends absorb new teaching and learning approaches which the essential drive for their development

may not have been education in the first place; however, are successfully integrated to promote meaningful learning.

Bonk and Reynolds (1997) suggest that shifts in stakeholders' needs regarding education paved the way for virtual learning, making it a more complex process to create a learning environment that caters for teachers, students and administrative needs (as cited in Chaubey & Bhattachrya, 2015). Furthermore, Chaubey and Bhattacharya explained that the new technology enhanced teaching and learning, the knowledge societies and globalization and the endless varieties of ICT tools influence on pedagogy, learning management systems were introduced to change distance learning once and for all. On the one hand, a learning management system was simply defined as a web or cloud based software which supports teaching and learning by delivering instruction and training with an easy access granted to administrators and learners to services that are not bound to time and place restrictions.

On the other hand, a technical definition of LMS is a software system to administrate, document, track, report and deliver an e-learning course or a training program (Ellis & Ryan as cited in Chaubey & Bhattacharya, 2015). Rubin et al. (2009) state that, "an effective LMS must support active engagement, meaningful connections between segments of the course, easy communication, and formative feedback on work that is presented in class discussions or through other venues" (p. 82).

However, a learning management system involves more complicated processes, it sets out the educational content management and submission premises along with learning or organizational goals and assessment, channels the progression toward these goals, and provides what is necessary as data for managing the learning process of the institution (Watson et. al, as cited in Babo & Azevedo, 2011).

1.4.1. Learning Management Systems: A Timeline

Chaubey and Bhattacharya (2015) summarized the evolution of learning management systems from its first developments up to its modern innovations, starting off with the 1960's Programmed Logic for Automated Teaching (PLATO) as the very initial computer-based online community, at the time the term Learning Management System designated the system's management aspects. Moving onto 1983, it marked a huge leap in computer-based learning systems through the collaborative project between Massachusetts Institute of Technology (MIT), Digital Equipment Corporation and The International Business Machines

Corporation (IBM) introducing Project Athena aimed at delivering a campus-wide computing environment. The year 1990 was marked by the introduction of FirstClass, originally created for what is known as Macintosh Platform by SoftArc but it became the forerunner of many of its features which remain in use to date.

In 1997, Interactive Learning Network was set up at the level of various campuses for use and had the same developers of today's BlackBoard and CourseInfo and by 2002 the revolutionary Open Source Learning Management System Moodle was developed, giving teachers and trainers more flexibility in the creation of training. The year 2004 witnessed the launching of SCORM by the Advanced Distribution Learning Initiative and the year after, Virtual On Demand By Nacon Consulting came to existence, it marked the first distance education system with only a web browser enabling users training on software programs. Starting from the year 2012 onwards, LMS relied on the cloud technology enabling full access to LMS tools without a need for the installation of software systems by the institution's computer and simply accessing the LMS through the web (Chaubey & Bhattacharya, 2015).

1.4.2. General Components of a Modern Learning Management System

In short, a learning management system is software that delivers and administrates learning in an automatic manner through its functions digitally; this software system is composed of major and minor components (Wang & Chen, 2009. as cited in Babo & Azevedo, 2011).

1.4.2.1. Course Management System (CMS)

It is considered to be the brain that links with the other systems, it enables developers to perform functions such as adding or removing a course, adding students to a course, appointing educators to a particular course or a section of it, classify courses according to the curriculum and monitor different system processes (Watson & Watson, 2007. as cited in Babo & Azevedo, 2011). A common belief is that this is what an LMS is, but in fact these functions are primordial and it is required to bind with other systems and for an LMS operates well when it ensures everything is delivered to its appropriate location in the appropriate way (Babo & Azevedo, 2011).

1.4.2.2. Learning Content Management System (LCMS)

The main function a LCMS serves is the distribution of multimedia content, it is a system with subsystems allowing it to perform tasks and most of its operations occur in the

background where users are unable to witness them, such as course content authoring. Developers can use this system to design courses and upload the content without the need for them to understand what is taking place to do so since it is stored as content object; however, it is necessary that these operations function appropriately (Watson & Watson, 2007. as cited in Babo & Azevedo, 2011).

1.4.2.3. Collaborative Learning System (CLS)

It is considered as the fastest changing component and the one not available to all LMS, it needs third party apps to accomplish this system's functions. It allows the use of web.02 tools of interaction and communication such as discussion groups, newsgroups, instant messaging, blogs, bookmarking, notice board, search tools and emails…etc. and it also manages mobile connections. This system requires the developers to grasp social learning theory to reach desired outcomes (Babo & Azevedo, 2011).

1.4.2.4. Assessment Management System

The system manages assessment forms to make sure that all assessment results are recorded and delivered properly. It must provide the developer with the required tools to have an ability to design these operations in a flexible manner in order to assess performance (Babo & Azevedo, 2011).

1.4.3. Learning Management Systems Main Categories

Authors classify learning management systems into different categories considering their accessibility, applicability and purpose Dobre (2014) summarized the LMS into three main categories.

A. Proprietary LMS

Learning management systems which have been copyrighted and licensed by their owners under exclusive legal rights, it requires the installation of servers at the level of the higher education organization servers and the existence of advanced infrastructures, the best example can be the BlackBoard Learn.

B. Open-Source LMS

The open-source LMSs are learning management platforms which made available the source code under a public free license, this giving to the user the rights to use, to change, to study, to create and to distribute the results, free of charge, to anyone and for any purpose.

This is equal to a donation done by developer/s to the public for the public interest (Dobre, 2014, p. 318) Oepn-source LMS was developed as an alternative to the proprietary, it does not require much financial cost or advanced infrastructure and offers a greater flexibility in developing an LMS based on personal needs. Additionally, higher education institutions can modify the software and freely decide when to upgrade it and the Moodle is the leading open-source platform in the market.

C. Cloud-Based LMS

The cloud feature introduced the ability to access the platform directly through the internet without a need for the installation of LMS, it also enables the modification and management of content directly through the web, it is a low cost option with no maintenance requirements on the part of the users.

1.4.5. LMS and Higher Education

The shift in educational paradigms imposed a need for higher education to reach out to students on and off campus, that LMSs now are an inseparable part of the higher education landscape all over the majority of the world's universities. Authors note that operating a traditional course online makes learning management systems the most appropriate option, Bonk and Graham (2006) account for the facilitating aspects LMSs offer to higher education, contributing to the smooth conduct of online learning while settling on three major points. First, the underlying pedagogical strategy that bedrocks the establishment of the LMS itself, these theoretical approaches whether purposefully or not considered by the developer lead to an improved pedagogy and it is often either a student focused or a teacher focused approach the MOODLE can be the best example. Second, the flexibility and access granted to teachers through the LMS in terms of: course completion status, course content management and modification, participants history and status, statistical output on grading and learning outcomes. Third, the holistic function LMSs offer in terms of: information/course/learning management, assessment and consistency of content (as cited in Chaubey & Bhattacharya, 2015).

1.5. Moodle: The Free Open-Source Learning Management System

There exists a sort of discrepancy regarding what expression to use to specify educational computer applications such as Moodle since a myriad of expressions exist in the literature such as: e-learning systems, Learning Environments (VLE), Learning Management

Systems (LMS) or Course Management Systems (CMS), the common characteristic is that these educational tools offer manageable features to create an online course. They are a doorway to course contents taking different formats from texts to images or sounds with interactions taking place through different e-learning communicative tools, the Moodle as an open source platform makes it into one of the widely used platforms worldwide due to its configurable functional features (Costa, et al., 2012).

The Moodle based on socio-constructionist learning represents a new framework for pedagogy; it supports the completion of collaborative activities synchronously or non-synchronously, free of charge information creation given that it can be accessed through the internet. In terms of use, it does not require in-depth digital knowledge since it is characterized by a simple organized interface that guides the users through modules. The Moodle is suitable for use in public or private education, full or part time e-learning or blended learning. Moreover, it allows the staff personnel to easily communicate and contact students through the creation of an educational community, making it a space that provides knowledge and assessment (Oproiuo, 2014).

Cole and Foster (2008, pp. 04-05) in their book teaching with Moodle, demonstrated that it was a large global active community of system who make up the cornerback of its success through accessing the Moodle.org, which has more than 300,000 registered people, over 30,000 Moodle sites across 195 countries translated into more than 70 languages. Individuals are able to get in touch with people who are always willing to answer questions, supply advice and aid users on how to use Moodle and solve problems effectively. Both developers and users work jointly to suggest modules for development and develop new features, Martin and his team makes decisions on which of the features is fully elaborated to officially release it and users have the freedom to test and experiment with these new features. Moodle is an open source free management system, often times referred to as virtual learning environment (VLE).

The platform has over 30,000 institutions around the globe using it for online or blended learning or other purposes, and the availability of the platform on the web makes it easy for anyone to download and start making use of it at (http://www.moodle.org). The word is an acronym which stands for Modular Object-Oriented Dynamic Learning Environment and it is also a verb ‘’to Moodle’’ which stands for doing things as they occur or as has been described by its developer Martin Dougiamas, the enjoyable tinkering which leads to

creativity. Moreover, they demonstrated that the notion of open source systems has been a concept which altered the area of software development, which currently goes hand in hand with the academic perceptions of freedom and knowledge sharing. Users are able to download Moodle without any licensing, maintenance or upgrade fees on as many servers, users are free to upgrade or not and choose the features they want to incorporate into teaching/learning as well as creating new features and improving performances (Cole & Foster, 2008, pp. 04-05).

> Open source means that the code is available by licensing agreement and that you can customize it and redistribute it (http://opensource.org). These have been powerful factors in the development of open source software for a wide range of free or low-cost software (Stanford, 2009, p. 08).

Setting up the Moodle can cost little as much as hardware due to its database and operating system being open source, an institution is able to set up the platform with no costs at all if they wished to. These unrestricted terms of the Moodle's use can be the driving force behind its wide spread and it is worthy of note that lightweight PHP language scripting tools paved the way for Moodle to develop quickly. Moreover, Moodle partners worldwide which are over fifty have developed an exclusive control over their commercial services through making Moodle a trademark that falls under a number of restrictions, making Moodle not only a software but also a brand through a company Dougiamas established called Moodle Pty Ltd. The brand comes to play when people try to make profit from Moodle, only then they have to pay Martin who owns the right to its copyrighting terms. In addition, partners who sell Moodle services around the globe are required to pay 10% of the profits to the company, this allowed the Moodle code to be free and open but simultaneously full legal control was in the hands of its lead developer Martin Dougiamas. Henceforth, cost wise, the Moodle community in-house activities lowered expenses that the Balckboard and WebCT cannot be on par with that of the Moodle (Costello, 2014).

Within this regard, William Rice (2006) in his guide on Moodle course development implied that the Moodle is the kind of platform that offers a unique online learning experience that transcends merely an online course, what is often a series of web pages or images and animations followed by quizzes. It supplies just about the right features to foster an active learning environment flooded with students to teachers' interactions. It is immersed with web pages to be explored, courses supplied with live chats, forums that enable users to classify content relevance, online workshops for students so they can work collaboratively and assess

one another's work, polls that showcase the student's perceptions about course progress and repositories for them to share their files.

1.5.1. Moodle Origins and Developments

Works on Moodle go back to as early as the 1999's before its official release in 2002, Martin Dougiamas Moodle's founder had an early exposure to distance learning as he grew up in the Australian outback in the 1970's, taking lessons from the School of Air (History, 2019). He was a Computer Science graduate of Curtin University where he had his experience with WebCT, then a graduate of Curtain's University of Technology but he pursued pedagogy studies at Masters and PhD levels. In 1999, he went on to help run the installation of WebCT at Curtain University, due to the difficulties faced with the software's proprietary licensing that prevented its adaptation. Dougiamas was urged to look for an alternative method for online learning and decided to create an alternative virtual learning environment which is open source and is rooted in social constructivist principles, what became the center of his PhD (Dougiamas & Feldstein 2010. as cited in Costello, 2013).

Dougiamas early prototyping attempts for a new learning management system were in 1999, he released a paper titled "Improving the effectiveness of tools for Internet based education" which dealt with a study he conducted to look for areas to improve the Moodle as an online course tool. As research was in continuous development, Moodle was first released in 2001 under General Public license (GPL), the first ever Moodle was Peter Taylor's site http://smec2001.moodle.com at Curtin University (History, 2019) as illustrated in *Figure.06* and *Figure.07*. Its source code was available to the public and individuals could modify Moodle by just releasing the modifications code of the redistributed modified version back to the public domain (Costello, 2013). Martin Dougiamas and Peter Taylor released a paper titled "An Interpretive analysis of an internet based course constructed using a new courseware tool called Moodle" which attempted to summarize the links between the participants' experiences and Moodle and to improve the ability of Moodle as a tool to create online courses that incorporate and further develop a social constructionist pedagogical framework. At the close of 2001, Moodle was available to download via CVS with basic installation documentation and in August 2002, Moodle 1.0 was released and was discussed on forums and translated into different languages (History, 2019).

According to Costello (2013), Dublin City University was the veteran adopter of Moodle in 2003, its evaluation committee demonstrated that Moodle's open source,

unrestricted technical access and social constructivist philosophical pedagogy were suitable to DCU educational approaches and although some features of the Moodle were lacking, it was ranked the same as WebCT in terms of practicality and hoped for the lacking feature to be available in the near future or developed by the university itself. ‘’the high cost of the commercial alternatives such as WebCT; fear of “vendor lock-in” to alternative commercial products; Moodle’s online community, including its bug tracker, code repository and public discussion forums; and the growth in the developer community that it was experiencing’’ (McMullin & Munro, 2004. as cited in Costello, 2013, p. 06).

By 2005 Moodle grew bigger, companies rallied to become Moodle partners with the first Moodle Moot held in Oxford 2004. By 2007, Moodle had better documentation and a new certification and became established as an award-winning open source learning management system. It had more than million registered users in 2010, and was translated to over 100 languages with more than 50 partners around the world. November 2010, Moodle 2.0 was released and the platform had feature enhancement releases every six months. Moodle’s official HTML5 app release in 2013 made mobile technology the next focus, it had an adjustable theme for the various screen sizes. Holding the Moodle Research Conference in 2012 was to point out how such an advanced technology and design sophistication was deeply rooted in social constructionist pedagogy and with the official Moodle MOOC, Learn Moodle inauguration in September 2013, more than 9000 contributors to its basic features were revealed to encourage people to share their experiences. The MOOC took place once again in January 2015 and now it runs every six months. With Moodle undergoing a major redesign in July 2015, Moodle Cloud has been introduced to offer “free HQ-managed hosting” and throughout 2016 the HQ focused on the betterment of User eXperience (UX) by establishing the first UX team and introducing the fresh Boost Theme which was a new default theme Statistics on Moodle.net showed how it surpassed 100 million users by 2017; Furthermore, 2017 was the year that a handful amount of projects took place such as Project Inspire with an aim to integrate open source solutions to learning analytics, establishing the first Education Team and releasing Moodle Desktop. In 2018, MoodleNet was established and launched beta testing in January 2019 and by June 2019 Moodle surpassed 160 million users on more than 106,000 sites (History, 2019).

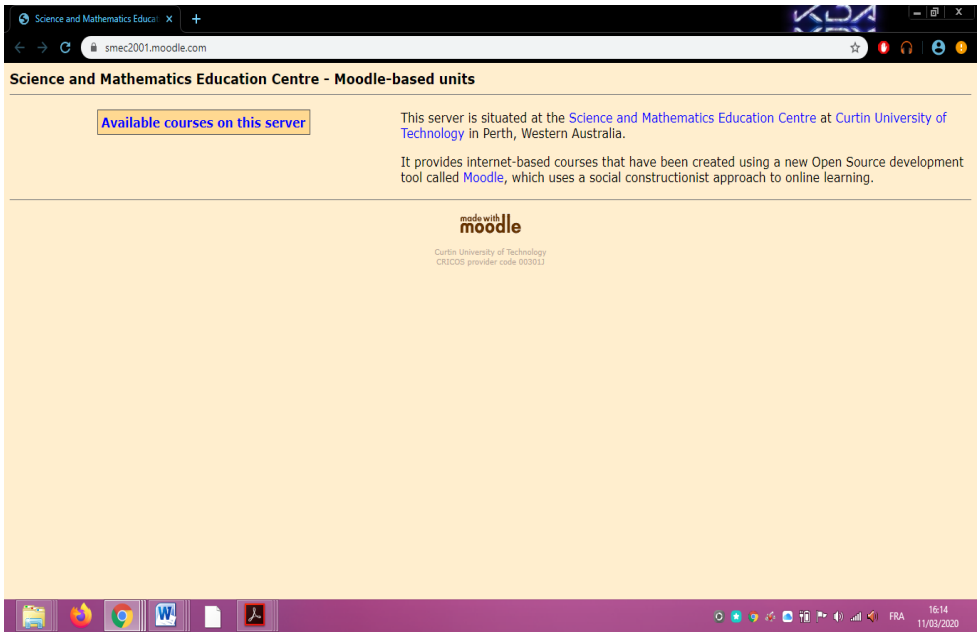

Figure 6 **The initial Moodle website (History, 2019)**

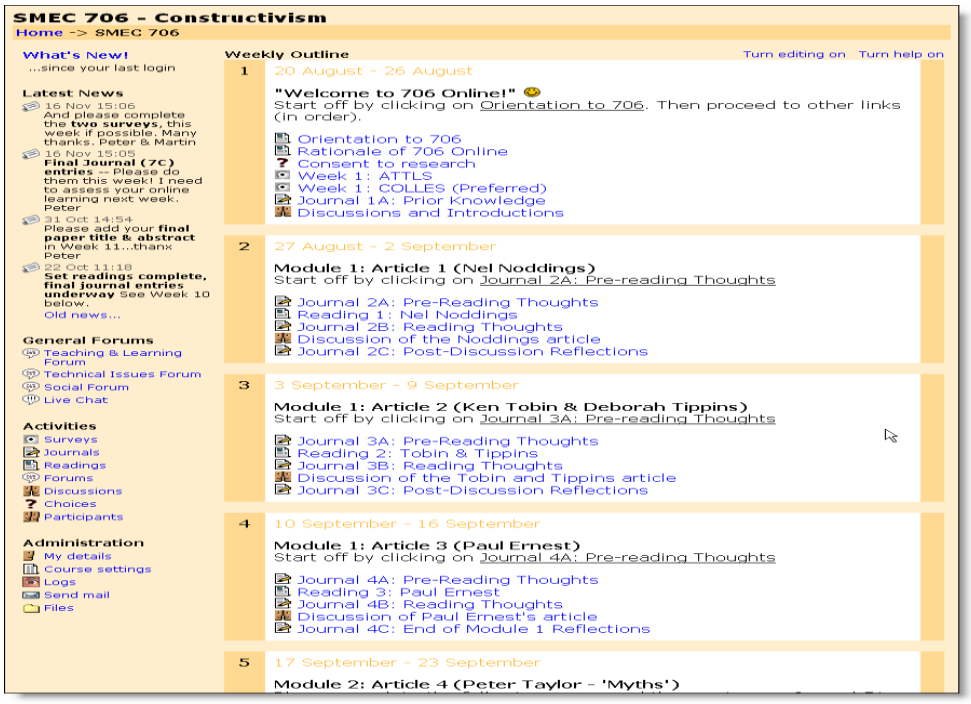

Figure 7 **The Initial Moodle access display (History, 2019)**

1.5.2. Moodle's Educational Philosophy

Moodle's founder Martin Dougiamas was well versed in educational pedagogy and epistemology, what made social constructionism the founding theory of Moodle, showcasing an understanding of pedagogical theories shaped the early developments of Moodle (Costello, 2013).

> While most [VLEs] are instructor-oriented and largely concerned with how course content is delivered, Moodle is based on a learner-oriented philosophy called social constructionist pedagogy, in which students are involved in constructing their own knowledge (Chavan & Pavri,2004. as cited in Costello, 2013, p. 15).

Building a learning management system around pedagogy was considered revolutionary, making Moodle a learning-centred LMS at a time where most were based on tool sets and were more tool-centered. It is undeniably true that Moodle's design and features reflect a social constructionist philosophy, as it makes the learning task the center of its tools interface instead of making the interface about providing a list of tools only making discussion and distributing artifacts the main focus. Courses on Moodle can be arranged according to social arrangement, topic or week and content on Moodle does not solely aim to provide information, it is also to exchange ideas and integrate learners into knowledge construction unlike other LMSs which represent a content scheme that makes the content uploaded static (Cole & Foster, 2007).

Evans (2011) noted down five major affiliations that connect the socio-constructionist pedagogy with Moodle's functions. First, Moodle creates a learning environment that is adaptable to fulfill the needs of its participants, in observing its acronym modular object-oriented, it stands for the ability to add or delete objects based on assessment needs. This process is simple since it is done through activation or deactivation as long as there is internet access; making Moodle a flexible environment which grants educators a control over the time of accessing modules or users' profiles. Second, Moodle promotes learning through observing peers activity through its navigation block that enables both teachers and learners to check their and others' activities; for instance, learners can observe when their peers have submitted assignments that they become motivated to hand in theirs. Moodle's online users block displays users who are currently online and with the messaging system users can connect with one another instantly. Moreover, entries are tagged with users' names where participants are

able to view who made contributions to group tasks. Third, Socio-constructionism advocates how learners learn better when they produce something to show others and Moodle has plenty of utilities that allow for knowledge to be presented and shared, its databases enable students to share media of any formats (photos, sounds…etc.). For example, on Moodle's forum users are able to ideas whereas media and files can be shared through attachments and hyperlinks, wikis are for group works and glossaries are to create dictionaries jointly. Fourth, users supply information about themselves like their interests in research, cultural background and location or information they are willing to share on the platform through Moodle's users' profile. Educators can obtain a narrower view of exclusive class attendants through simply viewing a summary of posts and discussions on forums.

Moodle's blogs permit its user to express thoughts publicly in a reflective manner and the survey component is equipped with tools to evaluate learners' temperaments. Consequently, educators are able to make teaching more transformational once they comprehend the contexts of users. Finally, the learning experience through Moodle blurs the line between being a teacher or a learner. Learners have the ability to add onto the course experience for others since activities on Moodle grant its users the ability to control courses' shared content. Conversely teachers can mutate activities access like assigning rotating groups to an intermediate forum (Evans, 2011).

1.5.3. Main features of Moodle

Ever since the Moodle made its appearance on the e-learning scene, 31st versions have been released with major official releases every six months (second Monday of May and November) and minor releases every two months (Second Monday of July, September, November, January, March and May). The Moodle 3.8 was further developed to version 3.8.1 and version 3.8.2. have been released on March 13th, 2020 (Releases, 2020).

Moodle witnessed some major and minor improvements from forums, communication, front page categories and the new Moodle mobile app, editing options were enhanced for the banks of questions, the H5P incorporation and the enhancements of forums and badges administration. Calendars can be navigated by day, month and future events, badges are filtered by group when assigning them, Timeout notices are received during sessions and question banks have apparent ID numbers and tags and an editing menu (New Features in Moodle, 2020). Moreover, forums include options to grade them, educators now are provided with a bonus point for course feedback as they can grade a whole discussion forum. Easy

exportation onto forums has also been introduced, facilitating the process of exporting teacher's posts, their learners' posts or the whole discussion forum. In addition, summary reports of forums can show the extent to which learners have participated at the level of all the forums by showing how active they were through replies, word count and posts. Also, login status now reports whether learners accessed a course the previous week or month, teachers can tell when they have not logged into the course at all. Communication on the platform witnessed the introduction of bulk messages and Emojis. Furthermore, the mobile app has a dark mode option and H5P access offline, H5P is an abbreviation for HTML5 Package which facilitates the creation sharing and use of HTML5 materials (Moodle 3.8, n.d.).

Essentially, Moodle is characterized by three fundamental features which had been explained by Warth-Sontheimer (2011), summarized below:

A. ROLES

The same as roles within a teaching institution, users on Moodle are always assigned one or more roles. An individual has certain privileges or permissions which allow them to perform more or fewer processes on the platform. For instance, 'administrator role' can view everything on Moodle. An individual with this role can install additional modules or plug-ins or adjust the layout of Moodle site. Moreover, an administrator bears the responsibility of updates, backing up files and most importantly protecting the platform against virus or hacking attempts. Other roles can be 'teacher role' which grants full editing rights for courses and full control over the students enrolled in the course and access to course reports. Learners are granted a 'student role' they cannot create or edit Moodle activities or items accessible to teachers.

B. Editing Mode

With the editing mode, course content resources and activities could be added, removed, moved, deleted or hidden...etc. The teacher is able to edit activities and resources within a section their by clicking on their icons.

C. 'LABEL'

Label is considered a magical tool on Moodle which is used to prepare Moodle course. It adds a structure to the course through inserting instructions or task descriptions to prevent Moodle activities, resources and labels from getting mixed. Furthermore, it guides learners through the course, inserts pictures and embeds HTML codes like adding a YouTube video.

1.5.4. Moodle's New Front Page Categories

Moodle's site front page can be customized to add 20 course categories; each category can have a title, link, small description and an icon image. These categories can be gathered in a list with your top course categories and direct each one to a relevant Moodle courses category pages instead of displaying them on the default front page as shown in the *Figure.08* and *Figure.09* below (3rd Wave Media, 2020).

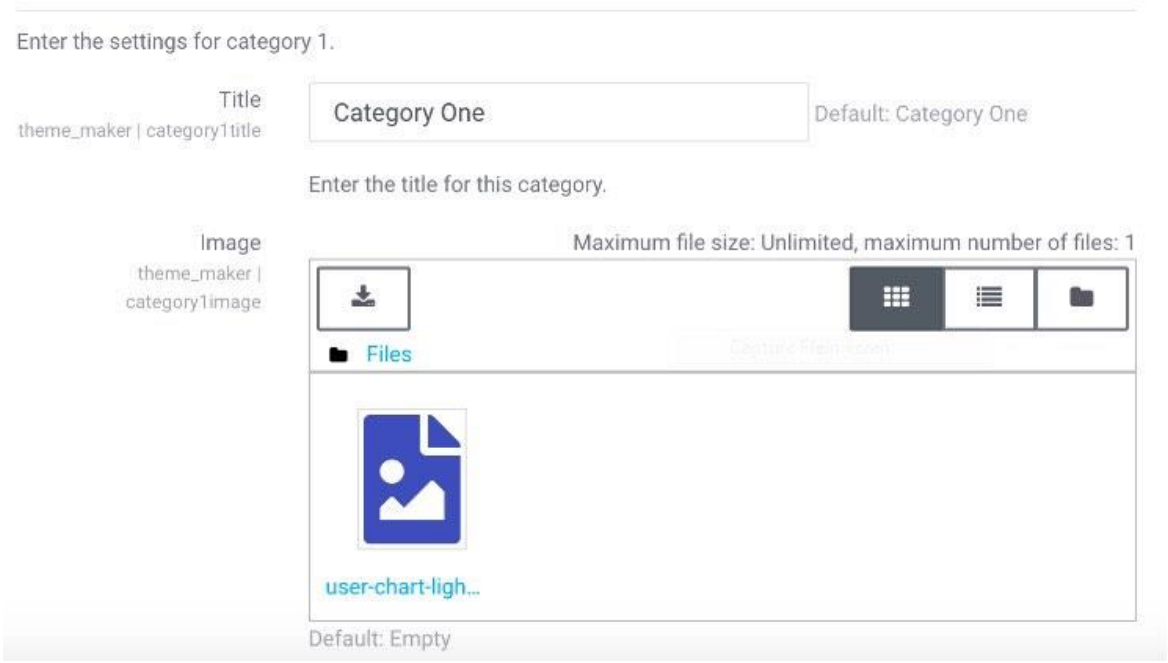

Figure 8 **A Moodle course category (3rd Wave Media, 2020)**

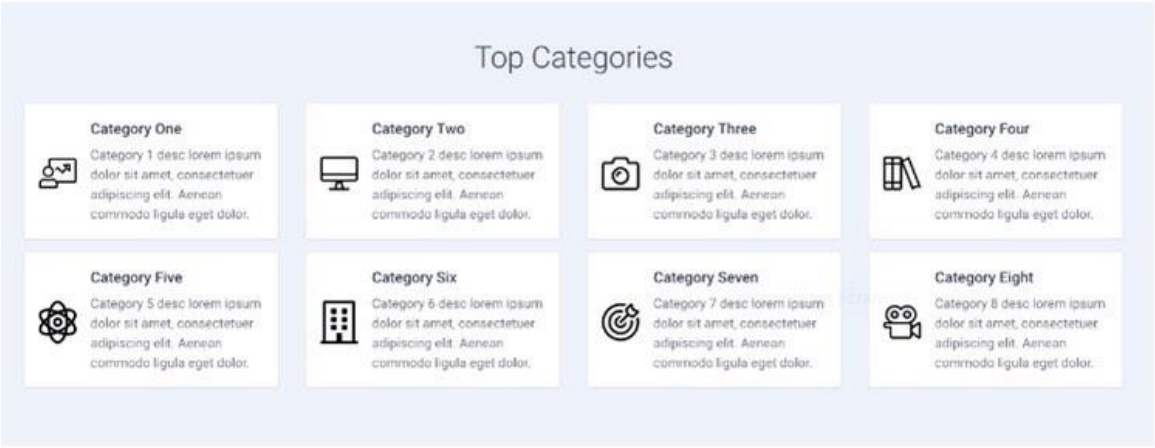

Figure 9 **Moodle course categories with description and title (3rd Wave Media, 2020)**

Conclusion

The chapter at hand aimed at providing an account on some of the conducts within the fields of ICT and pedagogy. Being a theoretical chapter, concepts such as ICT integration importance and available literature on main integration models were introduced. The focus was then directed to pedagogy and ICTs, literature on the reciprocal relationship of both fields was discussed leading to pedagogy applications in the field of Internet Communication and Technology. Followed by an insight into one of the bridging fields between Applied Linguistics and ICTs, Computer Assisted Language Learning (CALL) where some of its major themes such as Computer Mediated Communication (CMC) and Corpora Linguistics were explained. The following part served as a shift towards the main focus of our research; it provided a general take on learning management systems' developmental features, we provided a timeline of the gradual establishment of these information systems, described its stance on higher education and an overview of its technical aspects. The Moodle has been introduced in the final part, highlighting its history educational features and the major categories on the platform.

CHAPTER TWO:

LEARNING SITUATION ANALYSIS

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Introduction

While online blended modes of learning are shaping the learning pedagogy through innovative technologies internationally, educational approaches nowadays are not free of internet based models of learning. Whether for teachers or administrative staff, e-learning has become a vital need for teaching, learning, assessment and the pedagogical agenda as whole. The promise of e-learning established itself within the pedagogical and the professional scenes as solid market that tools in e-learning are in a continuous dramatic change.

It is more meaningful to engage learners and foster their autonomous learning through incorporating technologies given that they are the product of a digital society. The advent of internet for teaching in the current era of information and communication development posited a challenge for educational institutions especially higher education and its quest to establish a "knowledge society", and to prepare students who are fully indulged in an economy which is knowledge-centered socially and culturally.

After elaborating on the main theoretical assumptions that underpin e-learning and dealing mainly with three learning theories, we intend to report on the literature of some e-learning concepts that are the current application trends. After that, the research directs its focus to the ICTs and e-learning status in the Republic of Algeria to conclude with an account on initiatives in integrating Moodle as a supportive educational tool.

2.1. E-learning's Theoretical Underpinnings

The existing body of research on online learning established how difficult it is for theoretical frameworks to keep pace with the technological developments that take place. Friesen (2009) noted how the mid 1990's witnessed the rise of social software and asserted that it was difficult to unravel planning and design mishap or separate past contentment and possible outcomes, he further explained how internet studies in social sciences came to shed light on the situation by providing a framework for instructional pedagogy.

Mayes and Freitas (2004) in their review of e-learning theories, frameworks and models stated that there were not in fact e-learning models but there were improvements of learning models through the integration of technology. Whether to reach satisfactory learning outcomes, to make assessment efficient or to make learning environments at the students reach with the least costs. The role of e-learning pedagogy principles is to lay down what the 'e' will add as a value to learning and it is necessary to make clear the underlying principles when executing e-learning approaches. An example of an added value is when the 'e' for example helps learners interact and presents the learning content in a form that cannot be fulfilled without the use of technology. This shows that technology here is to make the learning experience favorable and not to suggest a new teaching method; this can be regarded as a pragmatic contribution rather than pedagogic.

Fallery and Rodhain (2011) came to conclude that education is a process of communication and within this prospect they summarized three epistemological foundations for e-learning based on a concept of "enhancement" that each view offers. The instrumental behaviorist positivist perspective, it viewed learning as a process of transmission through stimulus and response. This perspective's take on e-learning saw that the principle of "Access" required a methodological enhancement which can take two directions. First, improving access by the network where keywords like accessibility, transparency, hypertext and navigation make up "just in time" e-learning model of adequate knowledge obtainable at any time or place. This is often faced with the issue of sources credibility in which the two concepts of navigating the knowledge and access to knowledge must be differentiated. Second, enhancing "access" and "network" through the standardization and certification of instructional resources. This does not require a typical learning time or certain interactivity levels which was found in the Learning Object Model (LOM), this model maintained that "knowledge is predefined and transferred without depending on the interaction".

Communication is also a standard which SCORM (Sharable Content Reference Model) fulfills, it manages content which is composed of fundamental units and it determines the kind of communication to take place such as sessions, messages or quizzes. The relational constructivist perspective, this view considered learning as a process of exchange and it was based on the concept of feedback. In e-learning, exchange and feedback ought to create a systematic improvement of "interaction" which can take two different directions. The first being an enhancement as a kind of "self-service" model within which keywords like autonomy, individualized courses, tutorials and customization exist. Moreover, the learner consumes the pre-customized training services but he is also an autonomous responsible about his choices regarding the co-production of the training project; however, autonomy was regarded as an already existent characteristic in learners and no longer a goal to be achieved through education. This may in a way or another lead to an inequality against those whose background does not supply them with such autonomy (Fallery & Rodhain, 2011).

The second direction is the enhancement of interaction through modeling instructional activities. For instance, a unit of learning is described by providing details about the method which gives an account of intervention order of components like roles, environments and activity structure properties or outcomes and an account of objectives and perquisites as well. The collective and socio-constructive perspective, here learning is a collective negotiation of meaning and the source of knowledge is the social interaction. For e-learning, this view presents a systematic use of collaboration in two directions, collaboration is valued in an "industrial reuse" learning model; the keywords are costs, collective labor, modularization, certification, editorial board and quality. Education within this direction is computerized and the teacher must behave like a craftsman. Industrialization and liberalization are vital for the educational policy that partnerships with communication industries are a necessity. The second direction is where collaboration is reflected in "open collaborative environments", this refers to online community portals where teachers can publish papers, cooperative learning warehouse, e-campus with resources and services in a singles point of access (Fallery & Rodhain, 2011).

2.1.1. The Cognitive Theory of Multimedia Learning

Multimedia Learning relies on the presentation of instructional content through several media presentations. The theory was put forward by Mayer (2001) based on three main assumptions that go back to cognitive psychology. First, the working memory is composed of

two separate channels to encode and process visual and auditory information. Second, each channel has its own respective processing resources, which are limited; hence, when the information demands overtake availability "cognitive overload" may occur (Baddeley, 1986. as cited in Zheng, 2008). Third, learning is meaningful when learners actively process knowledge obtained from audiovisual channels and proceed to select, organize and integrate it with pre-established mental schemas. This assumption is based on the idea that media presentations must be well-designed to coordinate and integrate audiovisual information and individuals become able to map the received information onto long-term memory content (Zheng, 2008).

The three assumptions have been explained by Mayer (2005) summarized below:

a) Dual-Channel of the Working Memory

Humans are endowed with two separate channels for information processing, a visual/spatial channel for pictorial content and an auditory/verbal channel. Two approaches within the theory came to explain what is processed through each channel explaining the main difference in the theory which is processing words and background sounds. The representation-mode approach emphasizes on the verbal or nonverbal stimulus format, this approach assumes that texts on-screen are processed through the verbal channel but sounds and nonverbal music are processed through the nonverbal channel. Whereas the sensory modality approach, emphasizes on the pattern of the sensory stimulus (auditory or visual), on screen texts are processed through a visual channel but music or nonverbal sounds are processed through the auditory channel. Although humans receive information through a single channel, learners can transfer the processing to the other channel. Students can display information primarily presented in one channel to another channel once they are able to dedicate enough cognitive resources to a task. For instance, a text on the screen is processed originally via the visual channel because it is through the sensory channel "eyes", however a skillful reader can transform images into sounds by mentally processing them via the auditory channel.

b) Limited Processing Resources Capacity

Humans can process a restricted deal of information in a channel at a time only. Learners are able to retain few images of an illustration or animation in the working memory once at a time, and it is the reflected share of the actual material instead of the exact copy of what has been presented. Mayer notes how necessary it is to know the amount of information

that can be processed in a single channel and the way to measure individual's cognitive capacity is through memory span test. Nevertheless, there are small differences in the average memory span. The existent restrictions in the human's processing competences imposes that we make decisions regarding several matters like which received information we should pay attention to, the extent to which we connect segments of information and the degree to which we connect them with our previously acquired knowledge. This has been addressed through the concept of "metacognitive strategies" which are mechanisms to allocate, monitor, coordinate and adjust cognitive capacities. An example can be a narration presented to the learner, he is able to retain only little words in the working memory's verbal channel and these words are not the literal record of the narration but a reflection of the text presented.

c) Active Processing Assumption

Humans to build coherent mental representation of their experience they need to be actively engaged in the cognitive process which involves emphasis on the received relevant information, arranging the received information into a united cognitive body and incorporating information with other knowledge. Hence, it is noteworthy that humans aim to actively comprehend media representations. Moreover, active learning takes place when learners assign cognitive processes to what's being received as material processes that aid them to achieve comprehension. The aim of active cognitive processing is to establish mental representations that are coherent; therefore, active learning can be regarded as mental model building that lays down the relations between the main elements of the presented material. Mayer illustrated this assumption through the example of a multimedia presentation on how lightning storms develop and learners here opt for developing a cause-and-effect system where altering one part in the system leads to a change in different part.

2.1.2. Social-constructivist Learning Theory

Social constructivist learning is rooted in Vygotsky's social development theory (1978). The social interaction plays the essential role in cognitive development. Contrary to Piaget's constructivist theory which argues that the individual goes on a journey of discovery through adapting or approaching the learning process alone or relying on existing materials in life at the early stages of learning; Vygotsky argues that the learning process occurs through collaboration and the environment affects learners and induces learning development (Secore, 2017). The zone of proximal development which is the distance between a child's own actual development through independent problem solving and the possible development of problem

solving through the instruction provided by an adult what is known as the more the knowledgeable other (MKO) or through collaborating with peers. Vygotsky also assumes that the cognitive development is limited to a particular age. Nevertheless, when aided by social interaction features such as guidance, individuals can grasp concepts they are not able to withhold on their own implying that the learning process is a shared experience (Ozer, 2004. as cited in Secore, 2017).

The social constructionist assumption yields towards two main approaches; the cooperative/collaborative which simply stresses on the social interaction to elicit learning, it is based on a cooperative framework that promotes communication among learners. The higher the interaction levels the ultimate creativity is reached, critical thinking skills and knowledge building are achieved (Schell & JAnicki, 2013. as cited in Secore, 2017). The sociocultural approach on the other hand, attributes favorable learning to the event during which learning takes place being meaningful, in context and relates to the learner's cultural and personal knowledge. This implies that the environment is the essential factor effecting acquisition abilities (Secore, 2017, pp. 40-70).

A social constructivist learning pedagogy considers a number of factors that most of online education encompasses. According to Doolittle and camp (1999. as cited in Secore, 2017) these factors are:

- Learning content and skills should be learner-related and are within his/her background knowledge.
- Teacher plays the role of a guide to facilitate learning and apply several views and content delivery methods.
- Social mediation and negotiation should be an integrated part of learning.
- Learning must occur in an authentic environment that is real-world like.
- Learners are assessed formatively to prepare them for future learning experiences.
- The learning must incite students to be aware and autonomous by regulating and mediating themselves.

2.1.3. Social-constructionist Learning Theory

Galbin (2014) in her paper "Introduction to social constructionism" in the social research journal reports provided a take on its history, she noted that literature on social constructionism can be dated back to several roots, in phenomenological psychology, social psychology and social history. Authors like Immanuel Kant and Karl Marx have written or made remarks on social constructionism and constructivism themes. Moreover, Galbin concluded that social constructionism neglects the constructivist assumption that the mind is a mirror which reflects reality and focuses on the individual's contribution to the social construction of reality with language and communication being the focal points of interaction. However, constructionism and constructivism are closely related in that individuals construct artifacts cooperatively, the difference is that the former's main concentration is on the artifacts constructed through a group's social interaction and the latter's major attention is on a person's learning that occurs due to interaction in a group.

Galbin (2014) has also provided some main features of social constructionism; it dismisses the positivistic approaches to knowledge which do not appear to be originally reflexive, it critically views social world assumptions which reflect dominant social groups interests, it asserts that the processes of interaction and negotiation within groups of people shape the way we understand the world, research does not aim to establish a fixed or universally valid knowledge but its goal is to value what is possible. Finally, it proclaims a march towards a redefinition of psychological make ups such as emotion, mind and self as socially constructed processes that are the production of social discourse and not in fact intrinsic. Furthermore, the social constructionist assumption regards realities as being socially constructed entities and that social processes are what maintain knowledge whereas society has a dual function, a subjective and objective reality. In addition, meaning and power are the main focus; meaning is not the objects and events' asset but rather a construction which is the outcome of the common cultural, social, linguistic, discursive and symbolic experiences. The social constructionist belief that language transcends the role of connecting people, it advocates that people exist within it. Hence, the emphasis is on the social interaction which generates, maintains and abandons language instead of it being on the person (Gergen & Gergen, 1991. as cited in Galbin, 2014).

2.2. A Take on E-learning: Concepts, Trends and Applications

The e-learning system is a continuously evolving concept and its current trends are centered on learning techniques and the dissemination of the relationship of the different instructional tenors. Online learning has been defined by Sun., et al (2008) as "learning that takes place partially or entirely over the internet that makes information or knowledge available to users disregarding time restrictions or geographic proximity" (as cited in Aparicio & Bacao, 2013, p. 83). Aparicio and Bacao's analytical literature review provided a classification of e-learning concepts developments and by attempting to delve into the different dimensions of e-learning, the study showed how perspectives on e-learning can diverge. In their detailed chronological analysis of e-learning concepts, computerized systems were not designated by the term e-learning and were solely based on tasks completion and were learner focused. This classification led to the rise of two key concepts, e-learning and computer support for collaborative learning (CSCL) which facilitated classification grouping of the tackled concepts raised in the theoretical body and perspectives on e-learning.

In observing e-learning trends in education, Regazzi and Caliguiri, (2009) noted that it was not until recently that educators perceived how e-learning communicative principles are capable of creating a distinctive learning model. Within this prospect, concepts in technology advancements have always been on an ongoing process of change whereas the pedagogical paradigm did not witness much of an addition, modern technologies in distance courses are still developed based on what is called a 'Transmission Model' wherein the content developer makes the material for leaners to consume, in addition to assignments they submit to showcase their comprehension and mastery of that content (Askov, 2003. as cited in Regazzi & Caliguiri, 2009). Through their observation they concluded that e-learning yields toward the concepts of students' collaboration and coordinated learning between them and the teachers.

2.2.1 Learning with Technology

Distance learning has long been present as an established part of instruction that it became a mature field and a market with a sustainable growth over the past ten years. It started off with lectures delivered on radio or television and due to the shift that communication and informational technology underwent; more practical trends and tools were established to evolve mainly into e-learning.

> Whilst there is general agreement that new technologies have brought fundamental changes in communicating to learn within a context of local and global societal change, such changes have been conceptualized from different theoretical perspectives, which can be broadly characterized as "evolutionary" or "revolutionary". These are located in different historical perspectives on the degree and types of change which are brought about by learning with technologies. (Daly & Pachler, 2010. as cited in Daly & Pachler, 2011, p. 40)

The notion of viewing corporate technology as a vehicle with complementary parts relevant to the external learning environment working jointly to harness e-learning has been the subject of much systematic investigation. Daly and Pachler (2011) noted that the innovation brought about by technology was continuously bringing in a multifaceted perplexity into how learning is indulged in a synchronous setting and the processes and factors developers need to grasp in order to analyze learning in general. Henceforth, an "Ecological" perspective must be embraced where elements influencing e-learning are viewed as interrelated and context specific. Furthermore, the ecological perspective is a practical model that enables developers to comprehend how the factors surrounding teachers, learners and technologies interact and shift within a wider system of relationships (Davis, 2008. as cited in Daly & Pachler, 2011, p. 39). Therefore, such perspective on e-learning focused on viewing it as a process of creating meaning through digital tools by putting forward what people do with technology in learning instead of what is technology or learning about the technology itself (Daly & Pachler, 2011. p. 40).

On the other hand, Holmes and Gardner (2006) recognized that innovations in the area of information and communication technology had made a wide set of technologies available which can aid educational models and instructional methodology, this led numerous terminologies describing concepts in the area of e-learning such as 'ambient learning' and 'ubiquitous technologies' to develop. In the literature on the use of technology with reference to the changes that took place in the development of distance learning, three generations can be pinpointed. The third generation being the current, is known as Education Object Economy (EOE) characterized by a large scale digital explosion of reusable generic resources, which enabled the development of systems where tutors are able to use some prefabricated utilities (such as the web/HTML, DropBox...etc.) to create their own learning systems (Sutton, 1999. as cited in Holmes & Gardner, 2006).

The promise of e-learning by far is the emergence of learning environments which redefined the learning experience, instruction occurs online in what is known as ‘interactive simulations’ where tutorials, resources, group discussions and assignments are manipulated and managed; in addition to an authorized access to students’ profiles containing information about their achievements, courses and assessment. Content is learned through e-communities that is either a Virtual Learning Environment (VLEs) or a Multi-use Object-Oriented environment (MOOs) (Holmes & Gardner, 2006).

2.2.2 Learning Through Simulations and Gamification

Creating an authentic learning environment is an essence for e-learning to foster learner’s engagement. Majority of studies agree upon the assumption that simulations integrate learners and help them effectively absorb learning content.

According to Clark and Mayer (2008) “A simulation is a model of a real-world system. Simulated environments respond in dynamic and rule-based ways to user responses.” (p. 374). Clark and Mayer point out that what we don’t know about simulations and gamification is that there is little to no relationship between what the learners estimate simulations to be and their performance during the simulation and that little research has been conducted on how learners can learn from simulations since little theoretical basis has been developed to guide practice; However, their evaluation of a number of instructional games posited that students learn better from games and simulations which are accompanied by explanations. Learners achieve better when they try to accomplish the game objectives according to the provided explanations which enables them to learn at the same time, these explanations can be shown as hints to guide them through. Furthermore, their study classified simulations into two types Operational in which students are taught procedural skills such as software applications, control operations and procedures to be taken. Conceptual simulations on the other hand teach modeled principles such as management strategies and analytical skills.

Thanks to the developments in the areas of multimedia and animation learners can be exposed to virtual simulated environments during which they get to experience real things to learn. The process of learning through games and simulations does not involve competition among students, it is based upon decision-making and making use of the information they possess and transfer it into knowledge through the assistance of understanding and making the

link between theory and practice, which facilitates the comprehension of complicated concepts and make learners virtually immersed in their discipline (Holmes & Gardner, 2006).

The concept of gamification was defined by the E-learning trends (2018) e-book as the employment of game-based aesthetics, processes such as interactivity and games technology as part of an instructional method not just a system. Instructional designers have been borrowing components of games such as stories into the instructional method with the emphasis being on interactivity first then learning goals.

2.2.3 Tools in Online Learning

Based on the conducted extensive literature review in the area of e-learning, a plethora of tools exist and are in a continuous development, it is up to educators to make judgements about which of these tools to make use of based on the pedagogical needs that initially shape the e-learning strategy as whole.

2.2.3.1 What is an E-learning Tool

With the overwhelming growth and development that the great number of e-learning tools witness, researchers do not question what an e-learning tool is but instead ask the question what is not an e-learning tool. Computer applications which may be far from being related to learning become e-learning tools once they hit the internet. Zelenak (n.d.as cited in Berman, 2006) explains that there are three main e-leaning tools, Content/learning Management systems (BlackBoard, Moodle…etc.), Synchronos Collaboration tools (Centra, Horizon Wimba…etc.). He also notes that any computer application from podcasts, blogs or even mp3 can be a collaborative or a delivery e-learning tool and that gamification is becoming an acceptable established fourth type of e-learning tools due to the amount of incorporation in online courses it continues to witness. Additionally, the e-learning course requires three categories that should be incorporated as well to make it successful, these categories are access, offer and create. Moreover, William and Horton (2003. as cited in Berman, 2006) suggested the concept of Levels of Granularity as an addition to the previously mentioned categories (Curriculum, course, lesson, page, media).

a) Synchronous and Asynchronous Tools

Learning environments use of e-learning tools is fundamentally defined by the use of synchronous tools, which have been simply defined as the immediate means (Chat rooms, whiteboards…etc.) Synchronous tools are any e-learning tools that are real-time, enabling

interaction between students and teachers during the lesson as if they were in the same setting. These tools focus on real time interactivity; it includes real-time chats, instant messaging, video communication, and digital audio communication…etc. Synchronous tools are considered to be a powerful e-learning characteristic because it offers immediate two-way communication. Some examples of effective synchronous tools can be "Centra", a tool which is used to create a virtual classroom in any educational setting or even seminars. It has a whiteboard which supports interactivity through which teachers incite learners to accomplish tasks or they can simply raise their hands. Centra is supported by microphone or text chat and the teacher can make use of multimedia features like animated pictures, streamed videos and learners can be tested in real time as well. Other tools which share the same characteristics as Centra are Macromedia Breeze, Horizon Wimba, learn Linc (Berman, 2006). Asynchronous tools on the other hand are the opposite, they are not time-to-time or immediate like emails, discussion boards and compressed videos…etc. Both of the tools are important extensions for e-learning courses as it makes teachers able to reach out to students and connect with them or vice versa and it also plays an important role in supplying information in an engaging disciplined manner (Holmes & Gardner, 2006).

b) Authoring Tools

According to Berman (2006), they are the tools which fall under the authoring systems such as Web-HTML, JavaScript, Flash but do not require developers to download a handful number of plug-ins since not all developers are able to have program support, developing e-learning courses requires more than just general web tools. Berman provided several examples of authoring tools; however according to him, Authorware is considered to be of the best ones out there for the flexibility it offers in terms of management and access. Authorware has a very easy to get familiar with Macromedia interface, this visual interface does not require developers to start from a scratch in order to create media applications since it has content menus from which the developer can drag and drop icons according to their desired outline and ready-made templates, media applications can be easily delivered with a simple click to the web or CDs. Moreover, Authorware's Knowledge Objects gallery function has successfully facilitated the turmoil of developing frameworks for applications and quizzes or uploading fonts and locating CD systems by simply dragging and dropping. In addition, developers can connect the courseware to any Learning Management System or a Sharable Course Object Reference Model (SCORM) easily.

2.2.4 Massive Open Online Courses (MOOC'S)

The new e-learning trend in higher education is demonstrated in the form of Massive Open and Online Courses (MOOCs) which grants learners extensive, cheaper and accessible opportunities to education through open educational resources (OER) MOOC'S became a popular learning trend in 2012 after their emergence in 2008 (Kim, 2015. as cited in Lim et al., n.d., p. 01).

The establishment of MOOCs was rooted in the notions of 'openness in education' where knowledge is unlimitedly shared and learning is available without demographic, economic, or geographical constraints MOOCs can be at the reach of large participant groups online and the ability to have 24 hour access to MOOC'S garnered the attention of learners, policy makers and higher education institutions over the globe. Consequently, there are more than 4200 MOOCs by over 500 universities (Valenzuela, 2016. as cited in Lim et al., n.d., pp. 01-02).

The term 'MOOCs' encompasses several other terms such as open access, global, free, video-based instructional content, videos, problem sets and forums, all which are released through an online platform to high volume participants with the objective of receiving education. Baturay (2015, pp. 427-428) numbered some of the fundamental characteristics of MOOC'S:

- **Open:** MOOC is free and open to anyone connected to the internet. Individuals can take more than one course at once. Moreover, course content developed by providers and learners is available publicly.

- **Participatory:** although participation is voluntary, learning in a MOOC is ameliorated by participation the creation and sharing of individuals' contributions and interactions with others' contributions.

- **Distributed:** the connectivity approach is the core of MOOC'S; hence, any knowledge should be dispersed among a network of participants. Most of the course activity occurs in social learning environments where learners interact with the material.

2.3. ICT and Education in the People's Democratic Republic of Algeria

ICT in today's world has affected not only most sectors of life but the ways in which people live and go by through daily activities; this made research in ICT an ongoing and a dynamic process. Countries are keen on exploring the latest updates within the board-natured field of ICT, and are in a rush to adopt the latest innovations to make them part of society in general and education in particular. It is no different within the Algerian context, efforts endeavor at disseminating the use of ICT and integrating it especially for educational purposes.

According to the BddeComm's Telecoms Maturity Index published ranking in 2019, Algeria is the second leading telecom and internet markets in Africa due to its telecommunication infrastructure and partnership with its largest mobile operator Mobilis and China's Huawei to introduce the first fifth generation (5G) network in the country and its Telecom infrastructure projects, along with the strategy it implemented in terms of the deployment and extension of fiber network use for internet and the fixed telephony server (LTE) for connecting most regions to broadband internet (TFFX) (Chakib32, 2019).

In Algeria, connection to the internet started with email in 1993 through the effort of two groups, the first was called DZNET based abroad in 1989 and composed of devoted internet users who made tremendous efforts to contact multiple network organizations, such as EARN and NFS-NET for help. They approached Algerian officials and worked on convincing them about how necessary it is to connect the Algerian scientific institutions to the outside world through email. The second group was based inside Algeria and was composed of the Algerian Unix users group (ALUUG) and a governmental academic organization called center of information science and research (CERIST) established in 1985 to enhance networking nationally, to link with researchers abroad and promote the scientific and technical information technologies. After a series of failed trials, the ALUUG successfully connected through what is known as dial-up lines to the central European EUnet in Amsterdam. The CERIST on the other hand, successfully connected to CNUCE in 1995 which was a research institute in Pisa, Italy through a 9600-baud leased line under sub project by the UNESCO known as RINAF (Regional informatics Network for Africa) (Djoudi, 2018, p. 03).

Notably, the 2001 reforms of telecommunications sector are one of the defining factors of today's ICT status in Algeria, it was one of the government's main programs concerning

policies of economic openness and liberalization. They resulted in the agreement of mobile operators of foreign companies Djezzy and Ooredoo and the emergence of two institutions Algeria Telecom and its operating branches (Mobilis, Djaweb internet services) and the public institution Algeria Post. Currently, three operators exist in Algeria Algerie Telecom for mobile and fixed lines, Orascom (Djezzy and Lacom for fixed lines), Alwataniya (Nedjma and internet access with mobile phones). Regulations within the reform were aimed at promoting communication as the main economic engine of the country, the objective of these reforms was to enhance services and push the sector of telecommunications to become a leading one in Algeria (BENELKADI, 2003. as cited in Lahmar & Benzidane, 2019, p. 151-152). The objectives of the reforms in general were to: supply the postal and telecommunication sector with improved diverse services and an improved network in competitive prices, financial post services, promote national savings and make telecommunication a key economic sector in Algeria (Lahmar & Benzidane, 2019, p. 152; Hamdy, 2007, p. 04).

2.3.1 Initiatives in Integrating ICT

ICT development in Algeria is relatively stable; the government is endorsing ICT use to boost innovation processes in general and for education in particular. In line with this and due to the rise of knowledge and information society, Algeria introduced an ICT framework as an addition to its integration policy while focusing on monopolizing ICT-related human resources as a reaction to such universal wave.

ICT in Algeria has been officially introduced into the educational system within the late 1990s through a series of governmental resolutions, aimed at supplying institutions with hardware ICT labs and computers. The government had also initiated a number of national projects to support Algeria's access into the information society such as: The ministerial project of education to supply schools with computers by 2005; the connection of the ministry of culture's educational institutions to the internet in 2001; the Ousra'TIC project 2006 to provide computers at homes; the Tempus ID@A e-learning project 2005-2008; the virtual university project; The Academic Research Network ARN in 2012 (Info Dev, 2007; International Telecommunication Union, 2014. as cited in Halfaoui, 2016).

It is worth mentioning that ICT use in education within Algeria is in its initial yet dynamic phases, initiatives and current integration plans are predicted to properly reinforce ICT dissemination and use in education. According to the Annual report 2006-2007, the

reform of education and ICT integration through an established framework was adopted in the official ICT plan in June 2002 with a budget of three billion Dinar and the Ministry of post and information technology was given the task of overseeing the national ICT policy. The government simultaneously initiated partnership with international agencies such as the ministry of post and information technology's collaboration with the World Bank in 2002 to improve infrastructure and disseminate ICT within the public. As for improving training and access, a number of accords have been signed with international associations and projects have been implemented to enhance e-learning status (Benmansour, 2019).

2.3.1.1 ICT policy in Algeria

The Algerian national ICT policy management and implementation has been directed by the Ministry of Posts, Information Technology and Communication (MPTIC). Of the first critical implemented policies were the establishment of the post and telecommunications regulatory authority (ARPT) and the separation of Algeria Posts and Telecommunications into two split companies, one of them became the current operator Algeria Telecom (AT). The ARPT is assigned several tasks such as: managing postal services, regulating the telecommunications sector, operating licenses and settling price regulations of the services available to the public, it is also responsible about ensuring that license conditions are executed. On 2005, MPTIC was part of the Internews Network Global Internet Policy Initiative (GIPI), financed and guided by the United States of America, its objectives were to guide policy and manage actions which address limitations of internet access and use in Algeria. Moreover, the MPTIC and ARPT concentration has been on regulatory policies which liberalize telecommunications sector to spread access to the internet. Additionally, the Ministry of Higher Education was also an important contributor to the field of ICT especially through the Center of Scientific and Technical Information Research (CREIST) which was the sole internet service provider (ISP) before liberalizing the market (Djoudi, 2010).

According to Hamdy (2007) a number of related policies were issued in order to: expand e-learning material and promote public and private collaborations to promote e-learning resources; develop an ICT supported and e-learning integrated curriculum; endorse virtual and distance learning institutions mainly for higher education training; help knowledge and skill distribution via e-learning platforms through providing affordable infrastructures. Table.03 below has been adapted from Hamdy (2007) which summarized factors influencing ICT policy in Algeria.

Table 3 Factors Influencing ICT adoption, Adapted from Hamdy (2007, p. 07)

Factors	Constraining Features
-Policy Framework: A national ICT policy for educational development has been set in 2002.	-Successful implementation of the ICT policy requires strong infrastructure and resources. However, vast areas of Algeria are still lagging behind in basic needs.
-Rural/Urban divisions: The concern of the ICT policy is provision of access and connectivity to all areas of the country.	-Few schools and even fewer universities/higher institutions are available in rural communities.
-Human resource development: Professional ICT training programs.	-The multilingual base in Algeria poses a major hurdle to unify or implement programs at a large scale. Professional programs & teachers' training are limited to basic ICT training with no relevance to integration into the educational process. Professional programs in ICT lack connection with curriculum development in a manner that allows for proper implementation of reform. The disconnection among the different development programs impedes proper impact & progress.
Sustainability: The political arena has stabilized somewhat in Algeria, thus setting the grounds for proper implementation of the development programs and allowing for a more sustained reform effort. The political stability leading into economic reform allows for attracting investment & support locally and internationally.	Several projects and initiatives have been underway, but due to the obstacles posed by the political unrest, many of them have been discontinued.

2.3.1.2 Constraints to ICT Development in Algeria

Much literature has been published on barriers and constraints that impede felicitous ICT implementation, especially in educational sectors. "…increasing investment in technology infrastructure has not been matched by investment of time and resources to develop new ways of learning and teaching" (Hennessy, Ruthven, & Brindly, 2005 p. 06). These barriers can be lack of time allocated to training or training programs on the use of ICT, insufficient competence to use ICT and support for ICT usage…etc.

According to Behar and Mishra (2015) "the main reason for the lack of success of these highly promoted projects (ICT integration into education) is that they have ignored the single most important person in the education and learning of the child: the teacher." (p. 73). Accordingly, it is important that the focus should also be on supporting the teacher when implementing ICT projects, if teachers are not aware of ICT importance in education, integration would not be as successful as it was intended to be.

Algeria's efforts to ensure the successful ICT adaptation cannot be overlooked. Not only did the government initiate multiple measures to carry with the reforms but the state has also contributed to the telecommunications sector through developing a framework to support ICT activities. Admittedly, Algeria still faces shortage of infrastructure hindering its ICT integration and creation of a digital economy.

Kouninef et al. (2013) concluded that the challenges that lay ahead of ICT development in Algeria are twofold. Initially, a difficulty is within the academic program reviews and the update and control procedures. ICT can solve several problems within the educational sector in Algeria such as the high number of students, crowded classrooms and communication resources. For these reasons, Algeria was pushed to delve into the digital environment and thrive to make ICT part of the educational sector while making a considerable amount of investments. Deterioration in the status of education has created a necessity for institutions to reconsider the educational organization and the roles of teachers and learners (p. 1872).

Lahmar and Benzidance (2019) in their article ICT in Algeria provided a thorough account about its reality and prospects, addressing the constraints from a broader perspective. They state that ICT does not contribute to the Algerian economy, it is heavily dependent on its oil industry where technical developments do not represent the drive for development

strategies, explaining the reason Algeria falls behind in the digital market and affecting its digital readiness. In spite of the e-Algeria projects, the ICT sector contribution to the economy is very limited that it is not capable of establishing a digital economy. Within this regard, annual reports of post and telecommunication regularity authority indicate that ICTs contribute 2.9% to the national GDP (Gross Domestic Product), compared with the global average 7%, it is a very low ratio (p. 158). Most importantly, Algeria has invested five billion dollars in the ICT sector within 2012 and 2016, yet it could not develop its economic sector strategy. Figures by the Federation of Financial and Accounting Frames indicated that 13.85% of the Algerian public possesses a fixed line which does not help build the necessary rules of the information society. The backwardness of Algeria's position being weaker than its material potential is apparent in its fields of innovation, development research, infrastructure, legal framework, economic and the area of economic stimulus.

The 160 Reforms in the telecommunications sector failed to fulfill its intended objectives, Algeria remained far behind other countries that succeeded in turning the sector from a stock of opportunities into a major contributor to their development strategy. Consequently, Algeria had to escalate its measures to carry on with the reforms (Strategy and (Development Review, 2019. as cited in Lahmar & Benzidane, 2019, p. 160). Lahmar and Benzidane (2019, p. 159) point out the main factors that inhibit the digital economy in Algeria summarized below:

• The structural backwardness of the economy in Algeria and its only source of revenue being the oil industry

• Unstable telephone services, insufficiency and weakness in communication infrastructure and capabilities

• The unconventional use of electronic signatures and lack of confidence in online payments

• Insufficient legal supervision on the rules which govern electronic transactions and their compatibility with the digital requirements

• Weak protection laws on electronic payments and evidence on special credit cards.

• Negligence of the fact that ICT integration requires the observation of how it interacts with the digital economy

2.3.2 Integrating ICTs to the Algerian LMD System

The introduction of the LMD system into the Algerian tertiary education is regarded as leap towards a globalized education since the LMD pedagogical program has been successfully applied by European countries. According toAhouari-Idri (2005, pp. 03-04), the LMD system is characterized by seven new pedagogical management elements summarized below:

- **"Semestrialisation":** The system is divided by semesters instead of years of formation, offering more flexibility and better control over the system.

- **Teaching Units:** The LMD system is composed of three fundamental teaching units within which basic subjects exist. First, The Fundamental Unit where the primary subjects are grouped. Second, The Methodological Unit aimed at developing learners skills in the field of research. Third, The Discovery Unit where students learn about different subjects in new fields to expand their breadth of knowledge about disciplines.

- **Credits:** A Teaching Unit equals to a number of credits that can be 'capitalized' and 'transferred'. The sum of credits for each semester is 30, 180 in the licence and 120 in the master degree.
- **Domains:** several coherent disciplines exist in addition to other subjects leading to different specialties, however, particular options are proposed to students.
- **Course-type:** After the students have progressively acquired identified skills, they will be directed to another function based on the project being academic or professional.
- **Tutoring:** considered a new pedagogical activity for teachers in the LMD system. This element fosters a direct relation between the teacher and student outside academic sessions, making their interaction easier. This is a way to apply a learner-centered approach where the teacher plays wider roles such as a guide and an advisor who informs students and orients them about pedagogical information they may need while simultaneously becoming informed about students' inquiries.
- **A progressive orientation:** Competence gained progressively (outcomes) is what determines the student's orientation towards other specialties during his/her formation period.

The introduction of the LMD system by August 2003 was one of the major reforms applied to the Algerian University, after it was piloted and tested on few universities; it was implemented on most subjects and specialties later on. It simply aimed at placing the Algerian diploma at a universal scale and bringing the higher levels of learning to the Algerian student since it was considered an "international" system.

> "Following the recommendations of the National Committee of Educational Reform a plan was adopted, a ten-year strategy to develop the sector for 2004-2014 whose main objective was "the development and implementation of an overall and deep reform of the Higher Education Sector. The LMD system was to meet the expectations the Algerian society and to be in a perfect coherence with the new guidelines and global trends of our higher education"(Alachaher, 2014, p. 03).

Sarnou et al. (2012, pp. 181-182) stressed on the idea that the core of the LMD system was based on the communicative approach; henceforth, its implementation should be followed by innovative ideas in teaching practices and improvements of the whole university system to provide employability chances for graduates. Significantly, regulations within the LMD append innovations in assessment, adding certain flexibility into the roles of teachers and students. They declared that the 18th article of Decree No.137 on 20/06/2009 stipulates acquisition and skills assessment was based either on a continuous control or a final exam or a combination of both methods, however, the priority is given to regular monitoring. For this reason, students' evaluation is in terms of procedures based on the attained knowledge, the deduced comprehension and learned competencies to gauge learning results. With regards to the role played by the teacher, they praise on the LMD system given that it distinguishes itself among pedagogical procedures for the fact that it does not view the learner as a "passive object" but more of central active agent in the learning process. Thus, the modification of the teachers' role goes in hand with the freedom granted to the learner, teachers are disposed to become mediators and facilitators of learning. Moreover, they are no longer the exclusive source of the knowing but masters of the discipline they teach in addition to the methodological skills that enable them to set objectives and control learning.

Introducing the LMD system was to keep the Algerian University on top of the new trends in higher education according to standards followed worldwide including the aspect of

information and communication technologies since it is highly stressed by system; nevertheless, little effort is made to effectively apply the LMD principles in terms of ICT integration among universities of Algeria. It also emphasizes on transversal teaching unit in curriculums made of mandatory foreign language and ICT courses. Although, internet and computer applications are fairly widespread in Algeria, the situation in universities does not reflect that. In observing the way language teaching occurs, through the findings of the study conducted by Alachaher (2014), it is worth saying that computer resources are available at the level of faculties to support administrative purposes exclusively. By way of contrast, computers that provide training services to form students ICT skills are insufficient. Moreover, ICT was not included as a fundamental course at the level of the different faculties aside from its respective specialty, when in fact the curriculum requires fundamental knowledge about computer use. More importantly, posters, charts or power point presentations that occur during courses are often prepared by students outside the institution, web browsing is often done outside the campus; hence, little ICT competences are gained from the institutions. Notably, little to no programs are devoted to develop students skills, they gain such competencies by themselves. In addition, ICT tools use in seminars or teaching aids in general are limited to mere devices such as slide presentations when the LMD program requires that institutions support both students and teachers to better use ICT tools (Alachaher, 2014, pp. 01-07).

2.3.2.1 The struggle between educational development and reform

Since the implementation of the License Master Doctorate system, EFL teaching and learning have encountered a considerable amount of constraints. Universities are struggling to respond to the LMD systems requirements and to meet with students' needs. That being the case, the process of learning within the system is lagging behind and failing to fulfill the system objectives such as autonomy, self-directed learning and macro skills mastery…etc. Language researchers established that such gap can only be bridged through the use of Information and Communication Technologies as a catalyst tool to support innovation and novelty in EFL teaching. Indeed, the Algerian university still grapples with the demands of the LMD system especially in terms of resorting to ICTs in the EFL classroom; overall, not allowing for students to behave as lifelong learners (Ghemmour & Sarnou, 2016, p. 247).

Such reform called for new pedagogical visions followed by necessary acts, this vision must integrate relevant realities into concrete knowledge. Sarnou et al. (2012) argued that the

shift from an annual system to a semi-annual system that allows for qualifying to the year ahead with debts is controversial and it demands an individualized management of students, escalating the rate of difficulty of implementing the system. Moreover, the provisional co-habitation between the systems until the classical system completely vanishes impedes the organization of the system and interferes with the students' assessment, progression and orientation in the LMD system. Additionally, some teaching units being similar to the units taught under the classical system still requires change of material, program and pedagogy which was not the case in most faculties (pp. 182-187).

Observing how the Algerian university still struggles to accomplish various objectives within the pedagogical principles of LMD, it is worthy to observe how the students are receiving learning in light of the reform. Ahouari-Idri (2005) conducted an analytical study about teaching and learning in the LMD system while directing its research emphasis on the students' view of LMD program. She concluded that it was limited to its form rather than its content. The lack of students' awareness about its objectives, goals and outcomes created a narrow perception within them, that they hardly value the concept of tutoring sessions and barely attend them. Instead, their concentration was on the extent of difficulty they will face in studying an immense amount of subjects. With regards to the subject of the huge number of students and crowdedness in the educational sector in Algeria, it created a hurdle in controlling the situation in general both academically and administratively. Moreover, Ahouari-Idri explained that the nature of the LMD system especially in language teaching and learning is supposed to incite students to guide the course, become active participants and input generators; however, due to the little cooperation between instructors and students, a teacher-centered approach is still adapted within the classroom and reliance is chiefly on what the teacher provides as content and knowledge (Ahouari-Idri, 2005, pp. 07-09).

2.4 E-learning and ELT: Purview of the Algerian Tertiary Education

The ongoing developments in sophisticated communication technologies have urged institutions to scab alternatives to the traditional modes of teaching and create more opportunities for teachers and learners to become part of creative learning. Information and communication technologies are now an important criterion of education and training.

That being the case, higher education in Algeria witnessed profound initiatives to improve distance learning, these endeavors has been divided into three modes: Distance/open

education programs by traditional higher education institutions, distance/open education institutions and a virtual university. To compensate for the little supervision and to enhance training and assurance quality, a national system of distance education has been launched, demonstrated in *figure.10* below. Boukelif (n.d.) divided its objectives into three phases: The first phase is the use of technology through short-term processes in order to occupy learners (particularly videoconferencing). The second phase is a medium-term process; technology use is to achieve quality assurance based on the web (online learning). Finally, the integration phase, during which distance education system is deployed and validated to distant teaching to create a chain of knowledge, that not only would it benefit the academic environment but also the wider audience. As of now, the National System of Distance Learning Network is built upon a platform of video conferencing and e-learning distributed among most training institutions and its access is granted by the National research Network (Boukelif, n.d., pp. 12-13).

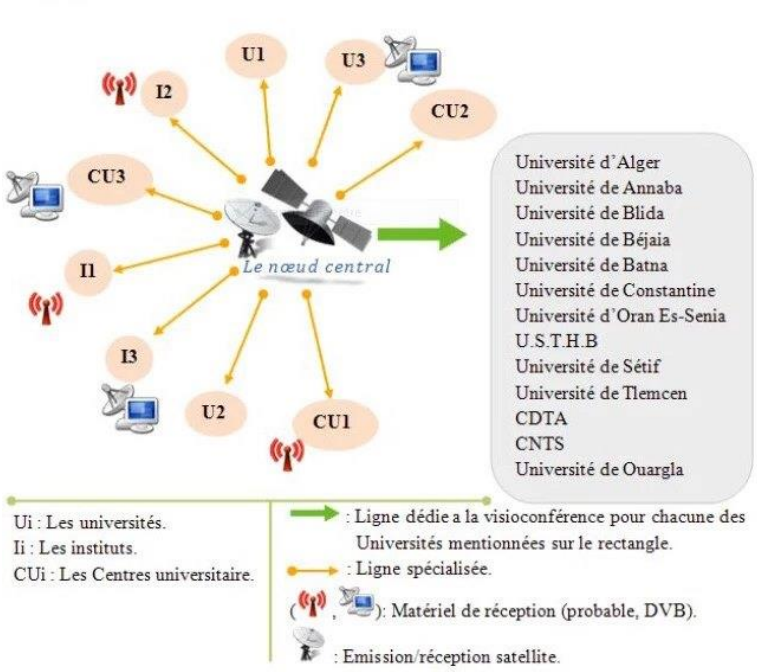


Figure 10 **Videoconferencing Architecture, retrieved from (Boukelif, n.d, p. 13)**

According the report on ICTS in Algeria, research on e-learning follows the MBTI model (Myers-Briggs Type Indicator) and uses artificial intelligence to adapt learning resources through ontology and semantic relations between concepts and learning resources. This means that research is conducted to supply system capabilities that enable it to perform tasks such as reasoning based on obtained descriptions in order to adapt resources to the

learners automatically according to their preferences (Behaz&djoudi, 2012. as cited in Djoudi, 2018, p.11). Mayard (2015. As cited in Djoudi, 2018, p. 12), established that almost all Algerian universities have an e-learning platform, however, most of them witness little to no use and have few courses uploaded; importantly, Moodle remains the most used platform within the national universities.

The government and private sectors have initiated a number of projects to boost e-learning for professional or educational purposes. Djoudi (2018) provided an account of multiple projects, which we provided a summary of some significant ones below:

- **Avicenna Virtual Campus:** a project which was coordinated by UNESCO and launched in November 2002 with funding from the European Commission through its Euro-Mediterranean Information Society (EUMEDIS) program, to develop e-learning courses, to select the norms and quality evaluation procedures, create an open virtual library of e-learning courses in different languages including Arabic and to provide e-learning sessions for students. The University of Continuing Education (UFC) is the Knowledge Centre for Avicenna Virtual Campus in Algeria (Mitchell, 2006.as cited in Djoudi, 2018).

- **AVUNET:** a web based multilingual e-learning environment created in PHP/MySQL used for both distance and blended learning. Its data is stored in central database within the platform's server and contains three modules: First, the authoring system which contains tools to create a course such as content design system. Second, the management and collaboration tool to allow for interaction and collective discussions. Third, the learner interface to provide students with assistance (Douidi et al., 2007. as cited in Djoudi, 2018).

- **DZCampus.com platform:** was the first open platform in Algeria developed by Actech (Technological Actions) which is specialized in multimedia and websites design, and the Algerian company "Conform Communications" for research and training expertise in all fields in partnership with the National Library. The platform is for institutions and training organizations in Algeria, it offers tutoring course and assessment quizzes in multiple areas of inquiry (DZCampus.com, 2016. as cited in Djoudi, 2018).

- **Djaweb solution:** an e-learning service pre-paid card developed by Algeria Telecom in partnership with Microsoft and Thomson. It offers 4000 training courses in ICTs of major IT

manufacturers (Microsoft, Oracle, Cisco, IBM…etc.) and professional skills. Importantly, training program is granted for customers who obtained Microsoft certification, it consists of sixteen modules for one year (Guemide & Benchaiba, 2012. as cited in Djoudi, 2018).

- **Virtual laboratory for E-learning:** a digital environment that uses simulated experiments to teach practical aspects of disciplines such as physics and chemistry. CVL@B (Collaborative Virtual Laboratory) proposes an architecture for virtual experimentation, it allows trainees to perform remote practical work using virtual devices (TelePW sheets) (Mechta et al., 2013. as cited in Djoudi, 2018).

The Algerian Ministry of Higher Education and Scientific Research has issued a policy to promote English language teaching in the country due to its prominent international status as the language of scientific and technological research. Thus, most departments added English language as compulsory courses taught from the first year of higher education. Under these circumstances, different departments at the level of Algerian Universities have undertaken studies to investigate English language teaching (ESP), the results indicate that there exists an absence of pedagogical requirements which impede the teaching/learning process. Moreover, the studies revealed that the university is failing to handle the steadily increasing number of 'Baccalaureate' holders, enrolled students struggle to adapt to such pedagogical situation since an ESP classroom requires a small number of students; in addition, the lacking number of ESP practitioners to teach English at the level of the different departments (Lamri, 2015).

Institutions resort to e-learning for better flexibility and control over the learning content and schedule, since current pedagogy advocates leaner-centered approaches. Through merging online tools, students are able to pause and rewind or take a break whenever possible; thus, making learning a more customizable entity (Wankel & Blessinger, 2012, p.60). It is worth of note that higher education systems are on the route for an ongoing change, the challenge that digital technologies advancements impose on pedagogy and didactic teaching requires a dynamic and innovative opportunities for learning. Authors like Madigan (2006), O'Flaherty and Philips (2015) argue that face to face learning does not satisfy students preferences and interests; therefore, e-learning components must be integrated to trigger 21st century learning skills such as virtual and blended learning (Bouguebs, 2019, p. 55).

2.4.1 Blended Learning

Blended learning has become an inseparable part of tertiary education landscape to support face to face learning or to enable students to learn at distance.

> "Blended learning generally means the application of two or more methods or solutions to a learning need…Blended learning is the use of the most effective training solutions, applied in a coordinated manner, to achieve learning objectives that will attain the desired business goals." (Smilanich & Wilson, 2005, p. 12).

Blending features of face to face interaction with online context, that it is considered as an extension to teaching and learning in the classroom created a Blended Learning approach to instruction. Adapting such mode of instruction has led to students spending less time in the classroom. This form of learning provided students with better stances to flexibly control the way they learn especially outside the classroom. Notably, such new paradigm to learning varied the ways of interacting and sharing knowledge synchronously or asynchronously to fit for both teachers and students' needs. For this reason, Blended Learning gained prominence in higher education. Particularly, the introduction of learning management systems (LMS) and virtual learning systems (VLE) extended face-to-face interaction to such online platforms (Stacey & Gerbic, 2009, p. 09; Bouguebs, 2019, p. 55).

Blended Learning approach is based on the idea of blending various learning tasks with media; this has created a layer of complexity in education since it transcends the mere use of online tools to accomplish tasks. Within this regard, Littlejohn and Pegler (2007, pp. 01-03) adhere that Blended Learning integrates different types of resources and activities within online learning environments which has broadened the scope of learning methodologies and challenged traditional modes of instruction. In turn, this complexity created an opportunity for teachers, educators and researchers to experiment and explore several forms of dialogues, media resources and tools. Above all, effective blending requires that the teacher has a clear idea about the objective of blending and about the driving trends that originate outside formal instruction.

2.4.1.1 Flipped Classroom

"What traditionally has been taking place inside the classroom now takes place outside the classroom and vice versa."

Within a blended approach to learning, a new model of classroom instruction has emerged known as the flipped or inverted classroom. This inversion is in terms of roles, what is introduced as content in the classroom is instead, done at home through distant learning. The major difference between instruction in flipped learning and blended learning is that the asynchronous learning is before what takes place synchronously (Bouguebs, 2019, pp. 55-57). Significantly, the flipped classroom model being part of the blended learning approach has garnered major attention of researchers, it is considered as one of the most innovative approaches to learning which fuses technology and sound pedagogy that it became extremely compatible with today's learners' profile in the globalized learning (Sebbah, 2019, pp. 10-27).

After having reviewed several studies within the context of English departments, most researchers have dealt with the flipped/blended classroom in terms of students and teachers perceptions and attitudes towards the adaptation of such model; whereas, little research has been conducted to concretely test the workability of a flipped classroom model in EFL teaching.

Talbi (2007) conducted a study at the level of Oum el Bouaghi University to investigate first year Master teachers' and learners' attitudes towards the Flipped Learning approach. The study revealed that teachers stress on the importance of lecturing even though they believe that flipped learning does not threaten the role of the teacher in the classroom, they do not believe that students can lead their own learning and that teachers' leadership is much needed. Moreover, teachers' reliance on videos and online documents is due to the factor of time restrictions and not to actually flip the classroom. Certainly, the teachers agreed that students in flipped classroom become more confident since they are familiar with the content to be discussed in the classroom; Nonetheless, teacher advocate that students use the model as an additional tool at home to save time but not as a central learning approach to avoid lectures.

Another study to investigate teachers' and learners' attitudes towards blended learning to foster autonomy within first year Master teachers and learners was in the University of Guelma. ALLEAGUE (2019), reported that teachers manifest good attitudes towards the effect of blended learning; nevertheless, it was noticeable that they were reserved about virtual interactions with students or keeping contact with them via social network cites, this goes on to show that in spite of their appreciation of the blended learning model they are unwilling to practice all of its components. Students on the other hand, recognize the

effectiveness of blended approaches in fostering autonomous learning; they were still heavily dependent on the teacher. Teachers state that blended learning requires new strategies and training to be effectively implemented. Still, several challenges which exist in the Algerian EFL context may impede its adaptation.

Significantly, of the rare studies in the Algerian EFL context at the tertiary level where Sebbah (2019) tested the impact of flipped learning in developing the reading skill in order to provide insights on the application of a flipped model in language classrooms. The study experiment findings stemmed that engaging students in a flipped environment allows for easy access to learning activities. Moreover, the flipped learning program has proven to enhanced students' stamina and autonomous access to learning materials and accomplish the learning tasks at the allocated times. The demonstrated that flipped learning requires the integration of various activities to create extensive learning opportunities and maintain interest throughout the course. In sum, it is safe to say that the careful planning of materials and their organization were the essential guide to reach intended objectives and adequately scaffold learners' reading skills (pp. 10-27).

2.5. Moodle and Tertiary Education

Universities resort to online platforms either to support face-to-face learning or to adapt a fully online or distance approach to instruction. Educators conceive the usefulness of platforms such as the Moodle to improve overall performances. The learner's role as active participant is the most highlighted whereas the teacher is a guide and a facilitator of learning.

2.5.1. A Supportive Tool for EFL Teaching

Most higher education learning pedagogies especially language studies, are based on a constructivist model. Learning management systems (LMS) bridge the constructivist learning with pedagogical principles as argued by Doolittle (1999). Moodle is the embodiment of an exclusive opportunity to involve students in a social mediated learning context through asynchronous and synchronous elements of technology. In line with this, Moodle is a space to deliver content, organize activities, collaborate and improve participation. Since it also functions as a virtual space, students are able to overcome digital gaps and progress at their own pace (Wood, 2010, pp. 300-301).

> "…great potential for supporting conventional classroom instruction, for example to do additional work outside of class, to become the delivery system for blended (or hybrid) course formats...Through its template-based, user friendly nature, multimedia support, student progress tracking and feedback options, Moodle offers a lot to facilitate language instruction through blended designs" (Brandl, 2005. cited in Şahin-Kızıl, 2014, p. 177).

Several studies have been conducted to investigate dependency rates, effectiveness, attitudes and perceptions regarding the use of Moodle at the tertiary level mostly in foreign contexts. (Peñafiel et al., 2016) study at the National Polytechnic School Quito, Ecuador whose participants were important policy and decision makers at the institution. The investigation revealed that efforts are required to include tools such as Moodle for on-campus teaching-learning, showcasing the full awareness of authorities regarding the underutilization of Moodle, it also outlined some requirements to work on integrating it. Nevertheless, within the national context little studies were conducted to investigate lack of use or perceptions about adapting it as a tool to support learning despite the fact that a considerable number of universities such as the Univesities of M'sila, Setif and Guelma rely on the Moodle to support teaching and learning to some extents.

In investigating second language learning using a blended model through Moodle to foster engagement, Şahin-Kızıl (2014), at Firat University School of Foreign Languages in Turkey study findings reinforced Moodle strengths as an effective platform for language learning. Students found the language activities challenging which sparked their interest. Moodle utilities were used to vary the number and type of tasks to cater for the diverse interests of students; Moreover, one of the strengths of Moodle is to supply immediate feedback, students were able to receive constant feedback on tasks especially those related to the writing skill which was the skill they improved the most through the model (pp. 182-183). Indeed, this is due to the collaborative learning environment created by Moodle forum allowing students to share and comments on each other's work to learn.

2.5.1.1 Initiatives and Integration Readiness at Biskra's University

The experience of E-learning for blended and distance education in Algeria is still at the very early stages of its development within a steady to a slow rate, this could be due to the

lack of awareness about the degree of effectiveness and the extent to which it can promote academic excellence.

Application process of Moodle in the University of Mohamed Khider, Biskra was gradual with the introduction of the platform on May 2007-2006 based on a Ministerial decision, the Network and automated systems center is responsible for running the platform in Biskra's University. Initial trials of the platform were initiated on the year of 2011-2012 and its actual application took place on the year of 2012-2013 at the level of most faculties by several teachers, the platform can be accessed through (http://elearning.univ-biskra.dz/moodle/). Since its official introduction, Moodle remains in its trial phase, as the different applications of Moodle did not reach their full potentials; teachers' use of the Moodle is restricted to the performance of few activities and content is still delivered in a traditional way on the platform. For instance, most of the utilities on Moodle especially those related to interactivity such as communication tools remain underused. Moreover, teachers at the level of the different faculties refrain from conducting tests or examinations on the platform. This is due to the unfamiliarity of the available units and lack of awareness about the various types of activities they can perform on Moodle based on a study conducted by (Karim (2017). Contents of the e-learning platform on Biskra's University website are the following resources: Directed tasks, applied tasks, Exams and Lectures. *Figure.11* displays the platform of Biskra's Moodle interface, whereas *Figure.12* displays the Faculty of Languages and Letters' Moodle space.

Figure 11 **Moodle Interface on Biskra's University E-learning Portal**

Figure 12 **Faculty of Letters and Languages Moodle Space**

Importantly, for the purpose of making Moodle an essential extension to classrooms at the different faculties, few short workshops were held in order to train teachers on the use of Moodle. A three-day workshop titled Information and Communication Technologies: Distance education platform "Moodle" took place on April 13, 2019 scheduled in the internet hall at the central library of Mohamed Khider University from 9:00AM to 13:30PM under the supervision of the coordinator of the pedagogical escort cell Dr. Sonia Al-Eidi. Lecture and workshop content for trainee teachers were delivered by Professor Louisa Sultan and head of the distance education cell from the Networking Center and Automated Media and Communication Systems for Distance Education, Samira Guerfa. The workshop talked about ICT related concepts such as e-learning in supporting and completing traditional education where Moodle was introduced. The two professors addressed in some detail Moodle as a program, explaining the different roles and educational tools on the electronic platform; additionally, an application example was provided to teachers where they were asked to follow and perform platform processes on their computers. Application included how to access the platform, to edit a file about CV, creating an ID card bearing the name of the professor and his email. The following stages was about adding subject, evaluation method, adding the target group, primary objectives and testing or diagnostic evaluations. In the last stage, teachers must download the first semester and list its resources and activities in a forum, pdf, video or a link. Content of the workshop lecture can be accessed through the

website https://www.academia.edu/39129609/Atelier_de_TIC_et_Moodle), ("Université Mohamed Khider de Biskra," 2019).

Moreover, in a pedagogical gathering on December 2019 headed by the delegate of Higher Education and Scientific Research Minister and head of the University of Mohamed Khider, Biskra to discuss several project agendas. The head of the University Dr. Ahmed Boutarfaya raised a discussion regarding a framework for controlling the process of distance education through the Moodle platform, he suggested conducting a pedagogical supervision to the newly recruited teachers and employee professors within 2013 and 2015 (Talbi, 2019).

As for students and based on extensive research, there has not been workshops or training sessions to inform students about the use or access of the Moodle platform. Most students were not aware about the existence of the Moodle platform especially 2015 baccalaureate holders. Students' registrations are through filling a google form created by the university. However, tutorial videos have been uploaded on the university's official YouTube channel https://www.youtube.com/channel/UCeKITWzuHpeA8JRHaj9nIZg, explaining processes such as enrollment and accessing courses and contents provided by the teachers; tutorial videos were also uploaded for teachers explaining basic processes on the platform. In addition, teachers were provided a 22 page guide on Moodle bearing the detailed processes teachers can perform on the platform titled "Plate-form Pédagogique Moodle: Guide de l'Enseignant".

2.5.1.2 Moodle in Light of Covid-19 Pandemic

Current educational situation in Algeria is the same as that of most countries heavily affected by the coronavirus outbreak (covid-19). The exceptional situation during the pandemic incited the higher education sector to resort to distance education where teachers upload courses, tutorials and practical works on digital platforms, amidst questions about its success in light of the number of the obstacles it faces in the Algerian context. It was within the framework of the measures taken by the Ministry of Education to combat the discontinuation of education for students in 48 states, and to reduce the outbreak of the virus in the school environment since all activities have been suspended due to the curfew. Relying on virtual platforms to complete lessons for students created concerns within the educational sector and the public especially on social media "The government's initiative is positive and its results will be fruitful after three or four years, not now, in light of the outbreak of the

Corona virus" stated Farhat Shakhab, the Parliamentarian and President of the independent Algerian Federation of Educational Sector Employees (Islam, 2020).

Prior to the large spread of the virus and the complete shut-down of Universities and halting the academic year, the University of Mohamed Khider Biskra issued an announcement on its official website that open workshops on the Moodle platform by Biskra's university Center of Networks and Information systems took place within the period of Sunday 08, march 2020-March 17, 2020 (refer to Table.03) at the central library for all faculties teachers as an implementation of the Ministerial order issued within the pre-emptive decision No.288/2020 to ensure the safe and regular course of the academic year amidst the global epidemic. The workshop was under the supervision of the center's official, Mr. AzzedineSaouli and staff members, such measure was to make sure that contents (TD, TP, Courses) of the second semester are successfully available to students on the platform (ورشات عمل مفتوحةMoodle, n.d.).

Table 4 Moodle Open Workshops Program Adapted from (" البرنامج الخاص بإدراج دروس السداسي الثاني في منصة التعلم عن بعدMoodle," n.d.)

Faculties	Date	Time	Place
Faculty of Exact Sciences, Natural & Life Sciences + Faculty of Science & Technology	March 08, 2020 March 09, 2020 March 10, 2020	8:30AM-12:30PM 13:00PM-16:30PM	Internet halls, second floor, central library
Faculty of Economic Commercial Sciences & Management Sciences + Facuty of Law & Political Sciences	March 11, 2020 March 12, 2020	8:30AM-12:30PM 13:00PM-16:30PM	Internet halls, second floor, central library
Faculty of Letters & Languages + Faculty of Human & Social Sciences + Institute of Science & Physical & Sports Activity	March 15, 2020 March 16, 2020 March 17, 2020	8:30AM-12:00PM 13:00PM-16:30PM	Internet halls, second floor, central library

Conclusion

This chapter aimed to provide a situation analysis on the field of e-learning, it sought to provide quality data on current e-learning epistemology that bedrocks the online learning pedagogy by outlining the main assumptions of each theory and its take on e-learning. As a theoretical chapter, the focus has been on capturing some of the current e-learning approaches to instruction, dealing mainly with the current learning through technology and the major categories in e-learning models. After that, a general take on the ICT status in Algeria has been introduced in terms of policy, constraints and reforms to finally conclude with a glimpse on Moodle as a supporting tool for EFL teaching and learning, integration endeavors at Mohamed Khider University and measures taken to employ it as a primary platform during the Covid-19 pandemic.

CHAPTER THREE:

DATA ANALYSIS

AND

INTERPRETATION

CHAPTER THREE: DATA ANALYSIS AND INTERPRETATION

Introduction

The current study aims at exploring the obstacles and challenges of the open-source e-learning platform Moodle. This chapter provides initially a rationale of the selected methodology elements namely, the research approach and research design. Besides, the employed sampling techniques, the adapted data collection methods and analysis procedures. The chapter is also a presentation of the data collected, which is described, discussed and interpreted in order to retrieve the necessary findings. Based on the inferred data we aim to answer the research questions posited by the study, form relevant hypotheses and recommend amends.

3.1. Research Methodology: Rationale and choices

This section represents an attempt to summarize the methodological conduct of our study. It seeks to lay down the research approach, the research design and population and sampling techniques. It will also provide an account on the employed data collection tool and data analysis procedures.

3.1.1. Research Approach

The study adopted a qualitative approach since it was aimed at exploring the obstacles and challenges that EFL teachers encounter in using Moodle as part of the teaching method in a language learning context. The choice of qualitative research approach was due to its conformance with the nature of our study which demands great involvement to develop a good understanding of the problem under investigation.

Based on Creswell's (2013) account, a qualitative research approach "is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participant's setting" (p.32), which is the fundamental of attributing the qualitative approach to our study. In addition, Creswell (2014) stipulates that investigation within a qualitative approach requires that knowledge or claims are developed on two basis; first, a constructivist assumption to cater for the various social or historical experiences in order to develop a theory or a pattern. Second, on advocacy/participatory assumptions to cater for change or issue oriented subjects. Data collected with such approach is intended to enable the researcher to infer themes from it (p.21). Kothari (2004) further explains that "a

qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behavior. Research in such a situation is a function of researcher's insights and impressions" (p. 18), hence, through such approach, we aimed to discover the impeding factors which exist within the EFL context that make it nearly impossible to use Moodle, first as a tool that supports teaching and learning and second, as a flexible e-learning platform with various tools.

Creswell (2014) explains that engaging with such an approach to study is to "…support a way of looking at research that honors an inductive style, a focus on individual meaning, and the importance of rendering the complexity of a situation" (p. 32). Within this regard and through a case study investigation, the author sought to answer the questions raised by the study.

3.1.2. Research Design

A research design is a 'procedural plan' that the researcher adopts to answer questions validly, objectively, accurately and economically, it comprises all the planned procedures to use and the tasks to be performed in order to find answers to the research questions. A research design specifies everything clearly so that the researcher can easily know how to follow them(Kumar, 2019, pp. 78-79).

As a research design, case study was the most compliant to our research. Kumar (2019) argues that a case study design is a "…very useful design when exploring an area where little is known or where you want to have a holistic understanding of the situation, phenomenon, episode, site, group or community," (p. 100) which has shaped our choice of such design. Moreover, Kazdin (1982) said that through case studies "information is highly detailed, comprehensive, and typically reported in narrative form as opposed to the quantified scores on a dependent measure. They attempt to convey the nuances of the case, including specific contexts," (as cited in Geoffery et al., 2010, p. 148). This led us to consider several factors within the research given that it is an exploratory study in nature, case study would serve to derive rich yet precise information, as stipulated by Kumar (2019) a case study design is greatly relevant when the focus of a study is mainly on exploring and understanding rather than confirming and quantifying since it provides an overview and in-depth understanding of a case within a unit ofstudy (p. 100).

In a nutshell, given the research nature and in order to provide an accurate and complete description of the problem under investigation, and as illustrated by Griffe (2018) “design is to the skeleton as data is to the flesh Thus, just as the flesh interacts with the skeleton, data interacts with the design to form typical or characteristic contours” (p. 131), case study would adequately serve to reach such objectives and answer questions raised by our study.

3.1.3. Population and Sampling

The population of this study was teachers of Sciences of the Language in the English faculty at Biskra’s University. The selection of this particular population was not haphazardly done; we have carefully thought the context within which our problem exist and identified a crucial need to deal with the problem by considering the teachers’ perspectives.

According to Dorneyi (2007) “Convenience or opportunity sampling The most common sample type in L2 research is the 'convenience' or 'opportunity sample', where an important criterion of sample selection is the convenience of the researcher” (p.98). He also explained that of the defining features of this sampling strategy “is that it usually results in willing participants, which is a prerequisite to having a rich dataset. On the other hand, saturation may not happen at all.” (p. 129). Hence, convenience sampling technique appeared to be the most compatible to our research, based on such technique, 12 teachers out of 40, were able to participate. Dorneyi (2007) also explained how “convenience samples are rarely completely convenience-based but are usually partially purposeful, which means that besides the relative ease of accessibility, participants also have to possess certain key characteristics that are related to the purpose of the investigation” (p. 98)

Given our case, the sample was selected in light of two factors given current circumstances that are: Teacher’s willingness to cooperate and accessibility easiness based on their perception of appropriateness in terms of timing.

3.1.4. Data collection Tools

According to Brown (2001) "Questionnaires are any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers."(as cited in Dornyei & Taguchi, 2009, p. 06). Given current circumstances, the researcher opted for a survey questionnaire as the only data collection tool.

3.1.4.1. Structure and Aims

The questionnaire being the sole data collection tool to the study, sought to collect primary data based on the received responses by teachers, which will be filtered, described and discussed.

The questionnaire was semi-structured that consisted of 20 (open-ended and closed-ended questions) divided into three sections (refer to Appendix A), the first section was about the teachers' general information which contained three questions about gender, recruitment year and teaching experience.

The second section dealt with Computer Assisted Language Learning (CALL), five questions were directed to teachers to know about their teaching method orientation, the online tools they use as teachers, their perceptions regarding ICT to support teaching, the difficulties they encounter in integrating ICTs and the criteria they rely on to choose ICT tools.

The third section dedicated specific attention to the Moodle platform, it consisted of 12 questions about the perceptions teachers had on Moodle, the extent of their familiarity with the platform, whether they received training on its use, the type of training, the overall gains from the training, the difficulties they faced in using Moodle, whether they relied on the platform during the COVID-19 pandemic, the Moodle tool(s) and aspects they used the most and what they thought of integrating Moodle to enhance EFL teaching.

3.1.4.2. Piloting and validation

Based on Kothari (2004) "it is always advisable to conduct 'pilot study' (Pilot Survey) for testing the questionnaires…the significance of pilot survey is felt very much. Pilot survey isinfact the replica and rehearsal of the main survey." (p.97) Thus, in order to validate the clarity and comprehensibility of the questionnaire, before administering it to the sample, it was sent to two teachers from our population Sciences of the Language teachers at the level of English faculty in Biskra University. In this stage, we inserted an "Opinionnaire" section in which the questionnaire's length, relevance, clarity, layout, ambiguity or repetition was assessed by the teachers. The supervisor made some remarks regarding some questions reformulation and replacing some words such as using "support" instead of "aid" in Q.2. Moreover, the questionnaire was overall not lengthy and easy to manage as its questions were not ambiguous

for teachers. The questionnaire was then administered to the teachers of the sample through their e-mails retrieved from the University's website.

3.2. Data Analysis Procedures

For a highly qualitative type of research, data analysis is an on-going process, it is necessary that the researcher makes reflections about emerging themes, adapting and changing the methods if required during such research; moreover, the data will be displayed descriptively through charts and figures. After a process of filtering, the researcher was to analyze the collected primary data through adopting a content analysis approach to interpret what has been gathered. The analysis was left to the end until the data was collected, thus the process of analysis is mechanical since the most used practice is to code by content. The data is systematically assigned codes which can be numbers or words to particular characteristics within the data, categories were also to emerge from within the set of data (Dawson, 2019, p.119).

3.3. Analysis and Interpretation of Data

As the title suggests, within this section we aim to analyze and interpret the data generated by the questionnaire, which has been submitted to teachers in fulfillment of the current study. The analysis of data was to undergo a content analysis; in addition, we have resorted to basic descriptive statistics, in order to present the data in an orderly and clear manner to easily interpret it and present it for readers and backup the results of our analysis.

3.3.1 Teacher's Questionnaire

※Section one: General Information※

The tables below represent a summary of the sample's background information in terms of gender, recruitment year and teaching experience given the importance it has to the study.

Table 5

Sample's gender distribution

	Respondents	Percentage
Male	09	75%
Female	03	25%

Table 6

Teachers' recruitment in years

Recruitment years	Respondents	Percentage
2006-2008	04	33%
2011-2014	04	33%
2017-2018	03	25%

The aim of this question was to have an idea into the relativity of diversification in terms of recruitment years within the sample. Moreover, we believe that familiarity with e-learning and ICTs in general could be affected by within which time frame the teacher has been recruited, as it may reflect different approaches to teaching. As shown in the table, recruitment years are varied and equally distributed within the sample, 33% are veteran teachers (4 out of 12) recruited within the years 2006-2008, 33% were recruited within 2011-2014 and the remaining 25% had their recruitment within 2017-2018. However, one teacher from the sample did not provide an answer to the question as she/he could not recognize the necessity for this question.

Table 7

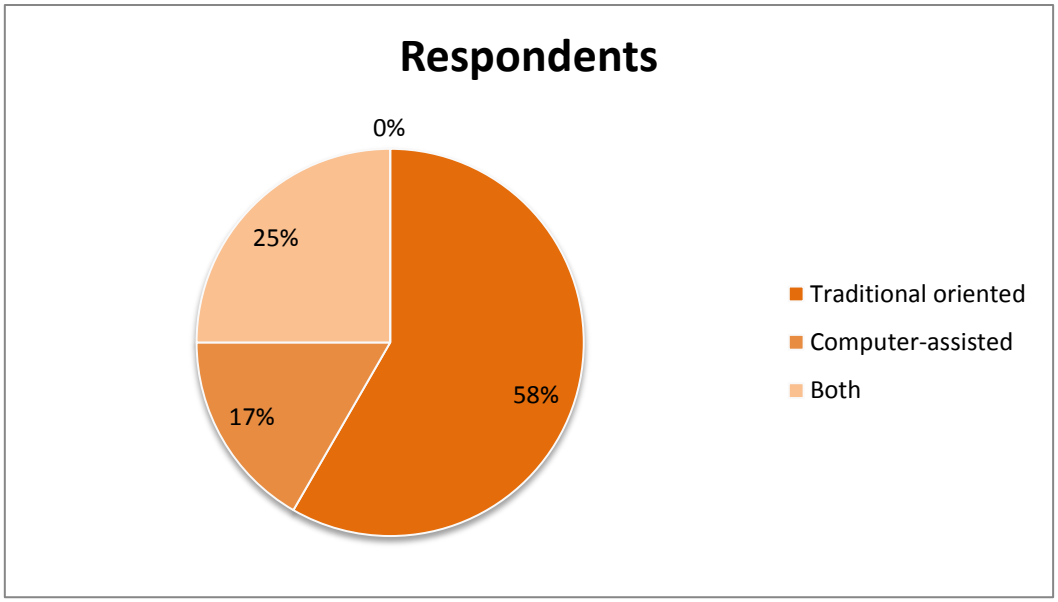
English teachers' teaching experience in years

Teaching Experience in years	Respondents	Percentage
01-05 years	03	25%
06-10 years	03	25%
More than 10 years	06	50%

We have included this question to know about the teaching experience of the teachers who have provided answers to the questionnaire. It is a common belief that the longer the experience the better insights teachers will have about the different methods to approach teaching. Thus, teachers could become acquainted with adequate knowledge about online teaching and e-learning platforms over time (this by no means indicate that teachers with less experience are not effective teachers). As the table illustrates, 50% represents the dominant number of English teachers, who have long teaching experience varying from 12 to 17 years and 20 years as well. Whereas 25% have taught English for as long as 06 and 10 years and the remaining 25% had an experience varying from two to five years in teaching English.

※Section Two: Computer Assisted Language Learning (CALL)※

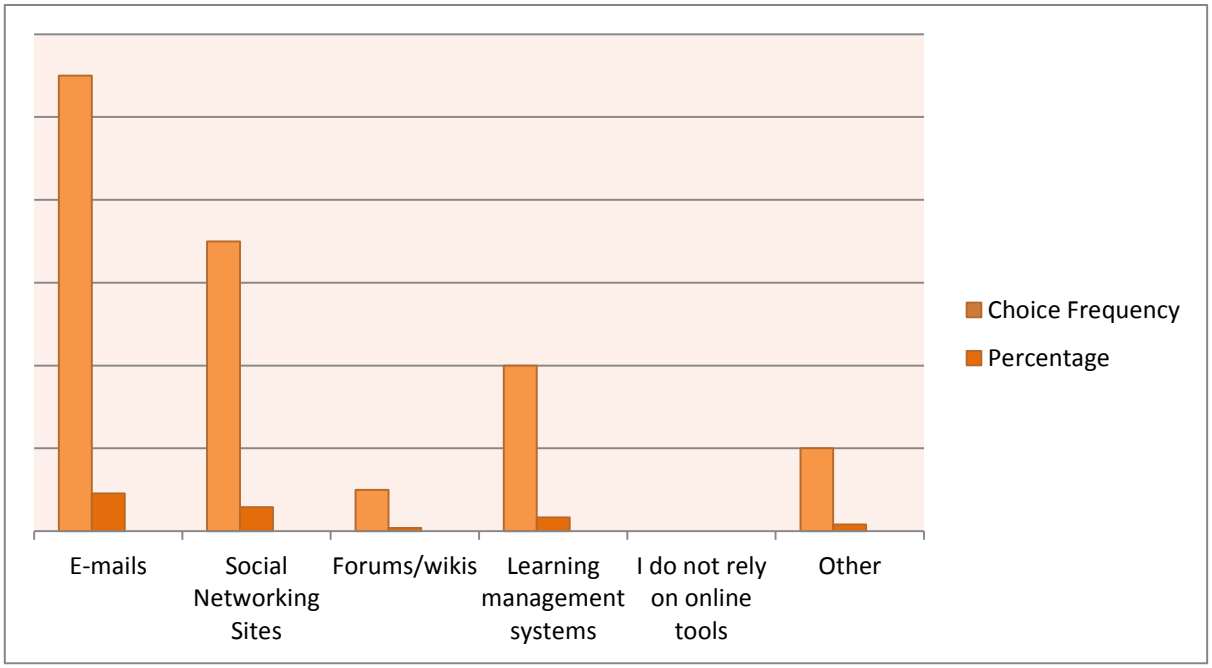
1. Looking back at your language teaching method is it more computer-assisted or traditional-oriented? Please elaborate.



Graph 1 **Teachers' approach to teaching**

This question was used to set the ground for the upcoming questions in the section through which we aimed to have an idea about the predominant method teachers have adopted to teach. It appears that 58% of the teachers (07 out of 12) adopted a traditional method which constitutes the great majority of the sample; a teacher commented that it was the lack of equipment in the faculty and the university policy of pedagogy being some of the reasons their approach was more traditional, another teacher stated that a computer-assisted teachingrequires certain skills to use the materialsneeded. 25% (03 out of 12) seemed to mix between both methods a teacher said that she/he uses the computer at home but comes over to class with sheets in hand. Whereas the remaining 17% constituting the least minority of the sample, were to adopt a more computer-assisted method "*I try to keep up with new methods of teaching that meet students' expectations and satisfy their learning needs*" commented a teacher.

2. As an EFL teacher, what online utilities do you rely on most to support teaching/learning?



***Graph 2* Teachers' frequently used online tools**

The second question was to explore the online tools teachers often use to support their teaching method, out of the various tools available to them online, we attempted to understand the kind of tools they would use the most which would to some extent, reflect their teaching approaches. E-mailing was the frequently chosen item with 11 teachers relying on e-mails constituting 91%. As the table shows, teachers also rely on social networking sites such as Facebook and skype to perform teaching tasks with 58% (07 out of 12) relying on such online utilities. Forums and wikis appear to be the least used tools with one teacher (08%) making use of such portals. However, two teachers were to rely on other online tools namely “Blog” and a database from which he/she downloads books and articles.

3. Below are some perceptions about the utilization of computer-based materials, showcase the extent to which you agree/disagree.

Table 8

Teachers' perceptions of some approaches to ICT use

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
• Online tools such as forums or email make it easier to reach out and communicate with my students about the subject matter	41%	50%	08%	00%	00%
• I do not rely on internet/computer based materials as much as other material resources	00%	16%	25%	50%	08%
• Relying on ICTs facilitates the process of course material development & delivery	33%	58%	00%	00%	08%
• I am able to adjust online tools according to my learners' styles to better deliver course content and reach course objectives	16%	66%	08%	08%	00%
• ICT based tools offer more stances for learners to learn	33%	58%	8%	00%	00%

We have added this question is order to closely assess how the teachers perceive some approaches to ICT use, and the extent to which they relate to some of these approaches.

Teachers seem to agree that online tools facilitate the way they communicate with their students about the subject matter, 50% were to agree and 41% (5 out of 12) strongly agreed. Moreover, 58% of the teachers (7 out of 12) believe that ICTs facilitate the turmoil of developing course materials and delivering it in the classroom. As the table suggests, the teachers showcased an ability to adjust online tools to fit with their students' learning styles as 66% expressed their ability to do so in order to reach course objectives. In addition, general agreement exists regarding the fact that ICTs creates better chances for the students' to learn as can be seen from the table 58% supported the claim.

4. While relying on Information and Communication Technologies, tick some of the impediments you have faced/is facing

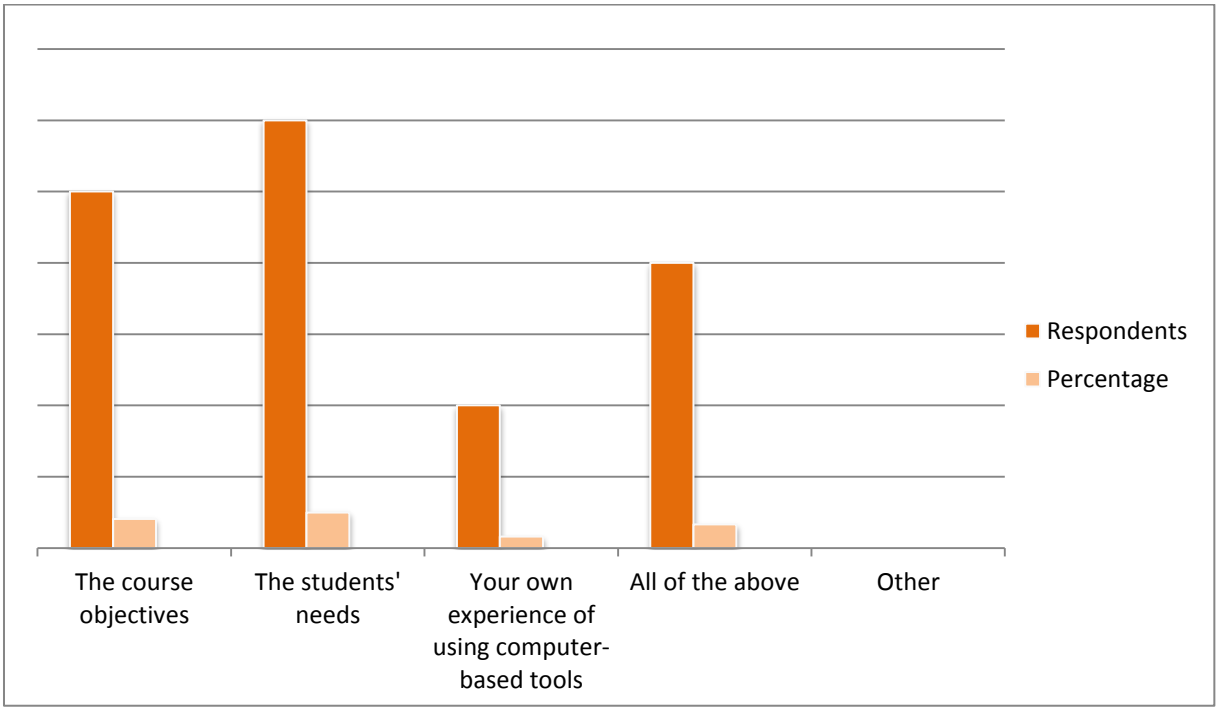
Table 9

Impeding factors to the use of ICTs

	Choice Frequency	Percentage
• Insufficient administrative support and guidance	08	66%
• Insufficient infrastructure in the department	12	100%
• Lack of personal interest in technology	00	00%
• Lack of students' access to computers/internet at their respective homes	08	66%
• Inadequate knowledge about information & communication technologies	05	41%
• None	00	00%
• All of the above	00	00%
• Other	01	08%

Since the ICT sector within the teaching context in Algeria is lacking in a number of aspects, it was important that we include such question in order to highlight few possible impeding factors peripheral to the English department. As illustrated by the table, all the teachers concurred that the deficiency in mobilizing infrastructure in the department is what hampers their willingness to rely on their use. 66% was attributed to the lack of guidance and support on the part of the department and the other 66% was due to the students' inability to access computer facilities at their homes. A teacher stated that most students are not able to have stable wireless connection at home. 41% (05 out of 12) was linked to the inadequate knowledge teachers possess information and communication technologies.

5. Your choice of the computer/online based tool is often dependent on:



Graph 3 **Teachers' rationale in choosing the online tool**

The fifth question was included to discover how the teachers select what they use as computer/online tools. According to the table teachers seem to consider the students' needs the most, in addition to the course objectives with 41% paying attention to the overall course aims. Moreover, teachers seemingly do not give much consideration to their experience of using the tools.

※Section Three: Moodle the Free and Open-Source Learning Management System※

1. What is your general perception of Moodle as an educational platform in terms of adaptability and use?

It is necessary that we know how the teachers perceive Moodle as an educational platform. Significantly, they had different views about Moodle, the majority thought that it could be very useful when it is used properly "*useful and easy to manipulate Yet it contains some complicated services*" Another teacher said that "*Moodle facilitates the learning process as well as for teachers to reach their students.*" A teacher highlighted the effectiveness of some of its uses commenting that *"It is a good and effective tool in storing information, interacting with students, posting courses and activities...etc."* Despite that they believe it can be very helpful and interesting, they think it is still not available for most students and teachers to be used appropriately *"It is not at reach of the bulk of teachers and students at least for the time being"*. "*Students have difficulties to enroll on the platform*". Moreover, teachers highlighted some of the difficulties the platform faces such as "*teachers face challenges on how to add/edit a course on Moodle because of the lack of training",* a teacher particularly thought that Moodle can support learning but not replace the session saying that *"both teachers and students are not adapted to the use of Moodle as an educational platform. In addition, I personally consider Moodle as an additional subsidiary support, but not a substitute for lectures/session*." Other teachers thought that the platform faces a handful amount of challenges which impede the possibility of its use "*however, lack of both teachers and students training in Algeria in addition to quality of the internet hinders its use*." and *"it is useful and a gain of time and energy especially for teacher who can interact with students outside the class anytime, anywhere. However, it needs internet and computer availability as well as some knowledge on computing."*

2. What is the extent of your familiarity with Moodle

Table 10

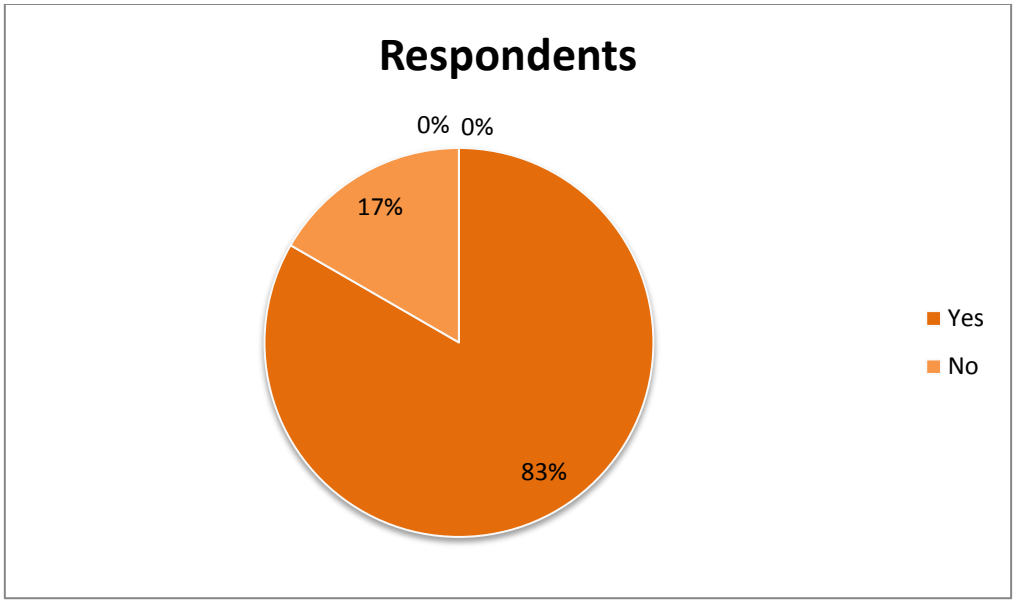
Teachers' familiarity with the platform

Items	Respondents	Percentage
• I have only viewed the platform through Biskra's University website	01	08%
• I have only viewed the platform of a different foreigner university	01	08%
• Ihave accessed/viewed the platform of a different local university.	00	00%
• I have accessed the university's respective platform but did not perform tasks on it	00	00%
• I have both accessed the university's respective platform and performed tasks on it	10	83%
• I only know about the existence of the platform	00	00%
• Not Familiar at all	00	00%

This question was aimed to find out how familiar the teachers were with the e-learning platform Moodle in order to understand the kind of background they had about the platform. As shown by the table, 83% of the teachers are familiar with the e-learning platform Moodle of Biskra's Univeristy, on which they have performed different tasks. Two teachers have only

viewed the platform, one happened to view a foreigner university's platform and the remaining teacher viewed Biskra's University Moodle platform.

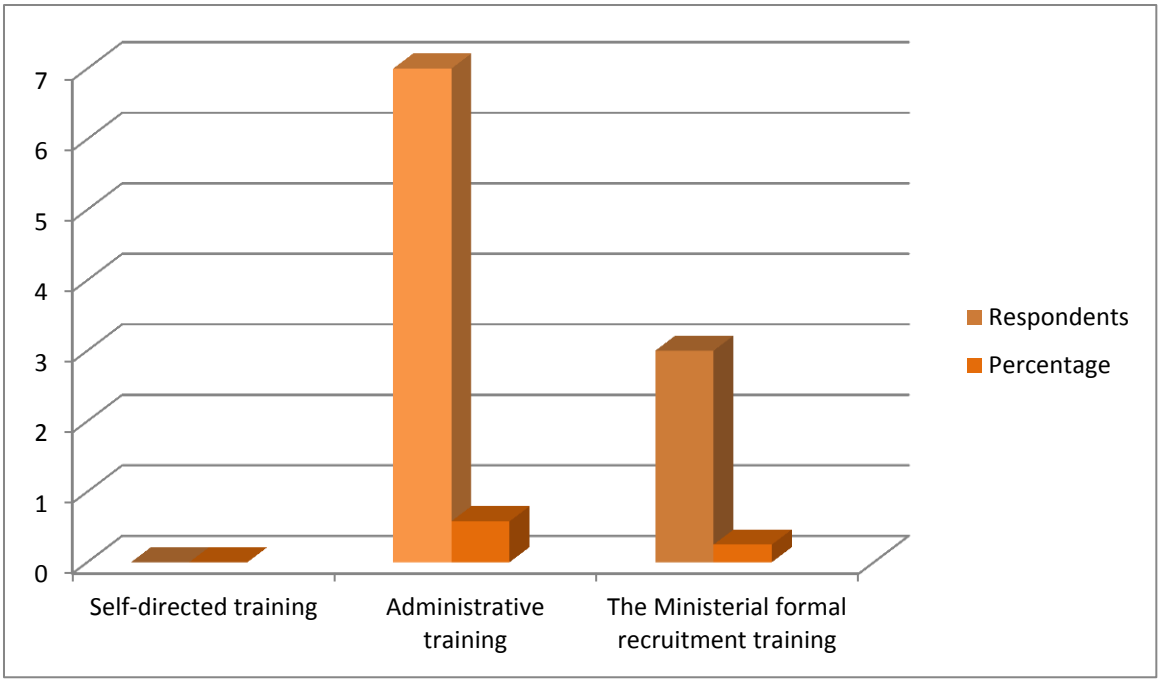
3. Have you received/joined a formal training on the use of Moodle?



***Graph 4* Teachers' participation in a formal Moodle training**

The purpose of such question was to form an idea about how the teachers established their familiarity with the platform. 83% (10 out of 12) stated that they have received training on the use of Moodle, whereas 16% (02 out of 12) did not receive any training.

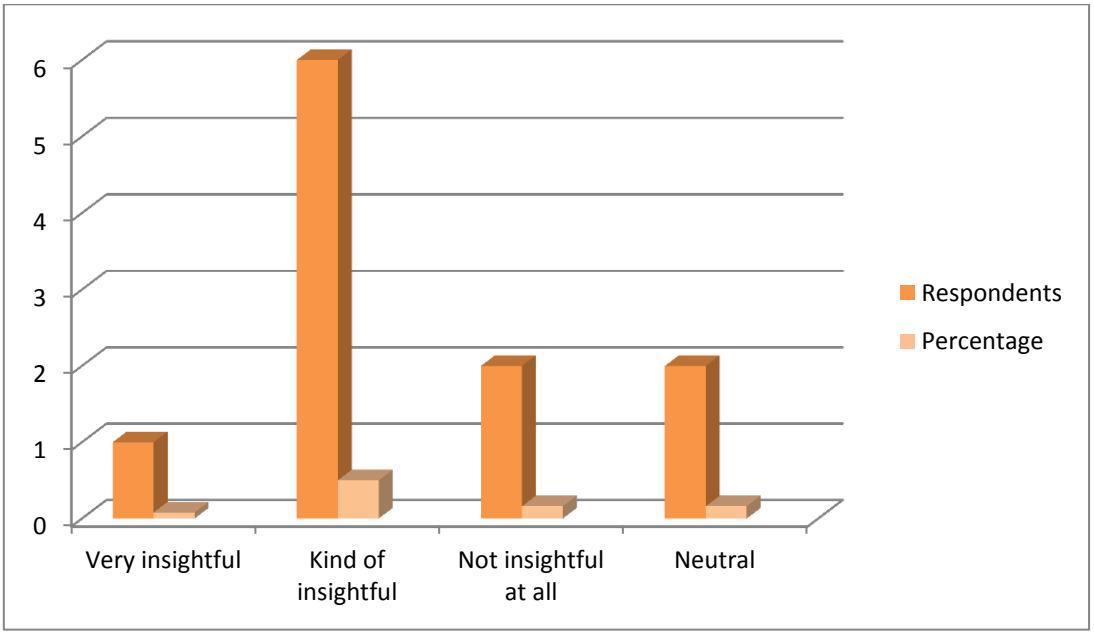
3.1. If yes, please state if it was through:



***Graph 5* The type of Moodle training teachers' have received**

The objective of adding this question was to have insights into which type of training the teachers have received, in order to establish a full background about the extent of teachers' knowledge about the platform. 58% have received an administrative training whereas 25% were to undergo the ministerial formal recruitment training.

4. How do you describe overall attainments from the received training?



***Graph 6* Teachers' overall attainments from the training they have received**

As we wanted to further explore the teachers' background and familiarity of the platform, it was necessary to include such question to know about the extent of knowledge they have acquired from the training. 50% stated that the training was kind of insightful, 16% thought that it was not insightful at all; whereas a 16% chose neutral. This could be due to the fact that the training did not live up to the teachers' expectations.

4.1. Please elaborate

Fundamentally, it is not sufficient that we know whether the training was insightful or not only. Hence, it was necessary that we further ask the teachers to elaborate on their experience through the training, to better understand what made the training beneficial or not for the teachers. That is to say, teachers have found that the training lacked practice, was short-termed and not that organized, a teacher was to state that "*The training was not well planned and it lacked practical workshops."* Another teacher backed up the claim "*It was a very short and weak training".* Some teachers stressed the need to include more practice saying "*It was beneficial to a certain degree, but users of such platforms need to practice more individually though it is challenging to do so in our context because of the above-mentioned reasons"* and *"I can assure you that our training needs extra sessions, days, and practice both at home and at the university."* Moreover, the teachers pointed out the inadequacy of the training and how it was not in depth as it should have been "*The training was very short and not very developed. We only got insights about its access use but did not get in enough details to use it by our own."* Nevertheless, it appeared to the few as a beneficial training "*We have been provided with the necessary knowledge about the Moodle and practice, which gave us an opportunity to use it for pedagogical purposes."*

5. What obstacles have you generally faced in your attempt to integrate/use Moodle as an EFL teacher?

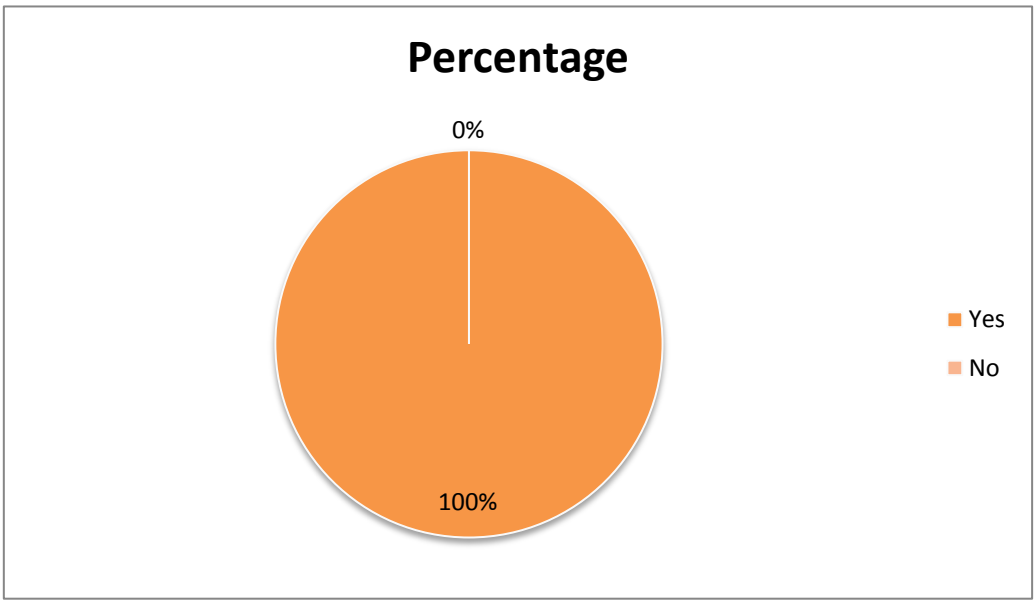
Table 11

Impeding factors to the use of Moodle

	Choicefrequency	Percentage
• Inability/difficulty to access the Moodle account	04	33%
• Inadequate knowledge on the utilities of Moodle	04	33%
• Inadequate knowledge on how to edit/add a course on Moodle	04	33%
• Students' inability to enroll on the platform	09	75%
• Students' inability to access course due to their lack of knowledge about Moodle	09	75%
• Administrative complication (Assistance, support…etc.)	05	41%
• Other	00	00%

Since the main objective of our research is to discover the hurdles that teachers face with using Moodle, it was highly important that we add this question in order to understand the sources of difficulty and establish multifaceted knowledge regarding the different aspects of impediments. As illustrated by the table, 75% of the impeding factors represent the students' inability to enroll on the platform; whereas a 75% account for their inability to access the courses that teachers provide on the platform, due to their inadequate knowledge about Moodle. 41% is assimilated to the lack of support and assistance on the part of the administration; thus, it is safe to say that little measures are taken in order to ensure the effective use of Moodle. Teachers attribute little difficulty to their knowledge about the platform and their ability to perform tasks on it with 33% dispersed over their inability to add or edit courses and knowledge about the platform's utilities. One teacher correlated the difficulty to internet issues.

6. During the COVID-19 pandemic, have you relied on the Moodle platform to carry on with the teaching/learning process?



Graph 7 **Teachers' reliance on Moodle during the COVID-19 pandemic**

We made sure that we added this question given the current situation that led to an excessive reliance on Moodle as a tool to teach at distance. The main aim was to know the extent of teachers' reliance on the platform in order to ensure the good course of learning during the virus outbreak. As expected, teachers appeared to be 100% reliant on the platform in order to supply students' with the necessary instruction. However, this contradicts the answer to the familiarity with Moodle question where two teachers have stated previously that they only viewed the platform without performing tasks on it.

6.1. You are kindly requested to mention what other learning management systems/means/tools you have relied on:

Although the aim of this question was that teachers mention the alternative tools they have used in the case of not using Moodle, however, since several teachers provided answers to the question we decided to include them given underlying study aims. Along with Moodle, teachers have also relied on several online tools in order to keep their students up to date with learning such as Social media, students' Facebook pages, the English Branch Blog on Biskra's university website, teachers' respective Blog with which the students were already familiar, YouTube and online meetings.

6.2. In the case of relying on Moodle, which Moodle utility have you opted for most?

Table 12

The frequently used Moodle utility by teachers

Item	Choice frequency	Percentage
• Interactivity (interactive, videos, presentations, games...etc.)	01	08%
• Testing	01	08%
• Uploading courses	12	100%

It is important that we know the purpose to which teachers have performed processes on the platform in order to measure the extent to which the different utilities of the platform are used by teachers. Fundamentally, this reflects how skilled teachers are with surfing the platform and how well they are able to effectively use the various Moodle tools. 100% constituted answers in favor of uploading courses, 08% for interactivity and 08% for conducting tests.

7. What aspects of the Moodle platform have you used before/during the pandemic?

Table 13

Aspects of Moodle that the teachers' have interacted with

	Item frequency	Percentage
• Adding/editing course content	09	75%
• Enrolling students into the course	01	00%
• Adding resources to the course (YouTube videos, PowerPoint presentations…etc.)	06	50%
• Adding activities (Quizzes/assignments/forums/glossaries	05	41%
• Setting timeframes or reminders for assignments submission	00	00%
• Setting up gradebook	00	00%
• Communicating with students through the "Messaging" icon on Moodle	01	08%
• None of the above	00	00%
• Other	00	00%

In addition to knowing what was the objective of teachers use of Moodle and what to essentially fulfill with the utilities they have used, it is essential that we explore the aspects of Moodle that teachers' have interacted with, given the broad tools on Moodle which enable teachers to manipulate course content flexibly. As can be seen from the table, 75% constitutes the main thing teachers perform on Moodle which is adding or editing a course. 50% was for adding resources to the course such as PowerPoint presentations or YouTube videos. 41% was attributed to conducting quizzes and assignments. It is apparent that teachers do not utilize the platform to communicate with students or set up grade books and time frames; thus, some of the essential tools on Moodle are underused by teachers.

8. Do you believe that integrating Moodle to support face to face learning would enhance the course of tertiary education in Algeria? Please elaborate.

As a final question, it aimed to extract teachers' stances on the initiatives of integrating Moodle as an extension to support face-to-face learning and the positive impact it would bring about to Language teaching at the tertiary level. That is to say, teachers were positive about the beneficial repercussions and enhancements Moodle would bring. Teachers also thought that the integration process should be seriously considered by university officials and administrators, as well as mandatory perquisite to both teachers and students, a teacher has expressed that *"teaching approaches are better performed using e-learning."* Moreover, Moodle would create a platform with storage of activities which students could access whenever possible, they could also *"comment, receive feedback, be assessed, etc."* and help teachers overcome several problems within traditional teaching such as *"dealing with the huge number of students, the distribution of course materials, and the short time that is allocated to each module. As for students, Moodle would enable them to get more opportunities to communicate with their teachers."* Nevertheless, teachers pointed out some of the requirements in order to officially use Moodle, a teacher said that *"It all depends on the rate/quality of the Internet flow/connexion, especially at home and on the students' willingness to make efforts in this sense."* Another teacher also has highlighted two main requirements *"this requires not only teachers and students training to be accustomed to it, but also providing good internet connection."*

3.4.Discussion and Synthesis

In brief, through our exploratory study we had the objectives of bringing to light the impeding factors which make it a challenging process to integrate the free and open-source e-learning platform Moodle, as an extension and a supporting tool to face-to-face learning. Thus, the study sought to highlight the type and sources of hurdles underlying the difficulty in effectively using it to cope with myriad existent deficiencies within our department, that teachers are unable to integrate it into their teaching method. By adopting a qualitative research approach and a case study design, we were honored by the participation of 12 teachers in answering our data collection tool the survey questionnaire, to find adequate answers to the four main questions posited by our study.

Through our analysis of the valuable collected data, we have reached interesting conclusions that further confirm and add onto what we have already found in the proposed

literature. Findings mainly imply that teachers adopt a traditional approach to teaching given the prevalent circumstances within the English Department, as imposed by the overall lacking condition of ICTs in the Algerian educational sector; often times, teachers resort to their personal equipment to perform some of the main teaching tasks.

Explicitly, we have had the impression that teachers demonstrated a great perspicacity regarding the use of ICTs, to strengthen communication with students, to benefit from the various online educational resources in developing effective teaching content and offer better learning to students. Results also determine that teachers pay close attention to their students' needs to opt for which online tool, they also demonstrated an ability to fit what they use as ICT tools with how their students learn; with this in mind, teachers have also showed considerable enthusiasm towards Moodle and its different uses. On the positive side, they believe that the platform offers effective teaching and learning services; at the same time, they are reluctant about fully adapting it as they believe the platform faces several complications and has yet to be at the reach of most students, considering the fact that they face several problems in accessing or enrolling on the platform. Henceforth, this answers the first question of our study regarding how teachers generally perceive the Moodle platform.

As suggested by our findings, the majority of teachers have joined an administrative training on Moodle; however, not all respondents have received training; we assume that the training was not mandatory or at the reach for all teachers, other factors could also be considered such as teachers' respective personal conditions. The most compelling finding suggested by the data was the inadequacies of the training, seeing that it was considered by teachers as short, not organized or well-planned. Moreover, the training barely had practical workshops which would have supplied teachers with in-depth details about the platform. Hence, this suggests an answer to our question on the insufficiency of Moodle training proposed by the administration.

This could be reflected through our results which indicated that despite having performed tasks on the platform, teachers' familiarity and use were limited to very few processes that barely account for 50% of the available services on Moodle. Notably, teachers resort to the utility of uploading courses, which through our assessment of Biskra's English Department Moodle portal often occurred in a PDF format. Other aspects to the platform such as interactivity, communication, testing, grading and forums…etc. were underutilized,

teachers have expressed how these were complicated services that require good knowledge of computing, adequate training and appropriate internet flow.

Based on what has been established as findings, we are able to answer the second main question posited by the study and lay down the main difficulties teachers at the English Department encounter in the process of using the e-learning platform Moodle. First, context-driven impediments represented by the insufficient ICT equipment within the faculty, and the poor internet flow that hinders the appropriate use and exploration of the platform services. Second, administrative-driven difficulties which are in terms of the insufficient endeavors which aim at disseminating the use of the platform to make it at the reach of students and teachers, through extensive trainings and practical workshops that enable both teachers and students to use the platform on their own. Third, teacher-driven factors which can be summarized according to our findings that implied the heavy reliance on social networking sites, teachers preference to resort to online tools which are available to them in a handily manner such as social networking portals unlike forums and learning management systems. Despite that these online tools can satisfy the learners' needs, they remain short term and do not possess long term storage of learning content that students can easily access whenever possible.

For the most part, the data stemmed that integrating Moodle to support traditional learning would enhance the course of education in general and ELT in particular at the tertiary level. Teachers' thought that teaching approaches are more effective when coupled with e-learning; Moreover, Moodle would supply learners with an accessible storage of instructional content and learning activities. Also, students and teachers would be able to communicate better and overcome crowdedness problems that hinder the possibility to supply learners with instant or adequate feedback, which is an essential criterion for effective language learning. Additionally, teachers believed that through Moodle, they would be able to grant learning items sufficient time when they are not able to achieve it within the classroom. Based on the aforementioned results of our data, this answers the last question of our study regarding the ways Moodle platform could enhance the course of teaching at the tertiary level.

In essence, based on the findings of our study it is safe to conclude that there is a lack of awareness about the importance of e-learning among the teaching and administrative staff; in addition to the absence of methods that motivate teachers to explore the e-learning platform Moodle. Despite the Ministry's efforts to connect all higher education intuitions to the

internet, the flow remains weak within the distance learning cells compared to the kind of tasks assigned to them, which does not permit the good course of using most of the services on Moodle as a tool to support classroom instruction.

Conclusion

This chapter served to discuss the used research methods employed at the different stages of inquiry. With regards to the nature of our study being exploratory, we have adopted a qualitative approach along with a case study design; moreover, we have opted for a convenience sampling technique through which we had 12 teachers' participation in the study. In analyzing the data we have collected through this research, we used descriptive statistics and Content-based Analysis. After having analyzed the data, we have presented a rigorous discussion and synthesis of the study findings in order to draw adequate answers to the research questions of the study.

General Conclusion and Pedagogical Recommendations

The discourse on integrating digital technologies in education stresses on its impact and the several advantages it had brought especially into higher education. On the contrary to its widespread, e-learning is still unclear and bound to much debate and research. It is that in our context with respect to the Algerian University, there seems to be a disconnection between the endeavors which seek to disseminate its use, and its application in teaching and learning practices at the national level. Our study dedicated special focus to explore the fact that despite efforts to adapt the e-learning platform Moodle, teachers and learners at Biskra University continue to face several issues impeding its use and integration.

To review, the first chapter reviewed some elements in the fields of ICT and pedagogy and learning management systems. Concepts such as ICT integration models were discussed; in addition to literature on the relationship between fields of ICTs and pedagogy. After that, it dealt with some pedagogical applications in the field of ICTs, followed by a description of the bridging field between Applied Linguistics and ICTs, Computer Assisted Language Learning (CALL). The following part shifted its focus to learning management systems' in terms of a timeline of their establishment, its application in higher education followed by a take on some of its technical aspects, to conclude with Moodle's history, some of its educational features and the major additions on its categories.

The second chapter constituted a situation analysis on the field of e-learning and ICTs in our context, it elaborated on fundamental theoretical concepts of e-learning. Discussed e-learning and its stances on instruction, it provided an overview on learning through technology and the major categories of e-learning models. The chapter also dealt with ICTs and e-learning status in the Republic of Algeria, elaborated on ICTs policy, constraints and reforms to conclude with an account on the some remarkable endeavors to integrate Moodle s an extension to education at the University of Biskra.

In seeking answers to our research questions we opted for a data collection method, survey questionnaire for EFL teachers in order to gain insights and perceptions about the problem. The findings established that teachers would have adopted a computer-assisted approach to teaching if the necessary conditions within the faculty were met. Results also suggested that teachers had two impressions of the Moodle platform, an effective and helpful teaching tool yet complicated and troublesome given the difficulties it faces such as the inadequacies of the type of training on Moodle and lack of the necessary equipment. The

majority of teachers believe that the appropriate integration of the Moodle would without a doubt enhance language teaching in higher education.

On the whole, this dissertation has explored use and integration constraints that beset the e-learning platform Moodle within EFL teachers. These impediments are the consequence of the little administrative support and assistance in making it accessible and easy to use by both teachers and students, in terms of mobilizing the necessary mediums and training, and teachers preference to rely on other e-learning tools which are easily manipulated and accessible to them.

Pedagogical Recommendations

In light of what the study has established as findings, we offer few humble recommendations for the future of the platform Moodle use in particular and e-learning in general at the university level:

- We recommend that teachers in our faculty take the initiative to explore the educational online tools available to them such as the Moodle platform given the beneficial services it offers, and the amount of effectiveness it would add onto EFL teaching and learning.

- Teachers should consider that digital literacy is as crucial as other literacies and seek to further develop it in order to possess well-versed knowledge of the various approaches to teaching.

- Teachers should understand the importance of collaboration with other professionals or colleagues to master the different skills related to e-learning and ICTs in general.

- It is important that teachers recognize how e-teaching can be an essential prerequisite to achieve efficient learning in higher education.
- Teachers should recognize that through Moodle, they can better deliver instructional resources, monitor and assess learning, remediate, resolve and identify instructional problems and ease work overload.
- The academic faculty should provide ongoing pedagogical and technical support systems to effectively implement Moodle and ease its use for both teachers and learners.

- The administration should devote monthly workshops for the teaching staff and students to encourage them to devote time for developing their knowledge of the Moodle platform to become well-versed about its different uses.
- The administration should make use of the e-learning portal in devoting forums to encourage teachers to use such utilities.
- Authorities should consider developing pre-tertiary education curricula that incorporates modern teaching approaches to prepare students scientifically and technically to deal the approved new technologies.
- Policy makers in higher education at the different national jurisdictions should allocate special funds to target the deficiencies that e-learning faces in the educational sector.
- Future researchers should opt for an assessment of the platform application through a blended learning model to further test its effectiveness especially for language learning and provide evidence for the need to officially integrate it.
- Future researchers should also try to explore the problem taking into consideration the students' perspectives to form a fuller image of the problem.
- Future researchers should draw on our study's findings to undertake a research which suggests remedies or solutions for the effective integration of the platform as an extension to formal education.

Limitations of the Study

Our study was an exploratory investigation which included survey questionnaire only for EFL teachers, we had the intention of conducting an interview with few of Biskra University's IT responsible members; however, this was not possible due to the circumstances imposed by the Corona virus outbreak. As far as the number of participants is concerned, we attempted to have a larger number in order to gain better insights into the problem, but the study had garnered the participation of 12 teachers only out of 40 contacted ones, that we requested to take part in our research through their e-mails. This highly dismisses possibilities for teachers within our context to become effective e-teachers who would deal with a

sophisticated e-learning platform like Moodle, since such behaviors do not support the academic responsibility of the overall teaching process.

Furthermore, there was a lack of sources and previous research studies which dealt with our problem. We were not able to find studies which have dealt with the Moodle platform in terms of use or adaptation or perceptions about its integration. In addition, findings of our study are not generalized since our research is a case study limited to the small number of the sample.

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Appendices

Appendix A: Teacher's Questionnaire

EFL teachers' Questionnaire at Biskra University

Dear Teachers,

The questionnaire at hand serves as a data collection tool for the fulfillment of a Master dissertation on the exploratory study "The Obstacles and Challenges of The Open-source Platform Moodle". The study aims to unravel the hindrances that teachers of English at Mohamed Khider University face which make them unable to integrate Moodle as part of the teaching/learning process. You are kindly requested to provide us with precise and clear feedback which would be of a great help to accomplish the study at hand.

Thank you in advance for your time, effort and cooperation.

Ikram CHEIKH

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Mr. Abdelhak CHENINI

Section One: General Information

Q1. Gender

-Male ☐

-Female ☐

Q2. Recruitment year

……...

Q3. Teaching experience

……...

Section Two: Computer Assisted Language Learning (CALL)

Q1. Looking back at your language teaching method, is it more computer-assisted or traditional oriented? Please elaborate.

……...

Q2. As an EFL teacher, what online utilities do you rely on most to support teaching/learning?

-Emails ☐

-Social Networking Sites (Facebook, Skype…etc.) ☐

-Forums/Wikis (Quora…etc.) ☐

-Learning Management Systems (Moodle) ☐

-I do no rely on online tools ☐

Other:

……

Q3. Below are some perceptions about the utilization of computer-based materials, showcase the extent to which you agree/disagree.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
• Online tools such as forums or email make it easier to reach out and communicate with my students about the subject matter					
• I do not rely on internet/computer based materials as much as other material resources					
• Relying on ICTs facilitates the process of course material development & delivery					
• I am able to adjust online tools according to my learners' styles to better deliver course content and reach course objectives					
• ICT based tools offer more stances for learners to learn					

Q4. While relying on Information & Communication Technologies, tick some of the impediments you have faced/is facing (You may choose more than one):

-Insufficient administrative support and guidance on the use of ICT means ☐

-Insufficient technical infrastructure in the institution ☐

-Lack of personal interest in technology ☐

-Lack of students' access to computers/internet at their respective homes ☐

-Inadequate knowledge about information & communication technology ☐

-All of the above ☐

Other:

…….....

Q5. Your choice of the computer/online based tool is often dependent on:

-The course objectives ☐

-The students' needs ☐

-Your own experience in terms of using computer-based tool ☐

-All of the above ☐

Other:

…….....

Section Three: Moodle the Free and Open-Source Learning Management System

Q1. What is your general perception of Moodle as an educational platform in terms of adaptability and use?

……...

Q2. What is the extent of your familiarity with the Moodle platform?

-I have only viewed the platform through Biskra's University website ☐

-I have only viewed the platform of a different foreigner university ☐

-I have accessed/viewed the platform of a different local university ☐

-I have accessed the university's respective platform but did not perform tasks on it ☐

-I have both accessed the university's respective platform and performed tasks on it ☐

-I only know about the existence of the platform ☐

-Not familiar at all ☐

Other:

……...

Q3.Have you received/joined a formal training on the use of Moodle?

-Yes ☐

-No ☐

- **If yes, please state if it was through:**

-Self-directed training ☐

-Administrative training ☐

-The Ministerial formal recruitment training ☐

-Other

……...

Q4. How do you describe overall attainments from the received training?

-Very insightful ☐

-Kind of insightful ☐

-Not insightful at all ☐

-Neutral ☐

- **Please elaborate:**

……

Q5. What obstacles have you generally faced in your attempt to integrate/use Moodle as an EFL teacher? (You may choose more than one).

-Inability/difficulty to access the Moodle platform ☐

-Inadequate knowledge on Moodle utilities ☐

-Inadequate knowledge on how to add/edit a course on Moodle ☐

-Students' inability to enroll on the platform ☐

-Students inability to access courses do due to their lack of knowledge about Moodle ☐

-Administrative complications (support, assistance…etc.) ☐

Q6. During the COVID-19 pandemic, have you relied on the Moodle platform to carry on with the teaching/learning process?

-Yes ☐

-No, I have relied on other learning management systems/means/tools ☐

- **You are kindly requested to mention what other learning management systems/means/tools you have relied on:**

……...

- **In the case of relying on Moodle, which Moodle utility have you opted for most?**

-Interactivity (interactive videos, presentations, games...etc.) ☐

-Testing ☐

-Uploading courses ☐

-Other ☐

Q7. What aspects of the Moodle platform have you used before/during the pandemic?

-Adding/editing course content ☐

-Enrolling students to the platform ☐

-Adding resources to the course (YouTube videos, PowerPoint presentations...etc.) ☐

-Adding activities (quizzes/assignments/forums/glossaries) ☐

-Setting time frames or reminders for assignments submission ☐

-Setting up a gradebook ☐

-Communicating with students through the Moodle "Messaging" icon ☐

-None of the above ☐

-Other

……...

Q8. Do you believe that integrating Moodle to support face to face learning would enhance the course of tertiary education in Algeria? Please elaborate.

……

ملخص

أدى النمو غير المسبق لتقنيات الإنترنت إلى ظهور العديد من الاساليب المعتمدة في مجال التعليم والتي تتجلى في فرض الحاجة إلى استخدام أنظمة التعليم الإلكتروني. وبناءً على ذلك ، سعت هذه الدراسة إلى استكشاف الوضع داخل قسم اللغة الإنجليزية بجامعة بسكرة ، من خلال دراسة استكشافية لمعرفة معوقات وتحديات نظام إدارة التعليم مفتوح المصدر موودل. تسعى الدراسة إلى تسليط الضوء على مصادر صعوبة الاستخدام وقيود التكيف بين اساتذة اللغة الإنجليزية. في البحث عن إجابات للأسئلة المقترحة، اعتمد البحث تصميم دراسة الحالة و الاستبيان كطريقة جمع بيانات بمشاركة 12 استاذا. بعد تحليل البيانات التي تم جمعها بعناية، أشارت النتائج إلى وجود نقص في الدعم الإداري والمساعدة في جعل المنصة سهلة الاستخدام، من حيث تعبئة الوسائل اللازمة والورش التدريبية. كشفت النتائج أيضًا أن الاساتذة يفضلون الاعتماد على وسائل التعليم الإلكتروني التي يسهل التعامل معها و الولوج إليها.