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Developing EFL Students' Communication Skills through Collaborative Visualisation: An Analysis of Teachers and Master One Students' Attitudes in the Department of English at Mouloud Mammeri University of Tizi-Ouzou.

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Dedications

To my beloved ones!

I dedicate this work to my adorable mother and father and my little brother Amine who were my source of inspiration and motivation to achieve this work.

To all my friends and people who encouraged me and believed in me.

LAMIA

I dedicate this work to all those who have been a source of energy, motivation, and of moral support for me!

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Abstract

The present study is conducted to investigate teachers' and students' attitudes toward promoting EFL students' communication skills through collaborative visualisation. This research has two main objectives which consist in identifying Master one student's and their teachers' attitudes towards the use of collaborative visualisation in the learning process to promote students' communication skills. In addition to exploring the extent to which collaborative visualisation can help the students to develop their communication skills in English. To do so, the coordination process theory of Erkens (2005) is applied. For the collection of data, 6 structured interviews have been conducted with teachers, 220 questionnaires have been distributed to Master I students but only 130 have been returned.. For the analysis of quantitative data, the rule of three is used; whereas, for the qualitative data, we relied on a descriptive analysis. The findings of students' questionnaire have revealed that students have positive attitudes toward using collaborative visualisation to promote their communication skills. In addition, the results of the teachers' interview have shown that teachers do encourage this kind of techniques to improve learning in general and to develop students' communication skills in particular.

Key words: Attitudes, Collaborative Visualisation, Communication Skills, Theory of Coordination Process.

List of Abbreviations

- **CL**: Collaborative Learning.
- **CS**: Communication Skills.
- **CSCL**: Computer Supported Collaborative Learning.
- **CSCW**: Computer Supported Cooperative Work.
- **CV**: Collaborative Visualisation.
- **EFL**: English as a Foreign Language
- **H**: Hypothesis.
- **ICTS**: Information Communication Technologies.
- **MMUTO**: Mouloud Mammeri University of Tizi-Ouzou.
- **Q**: Question.

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General Introduction

Introduction

- ## Statement of the Problem

School education is one of the most important processes in an individual's life. It has two parts which are teaching and learning; and to succeed in teaching, teachers need to adopt many teaching methods. For decades, before technology appears in human' life, teachers have adopted the traditional way of teaching where they were the only source of knowledge. In the traditional classroom, the teacher is the dominant entity which has more opportunities to talk during lessons; whereas, the students primarily learn individually and rely exclusively on what the teachers say because of the lack of other resources and materials. It is worth noting that the old way of teaching promotes memorisation of knowledge neglecting the fact that students must develop their communication skills and go beyond what is said by the teacher. Now, since the appearance of technology and since it is being integrated in school education, the teaching process has progressed. Teachers have started making use of several visual aids to support the teaching / learning process. Researchers like Pathan and Alsied (2013) agree that technology helps both teachers and students in the classroom. In fact, visual aids make the students involved in the lesson and encourage interaction among them and with their teachers as well.

Development in EFL learning and teaching depends on the use of effective strategies which are very important for students in order to succeed in their learning process. It is often argued that learners understand and perform in different ways because they have multiple intelligences (Gardner 1983: 59). Indeed, there are some students who better learn through visualisation activities like drawings, graphics, and watching videos, etc; and others who learn better through group activities i.e. in collaboration with others like role plays, debates,

conversations, etc. The current study, then, makes a combination of the two i.e. visualisation and collaborative learning as a new teaching strategy of the XXI th century. In more precise terms, the research work deals with collaborative visualisation in EFL contexts at university.

Through the teaching and learning processes, teachers may adopt appropriate strategies for an effective learning of communication skill which is defined in the Oxford Living Online Dictionary as "*the ability to convey or share ideas and feelings effectively*". During the university years, we experienced in our Department, we observed that teachers used to teach by judging their students more on their writings and dissertations. Students still encounter difficulties in communication. We, then, propose the implementation of a different strategy in educational technology which is collaborative visualisation, we have read on this technique which is mainly used in the scientific context and want to know if it is useful in EFL context. Accordingly, our study is based on investigating students' and teachers' attitudes towards developing communication skills in English through collaborative visualisation. This is a project that we suggest to take place at university.

- **Research Questions and Hypotheses**

The Present study aims at answering these following questions:

Q1. In which way can the implementation of collaborative visualisation promote Master I students' communication skills in English at Mouloud Mammeri University of Tizi Ouzou?

Q2. What are the teachers' and students' attitudes toward the use of collaborative visualisation in promoting Master I students' communication skills in English at Mouloud Mammeri University of Tizi Ouzou?

This study is centred on two main hypotheses which state that:

H1. Collaborative visualisation promotes the exchange of information, participation, discussions and debates which help Master One students at Mouloud Mammeri University of Tizi Ouzou to develop their communication skills.

H2. Teachers and students have a positive attitude toward the use collaborative Visualisation to Master I students' communication skills in English at Mouloud Mammeri University of Tizi Ouzou.

- ## Aims and Significance of the Study

Since students always need to improve their communication skills and overcome their difficulties, we have suggested the implementation of collaborative visualisation in order to help students' develop their communication skills. In short, the objectives of this study consist of identifying students' and teachers' attitudes towards the use of collaborative visualisation in the learning process in the Department of English at Mouloud Mammeri University in order to promote students' communication skills; and exploring to what extent can this strategy be effective in the EFL in general and in developing students' communication skills in particular according to both teachers and students.

This study is significant in English Language Teaching because it has to do with a technique based technology. The idea is that using collaborative visualisation in learning communication skills enhances and encourages collaborative learning. In other words, it enhances group activities and organises them into academic and social learning experiences; therefore, it might raise students' awareness of the importance of collaborative learning. Collaborative visualisation can be used as a teaching technique in EFL classroom, and using it may add variety to the teaching and learning environment and better attract learners' attention. It is mentioned in Ahmadi (2018: 116) that the use of technology motivates students in EFL. The results of this study are also significant to EFL learners as they may help in

providing better understanding of the usage of collaborative visualisation in independent learning; that is to say**,** students may use collaborative visualisation to learn alone without being guided by a teacher.

- **Research Design and Methodology**

In order to investigate the effectiveness of using collaborative visualisation for developing communication skills in English, we have opted for the exploratory method. Our participants consist of university Master one students of different options, and teachers of different modules in the Department of English, Mouloud Mammeri University of Tizi Ouzou. Concerning the students, we have selected 220 and only 130 of them have answered the questionnaire. For the teachers, we have had interviews with 06 of them.

This study has been conducted through structured interviews with teachers in the Department of English and questionnaires that have been submitted to students. The questionnaire is a set of questions or statements given in exactly the same form for a group of people. The reason behind choosing this instrument is to gather students' attitudes towards the use of collaborative visualisation; whereas, the interview is the equivalent of a meeting or a conversation which involves asking a list of questions. It is mainly used when the population is small. The purpose of having chosen this data collection tool is to know the experience of teachers in using technology. Concerning the analysis of data, we have adopted the quantitative method which aims at quantifying the data and assessing it from the angle of numbers, and a descriptive analysis of qualitative data to get closer view and have a deeper understanding of the issue.

- **Structure of the Dissertation**

The present work is designed following the traditional simple model of a dissertation. It is composed of "General Introduction", "Review of Literature", "Research Methodology",

"Discussion and Results", and a "General Conclusion". First, the introduction presents the topic of the research in general and states the problem by establishing a niche. Second, the literature review presents the key terms that are used within the research as defined by scholars. It has started with collaborative learning, collaborative visualisation, and communication skills and finished with the theory of coordination process. Third, the methodology chapter permits to state the theoretical framework. It involved the sample or respondents, the instruments to conduct the study, and the tools used to analyse the data. Fourth, the results section is concerned with the data gained and their analysis. After that, the discussion section gives the opportunity to discuss and interpret the findings. Finally, the important points of the research are summarised in the "General Conclusion".

Chapter One :

Review of the Literature

Introduction

The current chapter reviews relevant literature on the learning, and teaching strategies of collaborative visualisation, collaborative learning, and communication skills. This is for the sake of setting a ground that allows us to analyse the attitudes that are held by both teachers and students in the Department of English at Mouloud Mammeri University of Tizi Ouzou towards collaborative visualisation (CV) in developing communication skills (CS) in English. This chapter is composed of seven basic parts. The first part is devoted to collaborative visualisation. We start this section with several definitions proposed by authors to collaborative learning (CL); then, we move to a brief literature review of collaborative visualisation. The second section deals with the importance of collaborative visualisation in the process of learning. We define, in the third position, visual aids and explain their types. Afterwards, communication skills are defined and the different types which might be involved in the collaborative visualisation are explained in the fourth part. The fifth part reviews the relationship between collaborative visualisation and communication skills from a constructivist approach. The concept of attitude and its definition are dealt with at the level of the sixth part. The seventh part is concerned with the theoretical framework on which this research is based.

I. Collaborative Visualisation

Collaborative Visualisation can be understood as collaborative learning using visual aids. Collaborative learning can be confused with cooperative learning; however, these two terms can be used interchangeably. According to Bruffee (1995: 12), "*Cooperative learning and collaborative learning are two versions of the same thing*", "*… their long-range goals are strikingly similar*" (ibid).

1. Collaborative Learning

According to Luther (2000), the major premise of the new way of learning is that students are active learners who work in groups. They engage in the learning experience and each member contributes to group success. Students take part in group activities centred on problem solving; thus, they try to share knowledge and discuss how to solve issues. In other words, they are involved in their own learning. It is logical that in a group, students might have diverse opinions; consequently, the exchange of information helps one another to think critically.

1.1. Conceptions of Collaborative Learning

According to Jenni and Mauriel, 2004 (cited in Marjan and Mozhgan, 2012: 491) the term "collaborative learning" is used in many disciplines and fields. Although authors have not agreed on one definition of the term, there are some features that are common in their definitions.

Mercer and Littleton (2007) define collaborative learning as an activity in which "*participants are engaged in a coordinated, continuing attempt to solve a problem or in some other way construct common knowledge*" (cited in Reusser and Pauli, 2015:916). That is to say, in collaborative activities, students must work together. By coordinating their efforts, they try to find a way to successfully manage a problem or a difficulty to reach a consensus. In addition, Johnson and Johnson (1999:73) state that cooperative learning is "*the instructional use of small groups in which students work together to maximize their own and each other's learning*". In other words, working in groups improves learning efficiency. Communication is essential for coordination because during collaborative activities, students give their opinions and share their ideas. The exchange of knowledge helps each one to solve

academic problems (for example, misunderstanding the topic of the study). Consequently, Zambrano et al., (2019) think that there is one option to optimise collaborative learning; it is by developing effective collaborative groups. Indeed, collaborative learning needs effective communication to occur. Johnson and Johnson (1999) mention that there are five conditions to achieve the desired goals in Cooperative Learning.

1) Students must be mutually interdependent to assume group reaching goals. For example, during a lecture, the students who are divided into groups of four or five are recommended to write a dissertation on a specific topic; this implies that each student shares his knowledge with others, to depend on each other for a common purpose. Students are connected in a way that the success of each student makes the success of all group members.
2) Individual accountability: students work together and help each other to become stronger through explaining the concepts studied, assessing one another, etc. Even though everyone is responsible of his performance and own learning, this does not prevent the group members to help one another.
3) Students must participate in important face to face interactions, in which they share knowledge, give constructive feedback, encourage each other to achieve cognitive activities. In fact, students' participation attracts the other members' attention to listen and to reflect.
4) Students should be taught the leadership, decision-making, trust-building, communication and conflict-management skills as academic skills. To exemplify this, students are usually asked to prepare exposés depending on the module and the teacher. It is by giving this type of activity (exposés) that students learn to become leaders, to share the tasks with the group members, to avoid conflicts within the group or to manage them.

5) Group processing: this exists when the students try to organise themselves during activities, negotiate ideas; discuss topics in an effective way.

Lastly, Dillenbourg (1999) means by the term “collaborative learning”, a process by which two or more people learn, acquire knowledge or try to memorise something. During collaborative activities, students are expected to interact with one another, to be mutually engaged in conversations, to coordinate their efforts to solve problems. Interaction with pairs would lead to produce learning mechanisms, development of critical thinking and communication. This means that collaborative learning is an active process. However, it is not a method, but rather a social act, between either peers or between peers and the teacher Dillenbourg (1999). Although the environment in the classroom is student-centred, it is not certain that the expected conversations will happen; this is why in collaborative classes, the teacher has his/her responsibilities. The teacher is supposed to know what happens inside the group of students who are working together; how to maintain their concentration and know how to control critical situations that may happen as well as how to avoid them (Bruffee,1981). The following section will deal with collaborative visualisation and its importance in the process of learning.

2. Collaborative Visualisation

According to Pea (2002), Harb Manssour Freitas (2000) and Arcavi (2003), collaborative visualisation is mainly used in the domain of science, mathematics, etc. The use of this strategy in teaching EFL requires listening comprehension and oral expression. To apply collaborative visualisation in EFL classroom, the principles of coordination process theory should be followed. This means, students would listen and watch videos, films, documentaries; coordinate their efforts, share their knowledge and comment on them effectively.

With the exception of this research, a number of definitions have already been given to describe particular perspectives of collaborative visualisation. They are too specific; however, none has endeavored to encompass the scopes of group work around visual representations of information (Isenberg et al., 2011). Because of this, Isenberg et al., (2011: 312) have agreed on one specific definition that broadly describes the scope that CV can encircle; it *"[…] is the shared use of computer-supported, (interactive,) visual representations of data by more than one person with the common goal of contribution to joint information processing activities".* This indicates that, multiple people communicate with the same computer to share their ideas with one another or to discuss the meaning of information cooperatively; however, CV can be divided based on the spatial location (co-located and distributed) and the moment in the time, synchronous and asynchronous, it occurs.

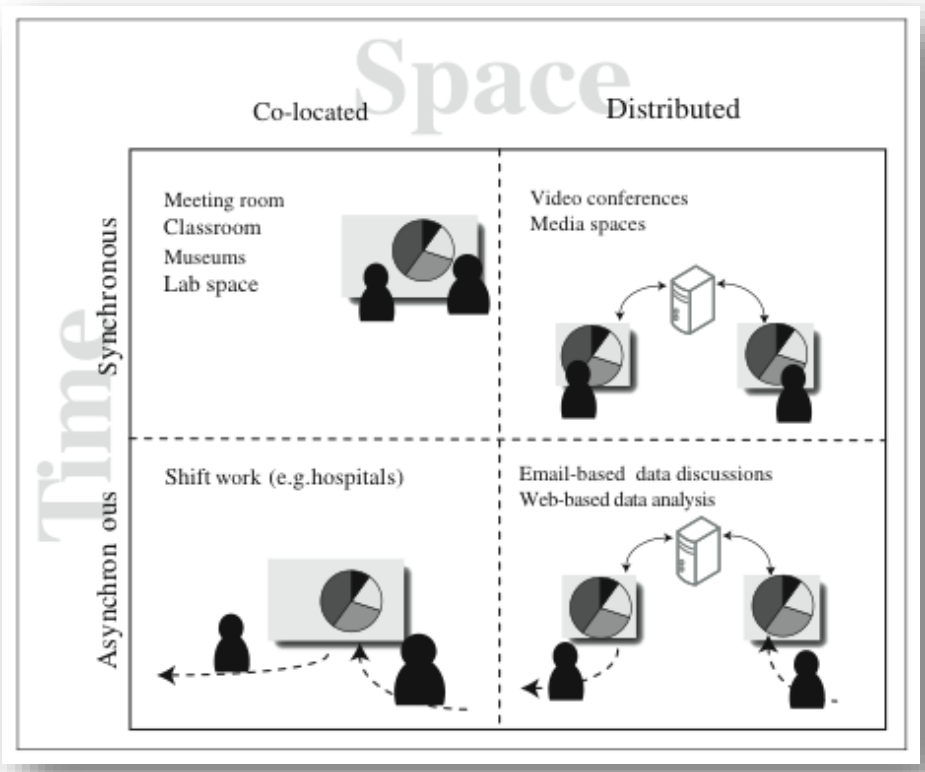

Figure1. Collaborative visualization according to space and time. Matrix adapted from Baecker and Dix et al (cited in Isenberg et al., 2011: 313).

This Matrix shows that collaborative visualisation happens, on the one hand, depending on the location of the participants. On the other hand, it occurs depending on the time, synchronously or asynchronously. In synchronous collaboration, for example, the students watch a video conferencing at the same time; whereas, asynchronous collaboration, it allows a group of people to have many actions at different times without waiting for the others. Asynchronous collaboration *"involves exchange of letters, faxes, or emails, between members of a group"* (Brodlie et al., 1981: 03), that is, the group members need to use means of communication (letter, faxes or emails) to be able to collaborate with each other. Through these means, the data or the information exchanged between the members are stored.

To recapitulate, in collaborative visualisation, a group of people can work together on a project at the same time and the same place. This allows them to have a face-to-face interaction. For instance, viewing a video and discussing it together. On the other hand, the group of people may be separated geographically and work on a project through computers. They may have synchronous or asynchronous distributed interactions (Brodlie et al., 1981: 02).

Visualisations are, in fact, intended to support collaboration of multiple users to share their ideas, their involvement and analytical skills, as well as develop each other's knowledge and professionally reach more profound and valuable information. They are also used to facilitate communication, *"a collaborative visualisation enhances the way the doctors would communicate and interact, as well as support the exchange and manipulation of the patient's medical information"* (Cernea, 2015: 02). In this case, doctors can work on projects such as preparing surgeries either synchronicallyor asynchronically. They may not be in the same work place, but they deal with the same subject. They can manipulate data through their

tablets as they can comment about it. Consequently, visualisation supports social interaction between doctors.

Indeed, the involvement of the group in the collaborative visualisation adjusts the help and encouragement offered to the individuals and to the group as a whole entity; therefore, it would improve multiple users' communication and interaction, as well as sharing, exchanging and manipulating the information (Cernea, 2015).

2.1. Computer Supported Collaborative Learning

CSCL is a new, active, changing, interdisciplinary, and international field of research. It focuses on how technology can simplify the construction and the sharing of knowledge through social interaction. In the computer supported collaborative learning, interactions occur between students through computers to get a better learning environment. The use of technology assists asynchronous and synchronous communication between students who are together as well as students who are distributed in different physical locations (Paul and Thérèse, 2007).

The development of information and communication technologies (ICTs) has brought different computer applications, such as e-mail, chat rooms, video conferencing, simulations, and discussion forums which are useful for education (Janssen et al., 2007).The study of CSCL is associated with collaborative learning and computer supported for cooperative work (CSCW). In CSCW, the activities can be either co-located or separated. Students or a group of people working together communicate using a groupware, which is a software designed to be shared collaboratively by a number of users on a computer network, either synchronously or asynchronously. This communication creates virtual learning environments or communities (Pea, 2002). These communities can be created in blogs and forums.

CSCL can be related to EFL context; with the use of technology in classroom, students can learn English as a foreign language through collaborative activities using visual aids on one hand. On the other hand, online classrooms are created in educational platforms. To illustrate, wiki spaces is an educational platform where students are separated but work together on the same project.

3. The Importance of Collaborative Visualisation in the Process of Learning

Collaborative visualisation may be considered as collaborative learning supported by visualisation. It is used in many fields mainly those of science, architecture, etc. Its importance in the process of learning has been demonstrated in several researches. According to Myller (2009), it encourages students to have meaningful conversations based on the exchange of information. Students coordinate their efforts to understand the topic being learned. When students are actively engaged in the activities, this enhances learning results. After that, as it gives importance to human interactions such as discussions, negotiations, or arguments, this develops social skills and critical thinking (Isenberg, 2011). In accordance with what has been said, Collaborative Visualisation is relevant to EFL at the University because it would, somehow, train students to use English language.

4. Visual Aids

4.1. Definition of Visual Aids

According to Ghulam (2015: 226), *"visual aids are those instructional Aids which are used in the classroom to encourage students [sic] learning process"*. In other words, the use of visual aids motivates students. It encourages them to participate; therefore, learning becomes easier because it creates an enjoyable atmosphere. In addition Burton, cited in Ghulam (2015: 226), thinks that *"Visual aids are those sensory objects or images which*

initiate or stimulate and support learning". That is, they serve as a complement to a lesson or a presentation. Finally, visual aids are described by Kinder, (cited in Ghulam, 2015) as *"any devices which can be used to make the learning experience more real, more accurate and more active".* In other words, these tools enable students to watch truthful contents, listen to recordings and make the students want to participate and interact.

4.1.1. Types of Visual Aids

There is a variety of types of visual aids used in language learning

4.1.1.1. Pictures

They are usually used by most people or in most circumstances. They are very useful for learning new words. However, there are abstract words that are impossible to illustrate contrary to the concrete ones that are easy to accompany with pictures (Anderson and Shifrin, 1980; cited in Hiral, 2015: 93). Photo dictionaries are widely used to enrich students' vocabulary and enhance their speaking skill (ibid).

4.1.1.2. Film

The film is another type of visual aids in education. It may have an important role in language learning because the moving pictures and the series of events projected help the students to learn in an enjoyable environment. The learners pay attention to the pictures and the words; thus, it helps in learning new vocabulary, in improving one's pronunciation as well, (Hiral, 2015). Concerning the learners of the Department of English at Mouloud Mammeri University of Tizi Ouzou, in our view, it would be more efficient for their learning process to implement films whose scripts are in British English Language. These films help the learners to practice the four skills; listening, while watching the film and reading, writing and speaking in the activities that follow after watching the film (Khan, 2015).

4.1.1.3. YouTube Videos

YouTube videos are mostly watched, with the new era of technology, because of their accessibility. There are many channels that broadcast documentaries, videos and lessons in English. With these channels that treat several themes, the learners can learn a new vocabulary, a British accent, pronunciation of new words, and grammar; therefore, in my opinion, they can improve students' four skills namely their listening and speaking skills.

4.1.1.4. PowerPoint Slides

They allow the students to present the main information in a bullet point, in an organised way using examples, colours, personalised effects, etc. These visual effects draw the audience's attention and make the learners feel confident (Hiral, 2015). Students have more chances to learn what they see, what they say and what they do. For more precision, it is cited in Ghulam et al., (2015:226) the results of a research made by Cuban in 2001.The findings indicate that

> 1% of what is learned is from the sense of TASTE, 1.5% of what is learned is from the sense of TOUCH, 3.5% of what is learned is from the logic of SMELL, 11% of what is educated is from the logic of HEARING and 83% of what is learned is from the sense of SIGHT. Also people generally remember, 10% of what they READ, 20% of what they HEAR, 30% of what they SEE, 50% of what they HEAR and SEE, 70% of what they SAY and 90% of what they SAY as they DO a thing.

In short, the results of this research show that learners remember more what they say (70%), what they say and do (90%) and what they hear and see (50%). The following section will be about communication skills.

II. Communication Skills

This can be divided into three parts:

1. Definition of Communication

Generally, communication can be defined as a process of exchanging information from the person who gives the information, either through a verbal or non-verbal method, to

the person who receives it. Baker (2010: 01) defines communication as *"the act of transmitting and receiving information"*. In addition; it is defined as *"a process of passing information and understanding from one person to another"* (Davis, 1967 cited in Singla, 2008: 236). This means that communication is transmitting understanding too, not only information. Based on these definitions, the main elements of communication can be distinguished: the sender, the information and feedback by the receiver. The sender is the person who sends the idea to another person or to a group of people like a teacher who informs his students about the date of an exam, the information is the message or the idea being communicated and this example, it is the date of the exam, the receiver is the person or the group of people who receives the information or the message like the students in the given example and the feedback whichis the response by the receiver and it marks the completion of the communication process.

2. Types of Communication Skills

Three types of communication skills have been encountered. First, the verbal communication in which, the message or the information is communicated through words. Verbal communication may be of two types: Written and oral. Oral communication refers to any type of interaction between individuals through the use of words. It includes both speaking and listening skills. The sender and receiver exchange information and ideas verbally through face-to-face conversations or any technological device like telephone or video calls through social media. It takes place through face-to-face interaction, group discussions, interviews, radio, television, calls, letters, reports, notes, emails, etc. Whereas, the written communication refers to communication that uses a written form of language which means letters, words, and syntax to transmit meanings and ideas. It occurs through the use of papers, computers or phones.

> Verbal communication takes place in a number of different situations. It can be during face to face conversation or by telephone. It may take place on a one to one basis, or in a group or lecture stetting. It involves the use of words or sounds and languages. Verbal communication usually involves two aspects: one person speaking and another listening. (H.Baston, J.Hall and A.H.Enion, 2009: 12)

That means that verbal communication may be between two persons in the same place and at the same time or between two people through a telephone call. It can also between one person and a group of people like between a teacher and his students during a lecture. It involves the use of words and sounds when speaking and it can be through any human language .it have two aspects or two essential elements, the speaker and the listener.

Second, the non-verbal communication, where the message or the information is communicated through gestures, facial expressions and eye contact. "*Nonverbal messages include facial expressions, eye contact or lack of eye contact, proximity, and closeness, hand gestures, and body language*" (Miller, 2005 cited in Barmaki, 2014: 441).

Third, the visual communication is defined as "*all the ways that writers and readers interact through the look of pages and screens.*"(Hilligos, 1999:01) .In other words, it is where the message or the information, is transmitted through visualisation. Visual communication can be anything like eye contact, map, chart, facial expression, signals, and poster. It also includes graphics, books, animation, illustration, painting, interactive web design, advertising, and short films.

3. Communicative Competence

According to Troike (2006: 100), the concept of communicative competence was adopted by many specialists. It involves the knowledge when to speak, what to say, to whom, and how to say it in an appropriate way in any given situation. According to Brown (2000: 245), *"Communicative competence is related to the knowledge that allows a person to communicate functionally and interactively".* It means that communicative competence involves what allows people to communicate either to interact or for different purposes, to use

the language with its different functions. (Canal and Swain, 1980 cited in Tavakoli, 2012: 68-69) have identified four components of communicative competence namely grammatical, sociolinguistic, discourse and strategic competence.

First, the Grammatical Competence, which includes knowledge of grammar, and vocabulary, is related to speech sounds (phonetics), how words are formed (morphology), in addition to the rules governing the combination of words to form sentences (syntax) and the way meanings are conveyed (semantics).Second, Sociolinguistic Competence, which includes knowledge of socio-cultural rules of use, is to know how to use language appropriately according to the context, the setting, the topic and the relationships among people. Besides, it is to know how to use language taking into consideration cultural differences, taboos, etc; because what is correct and appropriate in one culture or society, may be incorrect and inappropriate to say in another. For example, if a person asks you about your age, it is worth considering that such a question might be acceptable or even desirable in his or her culture while in yours it is not.

Third, the Discourse Competence; it is related to the learners' ability to produce and comprehend oral and written texts. It is the knowledge of how to organise words and sentences to create conversations, poetry, articles, speeches, etc. It deals with cohesion by knowing how to use cohesive devices like conjunctions and adverbial phrases and also coherence between ideas in different types of texts. For instance, to know the main parts of a formal letter and being able to write each one of them including its necessary elements.

The fourth component is the Strategic Competence which refers to strategies to be used in case of grammatical, sociolinguistic or discourse difficulties such as the use of reference sources, paraphrasing, repetition, clarification, guessing, etc. A speaker may be unfamiliar with or may misunderstand the topic being discussed and in this case, there is a need for certain strategies to overcome and repair these difficulties. For instance, a native

speaker of English with a non native speaker, the native speaker may find difficulties to transmit the message they want to the non native speaker because the level of the language mastery differs and here they explain and clarify each time what they say, they repeat, they even translate when necessary in order to be better understood.

III. Attitudes

1. Definition of Attitudes

Allport (1935: 810) defines an attitude as *"A mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence on the individual's response to all objects and situations to which it is related".* It is, then, a psychological state of the individual of viewing or perceiving something or a situation that concerns them. It can be either positive or negative. Another definition of attitudes is provided by Eagly and Chaiken (1993: 01) who say that an attitude is *"a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor"*. This means, an attitude is expressed by assessing something or someone either positively or negatively. For example, a teacher proposes to his students a new method of doing tests, some students may have positive attitude toward this, they will like the idea and will be curious to discover it and try it while other may have negative attitudes, they will not like the idea and they will still prefer the old one and they will not have any readiness to try it.

2. Importance of Attitudes

While conducting a study about a subject, it is important to know the attitudes of the people concerned. In this study, the teachers of ICTs and the students of Master One are the participants. Reid (2003: 33) declared, *"Attitudes are important to us because they cannot be neatly separated from the study".* An attitude determines outcomes and helps to know to what extent can the thing succeed or fail and it also defines what our actions will be, whether to

adapt the thing, technique or strategy or not; and in our case whether collaborative visualisation can be adapted or not and to what extent it can succeed.

IV. Theoretical Framework

1. G. Erkens' Coordination Process Theory (2005)

Coordination, according to the Online Cambridge dictionary, is *"The act of making all the people involved in a plan or activity work together in an organized way"*. Thomas and Crowstone (1993: 90) provided another definition which is "*Coordination is managing dependencies.*" This means that if there is no interdependence, there is nothing to coordinate. In collaborative learning, it is essential for students to coordinate and increase their efforts to join a common goal. Indeed, they construct knowledge through interaction. "*A collaborative situation may be defined as one in which two or more students work together to fulfill an assigned task within a particular domain of learning to achieve a joint goal"* (Cohen, 1994, cited in Erkens et al., 2005: 466).

According to Erkens et al., (2005: 466) collaborative learning encourages three main processes. The first one consists of the mutual activation and share of knowledge and skills which is a process in which all the students should participate for an exchange of information and knowledge and skills. This can be seen in group activities and exposés where students share knowledge and exchange information and it is noticed that some students ask their mates rather than their teachers to better understand the given topic.

The second process is grounding or creating a common frame of reference**,** this enables the group members to understand each other for an effective communication .There will probably be different perceptions because each member has his experiences and skills. If students are given an assignment they need to have this ground, they need to share the knowledge about the topic; otherwise, they will not collaborate to complete the task. For

example, a teacher divides the class into groups and gives each group a statement and asks them to explain it. If the members of the group do not have common information, if they do not refer to the same ground they will not be able to collaborate and accomplish the task.

The third one is negotiating and coming to an agreement. It is natural for everyone to have their personal opinions, beliefs and perceptions of things. In this process, students will try to attain agreement between them. For example, when a teacher gives students a pair work, every two students are supposed to read a given text and extract the most important information from it, one of them may find what the second finds important not important and may be the contrary, here they find themselves in a situation where they have to negotiate these information and come to an agreement and select the appropriate information and accomplish. Within these processes, three activities can be distinguished, Erkens et al., (2005:466). First, focusing in which students should try to maintain the discussion by showing interest. It is done by asking questions, suggesting ideas, etc. Then, checking which occurs by asking questions of clarification enables students to check whether the other group members agree or disagree with the proposals. Finally, argumentation in which students should ask verification questions, show agreement and give many examples, and this is a good strategy for argumentation to finish with a solution that satisfies everyone.

All this can be summarised in what has been said by Erkens et al., (2005: 466),

> In earlier research we found that this coordination is realized by a complex interaction between task related strategies, cooperative intentions andcommu nication processes during collaboration. In the collaborative learning situation the learning results will be influenced by the type of task, the composition of the group, the complementarily in expertise of the participants, the resources and tools available, and the educational climate. In order to achieve the common goal the collaboration partners will have to coordinate their activities and their thinking. They will have to activate their knowledge and skills and will have to establish a common frame of reference in order to be able to negotiate and communicate individual viewpoints and inferences.

This means that to realise coordination, there should be a certain relationship between techniques used in collaborative activities, cooperation and communication during a

collaborative activity .In addition to this; for better results, there should be a successful collaboration which realises when students share knowledge and information among them, when they share the same frame of reference, and when they negotiate, and all this is related to communication, since all these procedures are involved in it and by following each time these processes, students may promote their communication skills .

Conclusion

As a conclusion, this chapter has discussed the main points concerning collaborative learning and collaborative visualisation. It has also provided the readers with an understanding of communication skills and their relation with collaborative visualisation with a brief explanation of attitudes and their importance in conducting this work. Besides, the theoretical side, which consists of the theory of coordination process that includes its major principles, has been covered. This chapter contains various terms and key points that were used in this study. The following chapter will investigate the methodology adopted in this study.

Chapter Two :

Research Design

Introduction

The present chapter deals with the methods used in this research. It describes the research design of the study, the procedures of data collection and the methodology of data analysis. This study aims at analysing teachers' and students' attitudes towards collaborative visualisation as a technique that can help students to develop their communication skills in English.

This chapter is composed of two sections. The first section is about data collection procedures taking into account the participants, the context where the study is conducted, the research method that is used to gather data (the mixed method), as well as data collection tools used to collect both quantitative and qualitative data (questionnaire and interview). The second section is about the procedures of data analysis that contains the different methods used to analyse the research. Statistics and percentages are used for the analysis of the quantitative data obtained from the students' questionnaire; whereas, a descriptive analysis was relied on to interpret the qualitative data obtained from open- ended questions included in both the questionnaire and the interview.

1. Context of the Investigation and Population Sample

This investigation has taken place at Mouloud Mammeri University of Tizi Ouzou in the Department of English. The overall objective of this research is to investigate teachers' and students' attitudes towards collaborative visualisation as a technique that can help students to develop their communication skills in English.

The target population in this research consists of students of Master I of different specialties and teachers who have experience with technology, mainly teachers of Information Communication and Technologies (ICTs) and those of film studies.

Besides, a questionnaire has been distributed to 220 students, 130 of them have answered and a structured interview has been conducted with 06 teachers.

2. Research Method

In order to gather data, the mixed methods approach is adopted. It is defined "*as the combined use of both quantitative and qualitative methodologies within the same study in order to address a single research question*" (Claire, 2006:180). In other words, it combines the elements of both quantitative and qualitative method to answer one research question. In the case of our research, the quantitative method is used to get numerical data from the closed-ended questions included in the students' questionnaire; whereas the descriptive qualitative method is used to analyse the data obtained from the open ended questions included in both the questionnaire and the interview conducted with teachers. We have used the mixed methods approach because it combines the qualitative and quantitative methods (Tashakkori and Teddlie, 1998; cited in Jupp, 2006). First, it allows us to study participants' points of view. In addition to that, it gives us more evidence about the findings grounded on participants' experience.

2.1.1. Data Collection Procedures

In order to gather data that support our investigation which is students' and teachers' attitudes toward developing students' communication skills in English through collaborative visualisation, we have used two different instruments: a questionnaire handed over to Master one students and an interview conducted with teachers of the Department of English at Mouloud Mammeri University of Tizi Ouzou.

2.1.2. Description of the Students' Questionnaire

The questionnaire is defined by Craig (2006:252) as "*a set of carefully designed questions given in exactly the same form to a group of people in order to collect data about some topic(s) in which the researcher is interested".* In other words, a questionnaire is a list of questions, related to a particular topic, administered to a group of people. In this study, it is to examine students' attitudes towards collaborative visualisation in developing their communication skills in English. We have adopted it because it is less time consuming.

The students' questionnaire seeks to collect data about their attitudes toward collaborative visualisation, to know whether it may develop their communication skills in English or not. First of all, we have distributed the questionnaire to 6 students to test it. After having collected them, we have analysed the students' answers. Eventually, the students seem to have understood the questions and have answered without any problem; therefore, this has convinced us to distribute more. After that, two hundred and twenty (220) questionnaires have been distributed to Master One students of the Department of English at MMUTO of different specialities, and only 130 have answered. This questionnaire consists of fourteen (14) questions presented in three (3) sections. The first section is about the general information about the participants. The second one deal with students' attitudes toward collaborative learning in the Department of English and the third section is related to the students' attitudes toward developing their communication skills in English through collaborative visualisation.

2.1.1. Description of the Teachers' Interview

According to Pamela (2006: 157) *"an interview represents a meeting or dialogue between people where personal and social interaction occur".* She adds that it is *"A[a] method of data collection, information, or opinion gathering that specifically involves asking a series of questions"*. To put it differently, an interview is a meeting during which the

interviewee cooperates with the interviewer by answering some questions about a particular subject. For the purpose of this research, a structured interview has been conducted with 06 teachers of the Department of English at MMUTO around June 9th, 2019 until June 13th, 2019. It comprises twelve (12) questions and three (3) parts: the first section comprises general questions about the teachers; the second one is about teachers' attitudes toward collaborative learning. The third one deals with their attitudes toward developing students' communication skills through collaborative visualisation.

2.2. Data Analysis Procedures

In our research, we have adopted two techniques for the analysis of the collected data: statistical content analysis and descriptive analysis for qualitative data. The reason behind choosing these two techniques is the fact that our research results and findings are both quantitative and qualitative.

2.2.1. Quantitative Data Analysis

The data collected from the students' questionnaire are obtained using percentages and statistics through the quantitative analysis. To calculate the percentages, we have applied the rule of three. It is applied as follows: $x = \frac{\mathrm{Z}\times 100}{\mathrm{y}}$. **x** is the calculated percentage, **z** is the numerical quantity of the answers and **y** is the total number of the population. Besides, to better understand the results, we have presented the findings in visual forms (tables, diagrams and pie charts).

2.2.2. Qualitative Data Analysis

To analyse the open ended questions of the students' questionnaire and the questions of the teachers' interview, we adopted a descriptive analysis of qualitative data .We have first

started by the presentation of the data through transcribing the answers then presenting them in the form of paragraphs and summaries .

Conclusion

This chapter has described the methodology used to conduct this study. First, there is a presentation of the participants in this work and the context in which it has been conducted. Then there is a description of the procedures followed to collect data from either students' questionnaire or teachers' interview and the ones followed for the data analysis, which consist of statistical analysis for quantitative data and a descriptive analysis for qualitative data. The next part will be the presentation of the findings.

Chapter Three :

Presentation of the Findings

Introduction

This chapter presents the findings reached during conducting our investigation using two main tools: students' questionnaire and teachers' interview. The results are presented in the form of tables, diagrams and pie charts. We have divided this part into two sections, the first deals with presenting the results of the students' questionnaire and the second presents the findings of the teachers' interview. These two have been conducted with students and teachers of the Department of English at Mouloud Mammeri University of Tizi Ouzou.

3.1. Presentation of the Results of the Students' Questionnaire:

3.1.1. General Information about the Participants

Q1: What is your option?

Options	Participants	Percentages
Language and Communication	42	32.31%
Didactics of Foreign Languages	22	16.92%
Literature and Civilisation	23	17.69%
Literature and Interdisciplinary Approaches	19	14.62%
Comparative Literature	24	18.46%
	130	100%

Table1. Distribution of Master I Students

This table shows the different options from which we have selected our participants. The results show that the majority of them (32.31%) study Language and Communication; (18.46%) study comparative literature. (17.69%) of the participants study Literature and Civilisation, (16.92%) study Didactics of Foreign Languages and the remaining (14.62%) study Literature and Interdisciplinary Approaches.

Q2. How long have you been studying English?

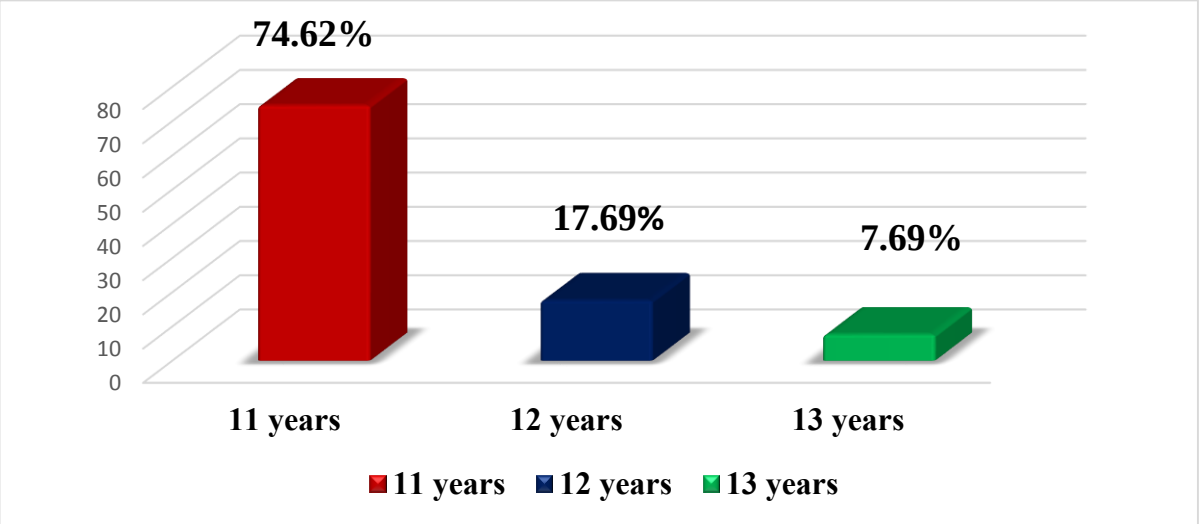

Diagram1. Students' Experience in English

From the Pie chart above, the majority of the students (76.62%) declared that they have been studying English for 11 years which is the ordinary number for a master one student. (17.69%) declared that they have been studying English for 12 years, and (7.69%) stated that they have been studying English for 13 years; consequently, they may have repeated one or two levels.

Q3. Have you ever been abroad for a linguistics seminar?

Options	Participants	Percentages
Yes, I have	110	84.62%
No, I have not	20	15.38 %
Total	**130**	**100%**

Table2. Students' Experience Abroad

The table above shows that (84.62%) of the students have never been into other countries for a linguistic seminar; however, (15.38%) of them have actually some experience abroad and say they have participated in linguistic seminars.

3.1.2. Students' Attitudes towards the Use of Collaborative Visualisation in English in the Department of English.

Q1: ***''Mutual activation (active collaboration among students) and share of knowledge is foundational for developing students' communication skills''.***

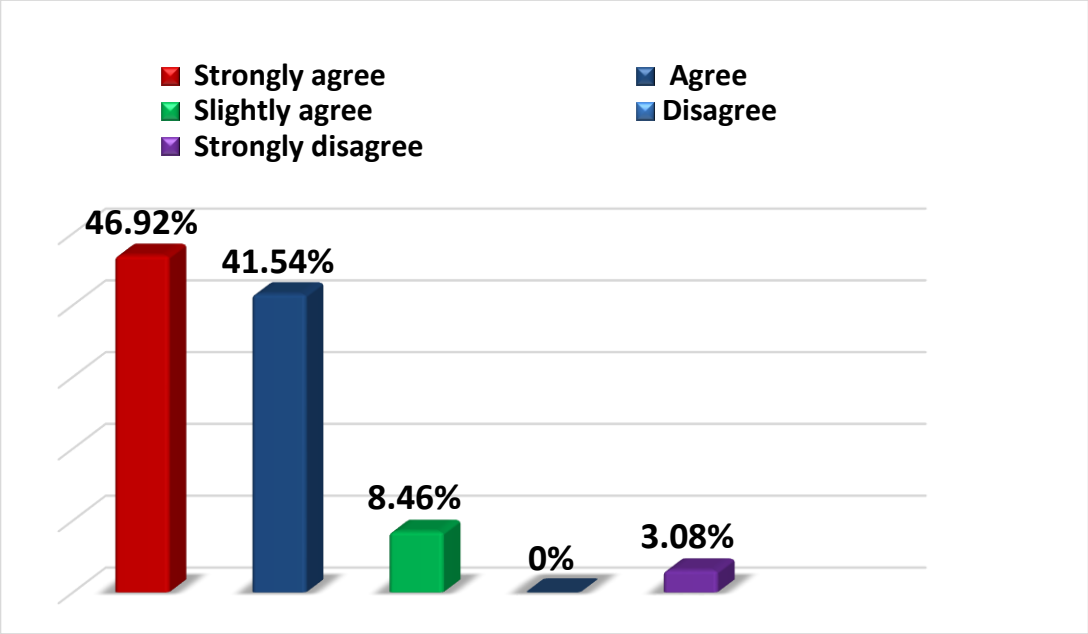

Diagram2. Students' Opinions about Mutual Activation in Developing their Communication Skills.

As the diagram shows, a great percentage of Master One students (46.92%) strongly agree that mutual activation is foundational to promote students' communication skills. (41.54%) of them agree; whereas (8.46%) slightly agree. While no one disagrees; only (3.08%) strongly disagree that the share of knowledge is fundamental in developing students' communication skills.

Q2: ‘‘*Grounding or creating a common frame of reference* (particular set of beliefs or ideas on which you base your judgment of things)’’, to promote students’ communication skills, is:

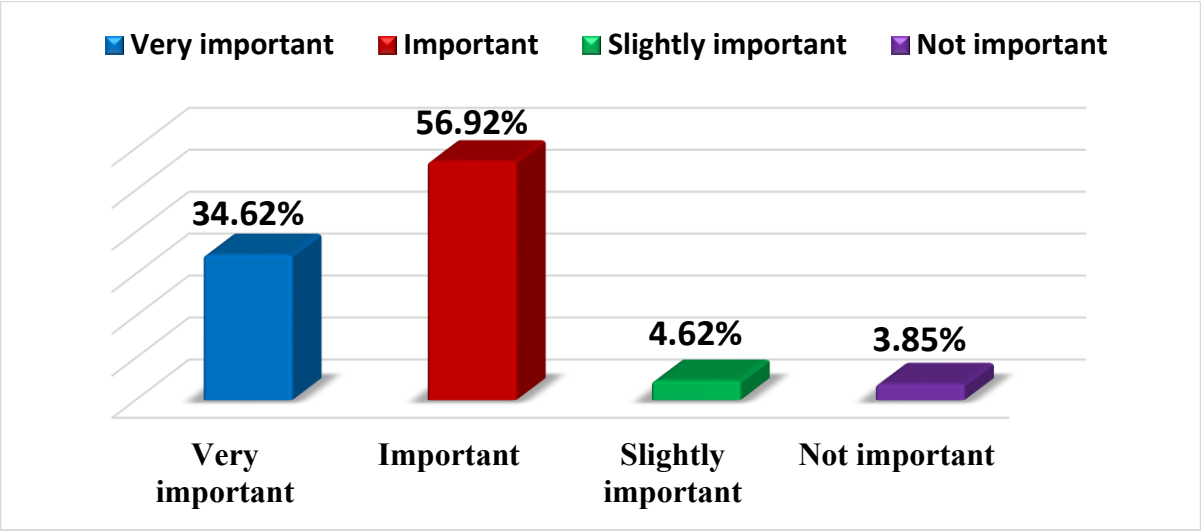

Diagram3. The Importance of Grounding or Creating a Common Frame of Reference to Promote Students’ Communication Skills.

The results presented in this diagram display that the majority of the respondents (56.92%) believe in the importance of grounding in developing students’ communication skills. (34.62%) said that Grounding is not only important, but also very important. While (4.62%) believe that it is slightly important, only (3.85%) think that grounding is not important.

Q3: Do you try to maintain the discussion during a collaborative activity?

Options	**Participants**	**Percentages**
Yes	123	95%
No	7	5%
Total	**130**	**100%**

Table 3. Students’ Discussion Maintenance in Classroom.

The table displays that almost all the participants (94.62%) do try to maintain the discussion during a collaborative activity; they answered by 'Yes'; whereas, (5.38%) have answered by 'No', which means they do not try to maintain the discussion.

Justification

Items	participants	Percentage of the participants%
a. Asking questions	77	59.23%
b. Suggesting ideas	63	48.46%
c. Giving one's opinion	71	54.62%
d. Repairing focus divergence	9	6.92%
e. Clarifying and summarizing what has been said	22	16.92%
f. Providing feedback	18	13.85%

Table4. Students' Techniques for Maintaining Discussion

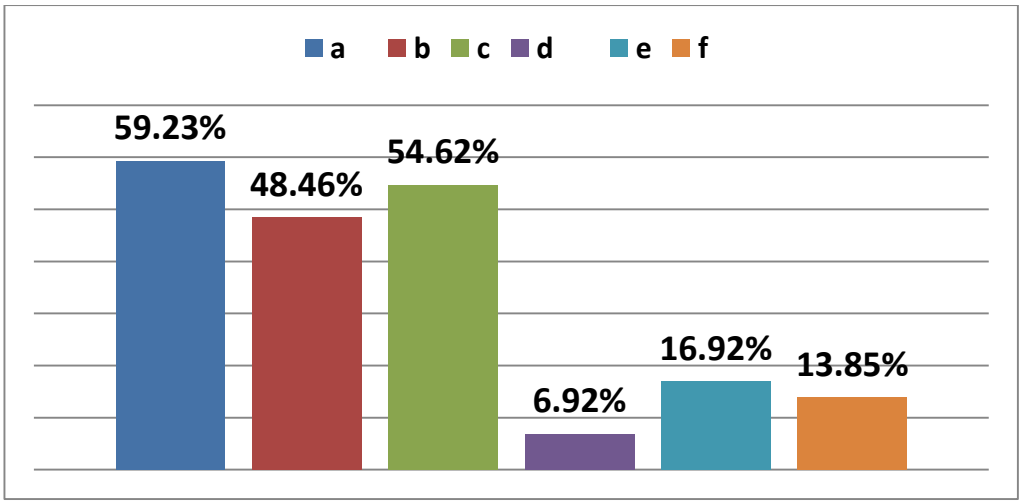

Diagram4. Students' Techniques for Maintaining Discussion

N.B. Sometimes the number of students exceeds 130 because they have provided multiple answers in multiple choice questions.

The total of percentages exceeds 100% because each item is counted independently.

According to Table 4 and diagram 4, it is noticed that 77 students which is the equivalent of (59.23%) maintain the discussion during collaborative activities by asking questions; (54.62%) which means 71 students prefer to give their opinions, and only 63 students (48.46%) refer to suggesting their ideas. Others, which represent (16.92%), state that they maintain the discussion by clarifying and summarising what has been said; however, (13.85%) make the discussion continue by providing their feedbacks. Lastly, (6.92%) which means only 9 students repair focus divergence to continue the discussion.

Q4: Do you check the understanding of information being communicated to you?

Items	participants	Percentage of the responses%
Asking verification questions	85	65.38%
Indicating agreement / disagreement	35	26.92%
Negotiating meaning	49	37.69%

Table5. Students' Techniques for Checking their Understanding

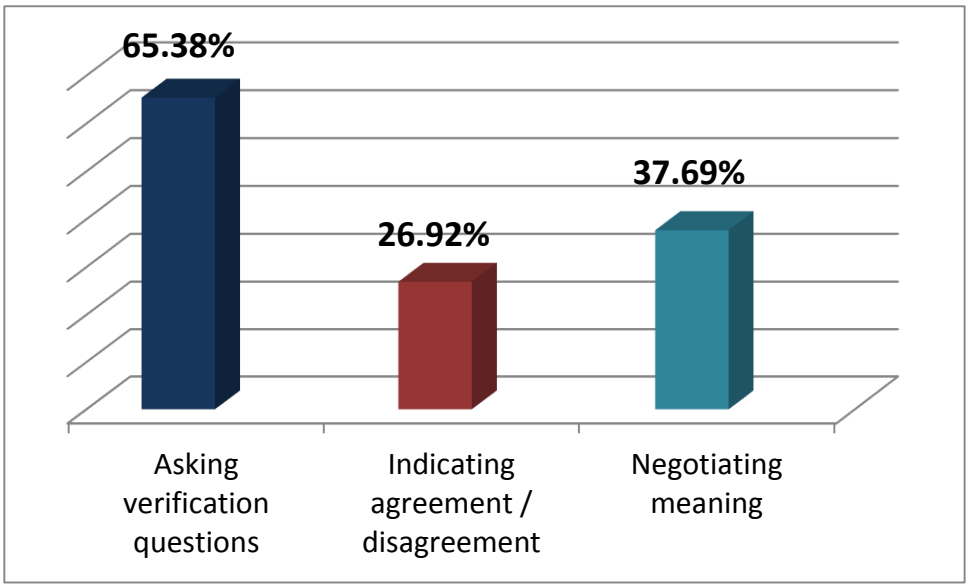

Diagram5. Students' Techniques for Checking their Understanding

In this Table 5 and Diagram 5, we notice that half of our population (65.38%) asks their teachers to check whether they understood well the information; (26.92%) of them do indicate agreement or disagreement and (37.69%) of them choose to negotiate meaning.

Q5: Do you think that negotiation during collaborative activities is important for developing your communication skills?

Options	Participants	Percentages
Yes	**130**	**100%**
No	**0**	**0%**
Total	**130**	**100%**

Table6. The Significance of Negotiation during Collaborative Activities

As presented in this table, all the participants believe that negotiation during collaborative activities is important to enhance students' communication skills and no one disagrees with that.

Justification

The students have explained that negotiation gives the learners the chance to talk. According to them, it is by communicating that students can express their opinions and share their ideas with the others. Through negotiation, they believe they are able to express their ideas among group members freely. One of the students has said: "*It allows* [making] *efforts to speak and express one's opinions with the target language. Mistakes might be corrected by the teacher or classmates. Indeed, we learn better from our mistakes and this is helpful to get rid of shyness*". Other learners answer: "*It helps the students to get involved in the communication process which helps them to develop their speaking skill as well as their cognitive abilities and critical thinking".*

According to some others, negotiation allows students to debate about new themes by putting background knowledge into practice; furthermore, it "*helps the students to improve their learning capacities in oral [speaking]".* Finally, a student has said: "*when you negotiate, you push yourself to use an appropriate vocabulary related to a given topic and it makes you develop your* [critical] *thinking and become more fluent* [in speaking]*".*

Q6: Do you learn better when collaborating or when learning individually? Why?

Item	**Participants**	**Percentages**
Collaboratively	113	87%
Individually	17	13%
Total	**130**	**100%**

Table7. Students' Preferences in Learning

In this table, it is shown that the majority of Master One students (87%) do prefer to learn collaboratively; whereas, (13%) of them do prefer to learn individually.

Justification

Items	**Participants**	**Percentages %**
a. Collaborative learning enhances involvement in the classroom	72	55.38%
b. Collaborative learning improves confidence through interaction	64	49.23%
c. I feel uncomfortable and distracted when practicing a collaborative activity	24	18.46%
d. I do not have the opportunity to voice my ideas and opinions freely within a group	14	10.77%

Table8. Students' Reasons of their Learning Preferences

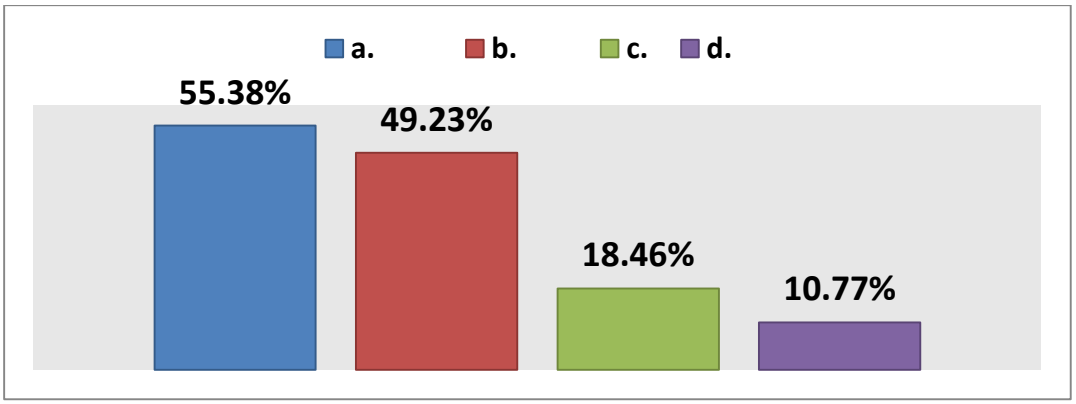

Diagram6. Students' Reasons of their Learning Preferences

According to the data displayed in table 8 and Diagram 6, among the students who prefer to learn collaboratively, (55.38%) which represent 72 students argue that collaborative learning enhances involvement in the classroom; whereas, 64 students which is the equivalent of (49.23%), believe that collaborative learning improves confidence through interaction. Conversely, among the students who prefer to learn individually, 24 students or (18.46%) justify their choice by feeling uncomfortable and distracted when practicing a collaborative activity; while (10.77%) or 14 students pretend not having the opportunity to voice their ideas and opinions freely within a group.

3.1.3. Students' Attitudes towards Developing Communication Skills through Collaborative Visualisation

Q1: How can collaborative visualisation help the students develop their communication skills?

Suggestions	Responses	Percentage of the Responses%
a. It promotes the exchange of information	70	53.85%
b. It encourages you to participate more	64	49.23%

c. It allows you to learn more	53	40.77%
d. It develops your critical thinking	37	28.46%
e. It facilitates the understanding of presented information	34	26.15%
f. It supports the remembering of the presented contents	24	18.46%

Table9. Collaborative Visualisation and Promoting Communication Skills

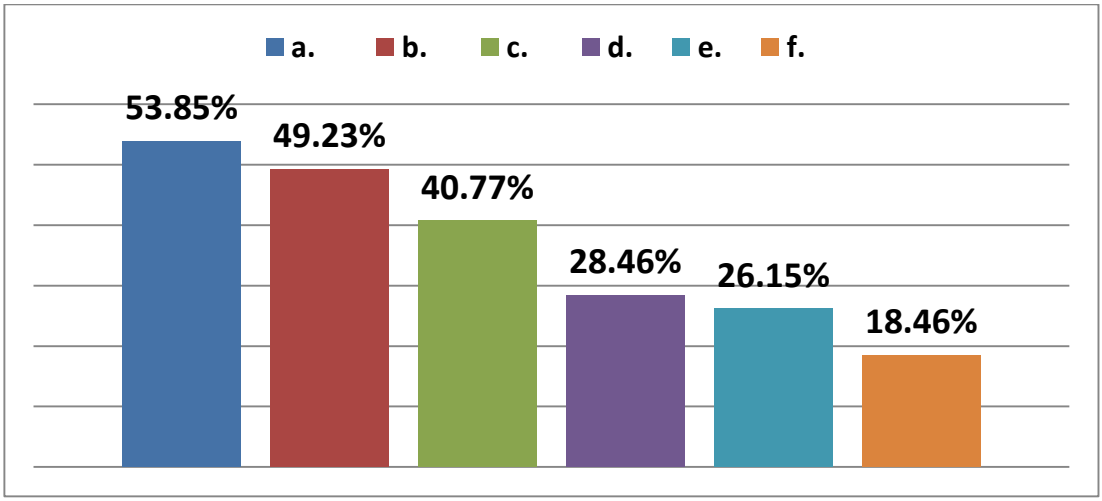

Diagram7. Collaborative Visualisation and Promoting Communication Skills

Table 9 and Diagram 7 demonstrate how collaborative visualisation helps the students to develop their communication skills. On the one hand, the majority of Master One students (53.85%) believe that collaborative visualisation promotes the exchange of information; (49.23%) think that it encourages the students to participate more; whereas, (40.77%) foresee that it allows them to learn more. On the other hand, (28.46%) say that it develops their critical thinking; (26.15%) state that it facilitates the understanding of presented information, and for the remaining (18.46%), collaborative visualisation supports the remembering of the presented contents.

Q2: ‘‘ The combination of Collaborative Learning and Visualisation gives better results in learning in general and in developing communication skills in particular’’

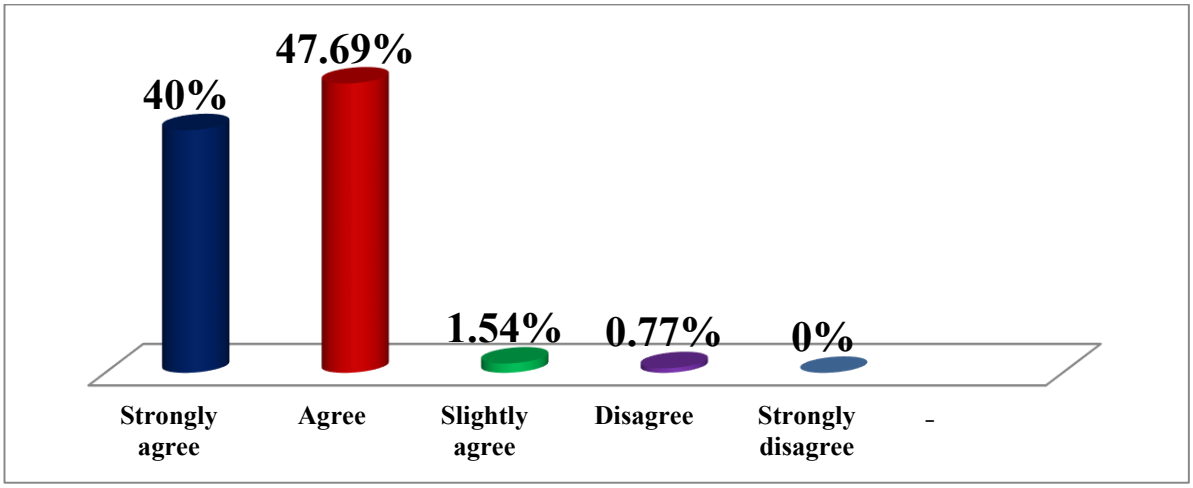

Diagram8. Students’ Attitudes toward Promoting Communication Skills through Combining Visualisation with Collaborative Learning

As this graph indicates, (47.69%) agree with the fact that combining collaborative learning with visualisation gives better results in learning and in promoting communication skills; (40%) of them strongly agree and only (1.54%) of the respondents slightly agree with this fact. No one strongly disagrees and (0.77%) of them disagree with that.

Justification

Items	Participants	Percentages %
a. It is not sufficient to communicate effectively and clearly	8	6.15%
b. It is time consuming	8	6.15%
c. It is difficult and requires a lot of efforts	3	2.31%
d. It makes communication flexible	45	34.62%
e. It is enjoyable	57	43.85%
f. It increases credibility of the communicated message or information	37	28.46%

Table10. Promoting communication skills through Collaborative Learning with Visualisation

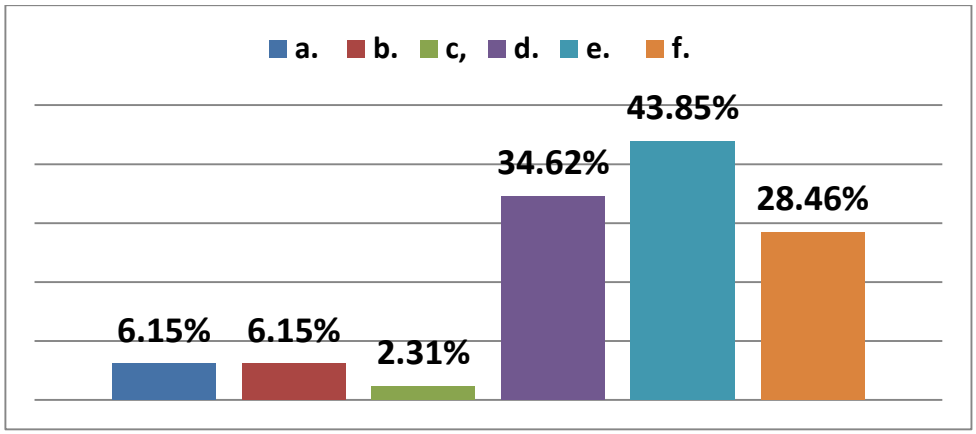

Diagram9. Promoting communication skills through Collaborative Learning with Visualisation

According to table 10 and Diagram 9, the majority of the students have a positive opinion about the combination of visualisation and collaborative learning. Most of them, 57 students or (43.85%) agree that learning becomes enjoyable when the two are combined; (34.62%) argue that it makes communication flexible. A few of Master One students (28.46%) believe that it increases credibility of the communicated message or information. Contrary to the majority, the minority of the students have a negative point of view about the combination. An equal number of students which is 8 or (6.15%) believe that it is time consuming; therefore, it is not sufficient to communicate effectively and clearly. The remaining, which represents (2.31%), thinks that it is difficult and requires a lot of efforts.

Q3: Do you agree that making use of collaborative visualisation may lead to debates?

Items	**Participants**	**Percentages %**
Yes	125	96.15
No	5	3.85%
Total	**130**	**100%**

Table11. Debating through collaborative visualisation

It is displayed in this table that almost all the students (96.15%) agree that collaborative visualisation may lead to debates and only (3.85%) who disagree with that.

Q4: To what extent would the use of collaborative visualisation improve your communication skills?

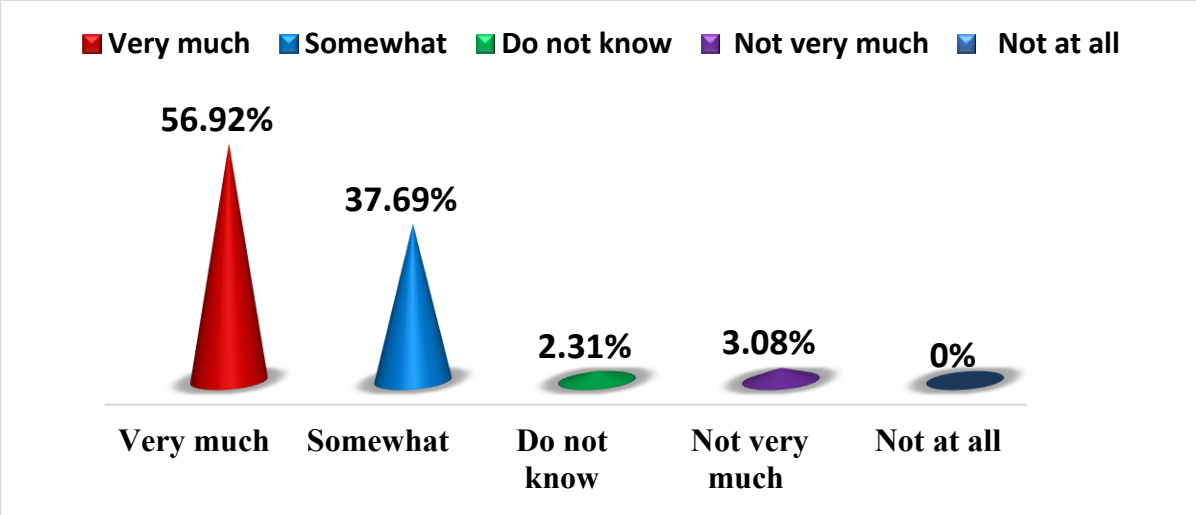

Diagram10. Students' Attitudes toward Developing Communication Skills through Collaborative Visualisation

The results have revealed that the majority of students (56.92%) approve that collaborative visualisation can improve their communication skills very much; (37.69%) of them have claimed that it can somewhat promote their communication skills while (3.08%) have said that collaborative visualisation is effective in developing communication skills, but not very much. (2.31%) of them do not know and no one thinks that collaborative visualisation would not enhance their communication skills at all.

Q5: How can collaborative visualisation, both synchronous and asynchronous, help in developing communication skills?

Items	participants	Percentages %
a. It enables students to see data, communicate and debate in context	88	67.69%

b. It provides immediate feedback	62	47.69%
c. Better real time response	22	16.92%
d. It motivates to rapidly think and answer	49	37.69%
e. It provides the ability to communicate with a remote team with members of multiple zones	38	29.23%
f. Having a record of the communication shared that can be referred to later on	14	10.77%
g. The chance to think before responding	49	37.69%

Table12. Effectiveness of Synchronous and Asynchronous Collaborating in Promoting Students' Communication Skills

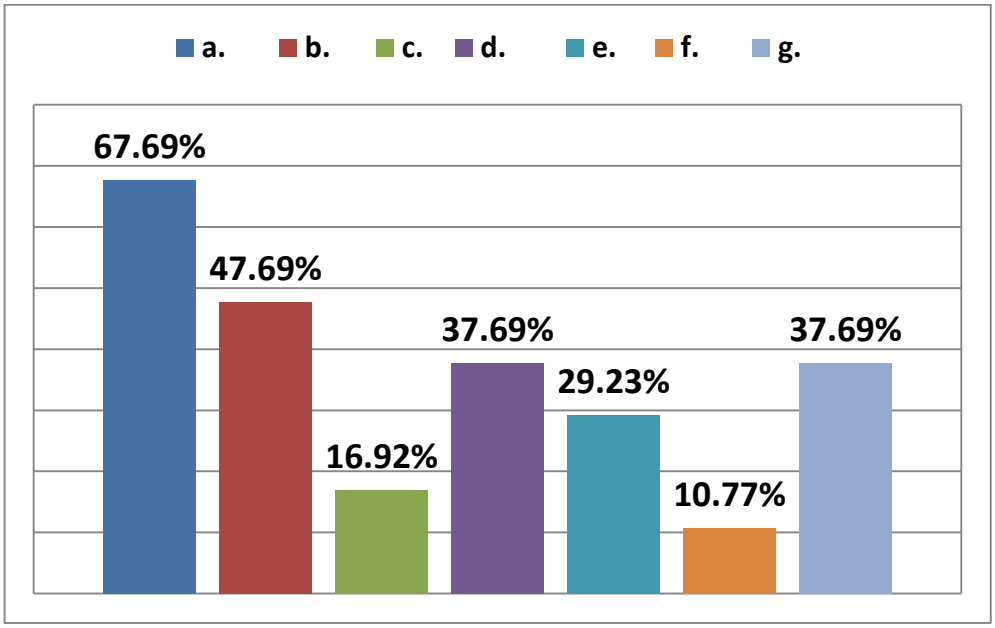

Diagram11. Effectiveness of Synchronous and Asynchronous Collaborating in Promoting Students' Communication Skills

Table 12 and Diagram 10 reveal how collaborative visualisation, both synchronous and asynchronous, can help in developing communication skills. It demonstrates that 88 out of 130 students think that collaborative visualisation enables students to see data, communicate and debate in context. Then, 62 of them say it provides immediate feedback. After that, the answers have been split equally which means 49 students. On the one hand, it motivates to rapidly think and answer; on the other hand, it gives the chance to think before

responding. 38 Master One students state that collaborative visualisation provides the ability to communicate with a remote team with members of multiple zones when it is asynchronous; however, 22 think that it gives a better real time response. Finally, only 14 students believe that asynchronous collaborative visualisation allows the students to have a record of the communication shared that can be referred to later on.

3.2. Presentation of the Results of Teachers' Interview

3.2.1. General Questions

Question 1: How long have you been teaching English?

This question is asked to determine the teachers' experience with teaching English. The results show that the majority of respondents (05 teachers) have taught English for more than 10 years. However, there is only one teacher who has less than 10 years of experience.

Question2: Have you ever been abroad for a training period?

This question is to know about teachers' experience abroad in the English speaking context, the results show that most of them (04 teachers) have been for a training period abroad while two of them have been in training periods here in Algeria.

3.2.2. Teachers' Attitudes towards Collaborative Learning

Question3: Do you agree that ''Mutual activation (active collaboration among students) and share of knowledge is foundational for developing students' communication skills''. Please, would you explain?

This question aims at showing the extent to which teachers agree with the fact that mutual activation is important for developing communication skills and explaining the way and the reason why it is so. All of the respondents agree with this and they have explained it in different ways. Two of them have argued that students learn better from their mates and feel at ease while working together. One of them has claimed that this mutual activation

should be in all classes; through it, students who know more help students who know less. The fourth respondent thinks that it is important but not foundational. He affirms that it is important to share knowledge and develop it; and that oral expression, which is essential in communication, is situational which means that students should have shared knowledge of vocabulary of each situation to better communicate. The sixth teacher determines that mutual activation and shared knowledge are basic element of communication; it helps to foster dialogues and promotes interaction.

Question4: Do you think that ‘‘Grounding (knowledge of the basics of something) or creating a common frame of reference (particular set of beliefs or ideas on which you base your judgment of things)’’ is important to promote students’ communication skills?

This question is intended to show what teachers think of grounding. All the respondents share the idea that grounding is vital and that it makes communication better and the majority of them (05 teachers) have claimed that without grounding, students will not collaborate and communication will be difficult. One of the teachers argues that a common frame of reference helps students to answer questions, solve problems, learn new things and understand better; and that its absence leads to a high risk of having some learners at the back because they do not follow the course of the discussion.

Question5: Do your students try to maintain the discussion during a collaborative activity?

This question aims at discovering whether students maintain the discussion in class and the ways they use to do it. All the interviewed teachers have said that their students do try to maintain the discussion during a collaborative activity and the majority of them have claimed that their students ask questions to start a discussion while two of them have said that their students use all the suggested techniques depending on the module and the context,

which means through asking questions, suggesting ideas, giving one's opinion, clarifying and summarising what has been said and through providing feedback.

Question6: Do you check your students' understanding of what has been communicated in the classroom? How?

The purpose of this question is to know if teachers check their students' understanding and the techniques they do follow for this. All of them share the technique of asking verification questions and say that they, sometimes, do refer to the two other suggested techniques namely; indicating agreement / disagreement and negotiating meaning at the end.

Question7: Do you think that negotiation among students during collaborative activities is important for developing their communication skills? If yes, how?

The results of this question indicate what teachers do think of negotiation in terms of developing communication skills. All of them agree that negotiation is important. They have all argued that it permits to students to express themselves and to put their knowledge into practice; they have added that when there is no negotiation, there is no collaboration and there is no communication.

3.2.3. Teachers' Attitudes towards Developing Communication Skills through Collaborative Visualisation.

Question8: Do you think that collaborative visualisation should replace the traditional way of teaching?

The aim of this question is to know whether it is possible for collaborative visualisation to replace the traditional way of teaching. All the respondents share the idea that collaborative visualisation, rather than replacing the traditional way of teaching, should complement it.

Question9: Do you agree that collaborative visualisation is:

a. A good strategy of teaching.

b. It needs to be encouraged.

c. It makes the lesson more enjoyable.

d. It should be used in all modules.

This question aims at knowing what teachers think of collaborative visualisation. The majority of the respondents (05 teachers) have shared the first two choices, which means that collaborative visualisation is a good strategy of teaching and it should be encouraged while one of them is for all the four suggestions.

Question10: Do you think that using collaborative visualisation would improve students' communication skills?

The purpose of this question is to find out what teachers think of collaborative visualisation as a technique to promote students' communication skills. Four teachers out of six have said that it is an important technique that can help students to better communicate. Two of them have added that it depends on the topic and the situation and that, it is not sufficient alone, it should be reinforced and well planned in advance in order to get fruitful results.

Question11: Do you agree that making use of collaborative visualisation may lead to debates?

This question permits to know whether teachers think that collaborative visualisation may lead to debates and all of them agree that it does, because students when they see something together they are most of the time motivated to comment it and ask questions about it.

Question12: What are the difficulties that you may encounter with the implementation of collaborative visualisation?

This question is meant to determine the difficulties that teachers may face if they implement collaborative visualisation. All the teachers who have been interviewed have agreed on the lack of materials.

Conclusion

This chapter has presented the results obtained from students' questionnaire, and teachers' interview. We collected their attitudes and perceptions toward using collaborative visualization to promote students' communication skills. We have presented the data collected from the students' questionnaire in form of tables, diagrams and pie charts and those from the teachers' interview in form of well structured paragraphs. The discussion of the data will be in the next chapter, as well as the conclusions of this research.

Chapter Four :

Discussion of the Findings

Introduction

While conducting this study, we have used two reliable tools to gather data in order to achieve our objectives and answer the research questions raised in the General Introduction, as well as, confirming or refuting the research hypotheses. In this chapter we have discussed the findings of students' questionnaire as a first part and the second part analyses the results of the interviews conducted with six teachers of different modules in the Department of English at Mouloud Mammeri University.

1.Discussion of Students' Questionnaire Findings

1.1. Students' Attitudes towards the Use of Collaborative Visualisation in the Department of English

The distributed questionnaire contains questions based on the principles of Coordination Process Theory that are introduced by Erkens (2005). The purpose behind this research is to investigate teachers' and students' attitudes toward collaborative visualisation in developing students' communication skills in English at the level of the Department of English at Mouloud Mammeri University of Tizi Ouzou.

To reach this goal, a series of questions related to collaborative learning have been asked to Master One students of different options in the Department of English, University of Tizi Ouzou. As it is shown in the previous chapter, (46.92%) of students strongly agree that active collaboration among students is very important and the sharing of knowledge is foundational, (41.54%) agree on that (See diagram2 p30). A deep explanation of this can be understood through what Janssen (2008: 16) has highlighted about the mutual activation of knowledge, *"group members can benefit from the skills and knowledge of their group members during collaboration, knowledge and information exchange are important processes: unshared knowledge needs to be externalized."* In fact, mutual activation and share of knowledge and skills is the first process introduced by Erkens in his Theory of

Coordination Process (2005). In this process, it is important for students to get engaged in the learning process. Participation is required because it is a way for them to exchange their information and knowledge; therefore, everyone will benefit from one another.

As it is highlighted by the students in diagram3 page 31, grounding or creating a common frame of reference is important to promote their communication skills. Grounding is an activity that students need to accomplish in order to establish mutual understanding and a common frame of reference and 56.92% believe that it is important to have the same knowledge of the basics of a given topic. In this respect, Erkens, et al., (2005: 466) indicate that, in order to achieve the common goal *"the collaboration partners will have to coordinate their activities and their thinking. They will have to activate their knowledge and skills and will have to establish a common frame of reference in order to be able to negotiate and communicate individual viewpoints and inferences".* In fact, when students understand each other, they are able to communicate and collaborate in an effective way. This goes hand in hand with the explanation of Janssen (2008: 16), *"To communicate and collaborate effectively, group members need to ensure they understand each other".* However, it is not obvious that everyone think in the same way, there will probably be different opinions but when students know how to get along and make agreements, the divergence of opinions is a way for them to come to an understanding over their subject or debated topic.

When students take part in the lesson, they become active learners. Since communication is a social process, which means it develops through interaction, students should participate in class, give their opinions, show their agreement or disagreement, etc. All these are essential to develop one's communication skills and build social relationship in the classroom because the more there are different opinions, the more there are arguments and the more the communication is maintained.

In this regard, it is displayed in table 3 page 31 that (94.62%) Master One students effectively try to make the discussion continue. Many of them do prefer to ask questions, suggest ideas and give their opinions. This refers to focusing, according to Janssen (2008: 17) *"This pertains to the way group members try to maintain a shared discourse topic. This can be done by asking questions, asking for attention, and repairing focus divergence".* In some cases, sometimes many, students do not agree with the same idea; therefore, to check the understanding of the information communicated, many prefer to ask verification questions rather than indicating their agreement or disagreement. This can be supported by making reference to Janssen (2008) who mentions that it was important for group members to check the information communicated whether it fits with the common frame of reference that has been created thus far. This can be done by asking verification questions or by indicating agreement or disagreement (Ibid). While a few of them try to negotiate the meaning of the information to maintain the discussion, all the participants which means 130 students agree on its importance in terms of developing communication skills.

It is justified by many of the students (see table 6 p33) that negotiation gives them the opportunity to express themselves. It is somehow an occasion that encourages classroom participation and interaction. That is, *"When knowledge or information is externalized, group members have to verify whether their understanding of the information matches the other's understanding [sic] of the information. This can lead to an extensive process of negotiation of meaning"* (ibid). In fact, both listening and speaking are important for a good negotiation because the learners need to express their thoughts and listen to those of their mates to discuss each one's opinions. As a result, students could develop their way of communicating ideas; they learn how to convince and how to classify ideas in mind. That is to say, it enhances discourse competences. In addition, since students are given the opportunity to express themselves and give additional information, the group members learn new words; develop a

new vocabulary and new ways of expressing ideas from one another. This means that negotiation enhances students' grammatical competences. This is not limited to acquiring a new vocabulary but also to enhancing one's pronunciation, choice of words and grammar.

A student has said, *"It pushes the participants to make efforts, to express their thoughts and [sic] using correct forms (syntax) and also to use the vocabulary they have."*Others State*, "negotiation is synonym to practice one's language", "it allows to make [sic] efforts to speak and express one's opinions with a target language. Mistakes might be corrected by the teacher or classmates. Indeed, we learn better from our mistakes and this is helpful to get rid of shyness".* Negotiation creates an enthusiastic atmosphere where students become active learners. This helps every student to feel more confident about himself, and his ideas. Some do not speak in classroom because of shyness or anxiety, therefore, when the activity is done in group, there is a kind of moral support to everyone. Consequently, with negotiation, there is a mutual help that enable students overcome their shyness, anxiety and fear of speaking. On one hand, as it is mentioned above in the review of literature, it enhances students' communicative competences. On the other hand, it improves their personal and interpersonal skills. Some students have also said, *"It* [negotiation] *helps the students to get involved in the communication process which helps them to develop their speaking skill as well as their cognitive abilities and critical thinking".*

By personal skills, we refer to critical thinking, problem-solving and creativity, etc. It is highlighted by Dillenbourg (1999) that interaction with pairs would lead to produce learning mechanisms, development of critical thinking and communication. When doing a collaborative visualisation, it is obvious that students would negotiate the meaning of a given subject to come to a consensus; and 37 students out of 130 have argued, in question 1 page 36, that collaborative visualisation would help them to develop their critical thinking. Whereas in interpersonal skills; we make reference to active listening, team work,

responsibility, etc. It is obvious that learners need to be guided by their teachers. Consequently, we can deduce from what is said by Johnson and Johnson (1999) and Zambrano (2019) that in effective collaborative groups, students are mutually interdependent to assume group reaching goals. In this respect, Barron (2003) mentions that *"successful groups have been found to coordinate their activities better than unsuccessful groups"* (cited in Janssen, 2008: 16). Then, they are taught academic skills which means they are taught to become leaders, to make decisions and manage conflicts inside a group, etc. On this detail, Mercer and Littleton (2007) define collaborative learning as an activity in which "*participants are engaged in a coordinated, continuing attempt to solve a problem or in some other way construct common knowledge*" (cited in Reusser and Pauli, 2015: 916).

It is clear from the results that Master One students hold positive attitudes toward collaborative learning. This has been deduced from the responses of students (see table 7 p35) who say they prefer to learn when collaborating. They believe that collaborative learning enhances involvement in the classroom and improves confidence through interaction (see table 8 and diagram 6 p35). In this regard, Luther (2002) says that in collaborative learning, students are engaged in learning experience, they share their ideas and their information through interaction. Consequently, students gain confidence and improve it.

Visualisation is a collaborative activity, and to use collaborative visualisation in the classroom, the principles developed by Erkens should be followed. As a conclusion, the idea that students might hold positive attitudes toward collaborative visualisation is reinforced by the results found concerning collaborative learning. However, this does not demonstrate that this hypothesis is true because we have just established a relation between collaborative learning and visualisation with collaborative visualisation that is not used in the Department of English at the University of Tizi Ouzou.

Besides, students have probably dealt with this technique before but they have not been introduced to it. In other words, many activities require working in groups, and being students of the department, we confirm that, essentially in the first three years, we have had to watch videos in oral expression and comment on them afterwards.

1.2. Students' Attitudes towards Developing Communication Skills through Collaborative Visualisation

The findings of this research show that most of Master One students (47.69%) agree that the combination of collaborative learning and visualisation gives better results in learning in general and in developing communication skills in particular. (40%) of the participants strongly agree on that (diagram 8 p37). In this respect, it is mentioned in the literature review that participating in the collaborative visualisation improves the group members' communication and interaction, as well as sharing, exchanging and manipulating the information (Cernea, 2015).

First of all, According to them, collaborative visualisation is enjoyable because it transforms a stressful lesson into a real pleasure. Then, it makes communication flexible and increases credibility of the communicated message or information. This means that the message or the communicated information is able to change or to be changed according to the circumstances (see table 10 and diagram 9 p38).

The results further demonstrate in (Table 11 p38) that (96.15%) agree that making use of this strategy may lead to debates. A debate allows the students to practice the language and feel more confident when speaking; consequently, (56.92%) believe that collaborative visualisation would improve their communication skills very much (see Diagram 10). The results would be the opposite if this research were experimental; though in this case the participants agree on many points which can be understood as the advantages of collaborative visualisation in developing communication skills.

The most prominent point is that it promotes the exchange of information, this is realised by students' participation; as a result, collaborative visualisation encourages students to participate more. It is an opportunity to learn more from the others; thus, this develops one's critical thinking. One may miss some details concerning a topic; the others can think or remember the information that did not come to their mind before. In other words, there are some students in a group who are well informed about some topics and there are some others who are not; the discussion that may occur between them will be instructive. Some students may become aware of something such as having known information and having completely forgotten it. On the other side, others will simply be able to learn new ideas. In addition, it facilitates the understanding of presented information. When an idea is well understood, it becomes easy to remember, that is why it supports the remembering of the presented contents (see Table 9 and Diagram 7 p36).

Relying on these results, it is induced that collaborative visualisation is encouraged because it promotes the exchange of information, encourages students to participate, and leads them to discussions and debates. Consequently, collaborative visualisation promotes their communication skills. This idea is strengthened with the results shown in (Table 12 and Diagram 11 p40). According to what has been said in the Review of Literature by Brodlie, in collaborative visualisation, a group of people can work together on a project synchronously or asynchronously. For example, watching a video conferencing, the results show that synchronously, it enables students to see data, communicate and debate in context. After that, students can provide immediate feedback because it motivates to rapidly think and answer. It enables students to respond in a better real time. In our opinion, it is an activity that can be advantageous for students; however, there are some who do not assimilate things rapidly. Each student has his learning style (Gardner, 1983). For this reason, asynchronous collaborative visualisation can be beneficial for some others (those who perform things

slowly). It provides students the ability to communicate with a remote team with members of multiple zones (people who are separated geographically), which gives chance to the participants to think before responding. The communication is maintained by letter, faxes or emails between the members of the group (Brodlie, 1981). Besides, it is possible for the students to have a record of the communication shared that can be referred to it later on.

Having home activities, even through the internet, will probably be advantageous not only for those who assimilate things slowly, but also for those who rapidly understand. Varying activities is important; it makes students feel at ease and work on new things. This allows them to learn wherever they are.

Depending on the results found in section two, the relation made between collaborative learning and visualisation with collaborative visualisation in section one has been established. In other words, collaborative visualisation is collaborative learning supported by visualisation. Students' answers confirm its truth (see table 9 and 10, diagram8 and 10).

To recapitulate, Diagram 8 page 40 shows that learners agree that the combination of collaborative Learning and Visualisation gives better results in learning in general and in developing communication skills in particular. Master One students have justified their agreement by saying it was enjoyable. In fact, the use of visual aids facilitates learning because they create an enjoyable atmosphere (Ghulam, 2015). Then, it makes communication flexible. Finally, It increases credibility of the communicated message or information (see table 10 p38). In fact, (56.92%) of Master One students approve that collaborative visualisation can improve their communication skills (see diagram 10 p40). This goes hand in hand with what Cernea (2015:02) has said, *"a collaborative visualization enhances the way the doctors would communicate and interact, as well as support the exchange and*

manipulation of the patient's medical information". This can be related to EFL students in their learning. With collaborative visualisation, students learn how to convey their thoughts and feelings by speech or writing so that it can be understood. They are also used to facilitate communication. First, it promotes the exchange of information. This goes with what has been said by Myller (2009). According to him, collaborative visualisation encourages students to have significant conversations that will help each one to benefit from the other. Second, it encourages them to participate more; therefore, it allows them to learn more. After that, it develops their critical thinking which facilitates for them the understanding of presented information. This is highlighted by Isenberg (2011) that this strategy offers opportunities to students to develop their social skills and critical thinking through discussions, negotiations and arguments. Finally, it supports the remembering of the presented contents (see table 9 p36). Although these results show how collaborative visualisation helps the students to develop their communication skills, they are not true at 100% because they are just predictions that are not yet put into practice. The results could be more reliable if the study were experimental.

All in all, even though the results found indicate that Master One students have positive attitude toward collaborative visualisation, this does not prove that they are trustworthy because the results deal with human thoughts. Points of view may change and if collaborative visualisation were implemented before, students' responses would have been less subjective. On the other hand, since this strategy is not yet implemented, we have neither the chance to observe the students' reactions, attitudes and actions, nor an opportunity to make at least an experimental research for that. In fact, classroom observation would allow us to be part of the phenomenon and watch the students accomplishing some actions; therefore, the results would have been more objective.

2. Discussion of teachers' Interview

2.1. Teachers' Profile

The results indicate that the difference in teachers' experiences with teaching English did not affect their attitudes toward adopting collaborative visualisation to develop students' communication skills. The majority of respondents have taught English for more than 10 years and they all have faced difficulties with their students because they still have problems of communication and this is due to the lack of new strategies and techniques that cannot be implemented because of the lack of materials. Most of them have been for a training period abroad and during their experiences; they have always encouraged new techniques to develop communication. So, their experiences affected positively their attitudes, and this is an example of what is said in the definition of attitudes provided by Allport (1935: 810), an attitude is *"A mental or neural state of readiness, organized through experience."* They all encouraged the implementation of collaborative visualisation as a support to the traditional ways to develop students' communication skills in English which goes with two of our hypotheses where we highlighted that teachers have positive attitudes toward the use of collaborative visualisation to develop students' communication skills and that Collaborative visualisation promotes the exchange of information, encourages students to participate and lead them to discussions and debates which help them to develop their communication skills.

2.2. Teachers' Attitudes towards Collaborative Learning

Collaborative learning refers to learning in groups which means students share learning activities and get knowledge together. According to Erkens et al., (2005: 466), collaborative learning encourages three main processes: mutual activation, grounding and negotiation. Question 3 of the interview, deals with the importance of mutual activation and share of knowledge among students. All the six teachers agree with the fact that mutual activation is very essential in collaborative learning for developing students' communication

skills since students learn better because they have the opportunity to discuss their information and knowledge among them. As mentioned in the explanation provided to the definition of Dillenbourg (1999) to collaborative learning, during collaborative activities, students are expected to interact with one another, to be mutually engaged in conversations, to coordinate their efforts to solve problems. It is noticed that some students learn easily and better from their mates rather than their teachers because the way their mates give them the information fulfils their minds more and they feel at ease while working together.

Mutual activation should be in all classes, according to one teacher, through it; students who know more help students who know less and this facilitates the learning and make the understanding better. Therefore, such a process is essential and considered as a basic element of communication. Students, when sharing the knowledge, foster dialogues and may find themselves in situations where they show agreement and disagreement, interact and discuss and this helps in developing their communication skills, as one teacher has said, *"Learners should share information, and this can foster dialogue, leading to consensus and /or disagreement. The student interacts with other students in group discussions and other team activities in the learning process, and this fosters more interaction and collaboration among students".* This goes with the second condition of successful collaborative learning that Johnson and Johnson (1999) have mentioned, as explained in the literature review, namely; students must participate in important face to face interactions, in which they share knowledge, give constructive feedback, encourage each other to achieve cognitive activities. Students' participation attracts the other members' attention to listen and to reflect.

The second process that Erkens has mentioned is grounding that refers to creating a common frame of reference on which students can rely. *"Grounding is the name given to the interactive processes by which common ground (or mutual understanding) between individuals is constructed and maintained"* (Baker et al., 1999: 33). Question 4 focused on

the importance of this process in collaborative learning as well as in the way in which it contributes to promoting students' communication skills. The findings of the question indicate that all the teachers we have asked, share the idea that this process is essential to communication since it makes it better. As one of the teachers has argued, *"a common frame of reference helps students to answer questions, solve problems, learn new things and understand better",* if two or more students are supposed to make a conversation in an oral expression exam about a given topic, how can they succeed it if they do not share a common ground, how can they coordinate to communicate on the topic if they do not rely on the same frame of reference? *" Grounding is a common ground of mutual understanding, knowledge, beliefs, assumptions, presuppositions, and so on, has been claimed to be necessary for many aspects of communication and collaboration"*(ibid).

The results of question 7 dealing with the importance of negotiation during collaborative activities in developing students' communication skills indicate that all of the teachers agree that it is important. This is because, as the teachers explained, negotiation permits students to express themselves and to put their knowledge into practice and that it is a basic element in collaborative learning and communication as well. Negotiation in collaborative learning can be seen as a process where two or more students with different needs and goals discuss an issue to find a mutually acceptable solution or as it was mentioned in Erkens theory. In the same context, Morais et al, (2019: 216) say that, *"The goal of students when participating in negotiation training should be [...] becoming good negotiators and finding good agreements".* Negotiating requires "give and take"; this means, interaction between students which is quiet essential in communication, and this proves the importance of this process in enhancing their communication skills.

Within these processes, we can distinguish three major activities and we have emphasised on two of them. The first is: Focusing by maintaining discussion in class, and

concerning this, the findings of question 5 dealing with the strategies students use t maintain discussion in class reveal that all the interviewed teachers noticed that their students do try to maintain the discussion during a collaborative activity and the majority through asking questions and sometimes through other strategies like suggesting ideas, giving one's opinion, clarifying and summarising what has been said and through providing feedback. In this respect, Erkens et al., (2005:466) say: *"By focusing, students try to maintain a shared topic of discourse and to repair a common focus if they notice a focus divergence; students coordinate their topic of discourse by focusing".*

In addition to this, there is the second activity which consists of checking. The results of question 6 that deals with the ways teachers take to check their students' understanding indicate that all of them do it by making use of the technique of asking verification questions to their students. Concerning this, teachers have said that they ask their students questions such as*: "Have you understood?"* But generally, students do not say the truth. That is why teachers choose questions in direct relation to the topic being discussed. About this activity, it is mentioned in the theory of coordination process that *"(...) checking was found to be one of the major coordinating activities dialogues of collaborative problem solving (...)"* (Erkens, Schmidt, Renshaw 2000, cited in Erkens et al., 2005: 466) this to emphasise on the importance of checking in collaborative learning.

2.3. Teachers' Attitudes towards Developing Communication Skills through Collaborative Visualisation

As it has been mentioned in the literature review, collaborative visualisation may be considered as collaborative learning supported by visualisation. This technique that we have suggested as one solution to develop students communication skills, we have asked teachers on whether it can replace the traditional ways that already have been used. So, question 8, which was asked to know whether collaborative visualisation can replace the traditional ways

of teaching, helped us to find that teachers do see that it is more a support rather than a replacement. The idea to understand from this is that advancements in educational technology are not about replacing traditional teaching methods. Instead, many of today's modern teaching methods are simply an evolution of older techniques; in other words, such new techniques complete and support the old methods, the use of visual aids, then, supports learning and enriches traditional learning experiences, it does not totally replace them, we can make reference, here, to how visual aids are described by Kinder, (cited in Ghulam, 2015) where he has said that a visual aids are *"any devices which can be used to make the learning experience more real, more accurate and more active"*.

The results of question 9 dealing with teachers' opinions on collaborative visualisation, permits to know how important collaborative visualisation can be, all the teachers focus on the fact that this technique is a good strategy that should be encouraged. This is because any new technique that brings new things and supports the teaching and learning process has to be encouraged. Collaborative visualisation combines between two important elements: Collaborative learning which has a very good impact on students' input and visualisation, which is included in technology that all students like and use in their learning process. This involves the use of different visual aids such as films, YouTube videos and pictures which have visual effects that help students to understand more and motivate them to comment on what they see together. Thus, this helps them to promote their communication skills .as mentioned in the review of the literature; these visual effects draw the audience's attention and make the learners feel confident (Hiral, 2015). We infer from this, that this combination positively affects students' outcomes and anything that helps students and facilitates learning and teaching for teachers as well is welcomed, that is why they all agree that it is good and it should be encouraged.

The findings of question 10 where we asked teachers whether they think that using collaborative visualisation would improve students' communication skills, to identify the importance of collaborative visualisation in promoting students' communication skills in English, indicate that teachers do all agree that this technique is important and help students to better communicate. It enhances involvement, participation and interaction in the classroom and this promotes communication; it motivates students because making use of such techniques makes things to them clearer and they feel confident to participate and speak. It also makes the class enjoyable and funny, and this helps them to freely communicate. They also become creative since they may suggest collaborative visualisation activities they like, and this promotes the interaction between them and their teachers. Students always welcome activities they do in groups using computers, data show presentations, videos, pictures because they better understand, easily assimilate and remember what they are learning because they have its image in mind. We can refer to what has been mentioned in the review of the literature concerning this point; students have more chances to learn what they see, what they say and what they do (Cuban, 2001 cited in Ghulam et al,2015: 226). Also, it is a technique that leads to debate, as it is explained in teachers' answers to question 11, because, according to them, students when they see something together, they are most of the time motivated to debate it and this contributes in the development of their communication skills.

As a final point, we have directed a final question on the difficulties that can be faced if collaborative visualisation will be implemented. All the teachers who have been interviewed have agreed on the lack of materials because this kind of techniques requires appropriate technological devices to use it; like computers, televisions, data shows, large pictures, special rooms and not everything is available here in the Department. But here, there is one possibility that teachers might miss which is the ability to implement this kind of techniques asynchronously, and this by giving students group activities to do at home through

a shared network like wiki space from which the teacher can check to wither they accessed or not, or o ask their students to watch a film or a video at home and come in class and debate it, and other factors that we have suggested; like the lack of time because in short time, teachers can not complete all the task with the use of this technique, but one of them said, *"A good planning and knowing how to systematise can make it successful"*. In addition to other factors like the lack of motivation of some students, we have also suggested the problem of large classes, in this respect, one of the teachers have said, *"Here we do not have such problem, we do not have large classes."*We mentioned the difficulty in the assessment of students' performance because they work in groups but, according to teachers, this is possible somehow and it does not matter.

Conclusion

This chapter has discussed the data collected from both students' questionnaire and teachers' interview which we have conducted to analyse their attitudes toward the use of collaborative visualisation to enhance students' communication skills in English. The discussion of findings has provided us with clear answers for our research questions and confirmed two of hypotheses that we have suggested.

Based on the results obtained then, we can say that collaborative visualisation promotes the exchange of information, encourages students to participate and lead them to discussions and debates which help them to develop their communication skills and both students and teachers have positive attitudes toward developing communication skills through collaborative visualisation.

General Conclusion

This study has aimed at identifying students' and teachers' attitudes toward the use of collaborative visualisation in the learning process in the Department of English at Mouloud Mammeri University of Tizi Ouzou in order to promote students' communication skills on one hand. It also aims at exploring the extent to which collaborative visualisation can help students to develop their communication skills in English; thus, this research is conducted using the Coordination Process Theory (2005).

It has been noticed that students still encounter difficulties in communication; therefore, in this investigation, we have suggested the implementation of collaborative visualisation in order to help them to overcome their difficulties. In addition, we have aimed at identifying their attitudes and the ones of their teachers toward the use of this technique to develop communication skills.

To realise this research work, we have adopted both the quantitative and qualitative approaches for data collection and analysis. Our participants consist of University Master One Students of different options, and Teachers of different modules, at the department of English, Mouloud Mammeri University of Tizi Ouzou. We have selected 220 students and 130 of them have answered the questionnaire. To reinforce the validity of the data gathered from the questionnaire, we have adopted a second tool which is a structured interview conducted with six teachers to identify their perceptions and attitudes using collaborative visualisation to enhance their students' communication skills. For the quantitative data analysis, we have used the rule of three while for the qualitative data, we have a descriptive analysis of qualitative data.

Based on the discussion of our research findings, quantitative data concluded that the majority of students have a positive attitude toward developing their communication through collaborative visualisation. In addition, they have confirmed that it promotes the exchange of information and encourages them to participate and learn more. Moreover, they agree that it

develops their critical thinking and facilitates the understanding of presented information. Furthermore, almost all of them strongly agree with the fact that collaborative visualisation may lead to debates which help them to enhance their communication abilities.

The results obtained from the teachers' interview have revealed that teachers have a positive attitude toward the use of collaborative visualisation in their sessions. They agree that using collaborative visualisation helps them to get their students motivated and make the lesson more enjoyable. In addition, they see that it is a good strategy of teaching that complement the traditional ways of teaching and that needs to be encouraged through providing the needed materials.

This work has contributed to increase the awareness about collaborative visualisation as a new technique to overcome difficulties that students face while communicating. The results closely reveal that this technique facilitates the learning environment and motivates the students to develop their communicative abilities, and for teachers to make their class more enjoyable and the results more fruitful.

However, we cannot deny the fact that this study has encountered some limitations. Not all the participants we have selected have answered (130 out of 220). In addition to the lack of materials in the Department of English which did not allow us to make experiences or to conduct classroom observations.

Accordingly, further research on the same issue, can be conducted with the other levels and also by investigating the use of the same technique to develop not only communication skills, but also other skills. In addition, others investigations can be conducted using the experimental method if the necessary materials are provided.

Bibliography

Bibliography

- Ahmadi, M.R. (2018) *The Use of Technology in English Language Learning: A Literature -Review. Ahmadi International Journal of Research in English Education*. [Online] [Accessed 20 June. 2018].
- Allport, G.W. (1935) *Attitudes*. Worcester: Clark University Press.
- Arcavi, A. (2003) *The Role of Visual Representations in the Learning of Mathematics, Educational Studies in Mathematics*, pp. 215-241.New York: Springer.
- Baker, M.J., Hansen, T., Joiner, R. and Traum, D. (1999). *The Role of Grounding in Collaborative Learning Tasks*. In P. Dillenbourg (Ed.*), Collaborative Learning: Cognitive and Computational Approaches*, pp. 31-63. Amsterdam: Pergamon / Elsevier Science.
- Barmaki, R. (2004) *Non Verbal Communication and Teaching Performances Producing of the 7th International Conference on Educational Data Minting*, pp. 441-443.
- Barker, A. (2010).*Improve Your Communication Skills*, 2nd ed: London.
- Baston,H. and Jenny. H. (2009) *Midwifery Essentials: Basics*, 2nd ed. Elsevier.
- Brodlie, K. W., Duce, D. A., Gallop, J. R., Walton, J.P.R.B., and Wood, J.D. (1981) *Distributed and Collaborative Visualization*.*Wiley Online Library*, pp. 1-29 .
- Bruffee, K. (1981) *Collaborative Learning*. *College English*, **43** (7), pp. 745-747.
- Bruffee, K. (1995) *Sharing Our Toys: Cooperative Learning Versus Collaborative Learning.* The Magazine of Higher Learning, **27** (1), pp. 12-18.
- *Cambridge Advanced Learners's Dictionary and Thessaurus*. [Online] [Accessed 26 January. 2019]Cambridge: University Press.
- Cernea, D. (2015) *User-Centered Collaborative Visualization*, PhD thesis, Kaiserslautern University: Kaiserslautern.
- Claire, H. and Graig, M. et al., (2006)The*Sage Dictionary of Social Research Methods* [in] Jupp, V.London: Sage Publications.

- Dillenbourg, P. (1999) *What Do You Mean by Collaborative Learning? Collaborative-Learning: Cognitive and Computational Approaches*, pp 1-19. Oxford: Elsevier.
- Douglas, B. H. (2000) *Principles of Language Learning and Teaching*: San Francs: Logman.
- Eagly A.H and Chaiken, S. (1993) *The Psychology of Attitudes*: Orlando FL. Harcourt Brace Jovanovich.College publisher.
- Erkens, G. (2005) *Coordination Processes in Computer Supported Collaborative Writing*. *Computer in Human Behaviour*. [Online] pp. 463-486. Available at www.sciencesdirect.com.] [Accessed 17April 2019].
- Gardner, H. (1983) *Frames of Mind: The Theory of Multiple Intelligences United States of America: Basic Books.*
- Ghulam, S., Khuram, S.H., Naqvi, H. and Nadeem, I. (2015) *Impact of Visual Aids in Enhancing the Learning Process Case Research.Journal of Education and Practice*, **6** (19), pp. 226-233.
- Hale, Janssen, J. and Theo, W. (2018) *Collaborative Learning Practices: Teacher and Student Perceived Obstacles to Effective Student Collaboration*. *Cambridge Journal of Education*, **48** (1), pp. 103-122.
- Harb Manssour, I., and Freitas, C.M.S.F. (2000) *Collaborative Visualization in Medicine.WSCQ 2000*, pp. 1-8 .
- Hilligos, H. (1999) *Visual Communication, a Writer's Guide*. Clemson University.
- Hiral, J. M. (2015) *Using Visual Aids as Authentic Material in ESL Classrooms*. *Research journal of English Language and Literature*, **3** (1), pp. 91-96.
- Isenberg, P., Elmqvist, N., Scholtz, J., Cerneas, D., Ma, K.L., and Hagen, H. (2011*) Collaborative Visualization: Definition, Challenges, and Research Agenda*.Sage Publications, **10** (4), pp. 310-326.

- Janssen, J., Erkens, G., Kanselaar, G., and Jasper, J. (2007) *Visualization of Participation: Does It Contribute to Successful Computer-Supported Collaborative Learning*? *Computer and Education* (49), pp.1037-1065.
- Janssen, J. (2008) *Using Visualizations to Support Collaboration and Coordination during Computer-Supported Collaborative Learning,* PHD thesis, Utrecht University: Utrecht.
- Johnson, D.W. andJohnson, R.T. (1999) *Making Cooperative Learning Work, Theory intoPractice*, **38** (2), pp. 67-73.
- Jupp,V. (2006) *The Sage Dictionary of Social Research Methods*, London: Sage Publications.
- Khan, A. (2015) *Using Films in the ESL Classroom to Improve Communication Skills of Non-Native learners. ELT-Voices- International Journal for Teachers of English,* **5** (4), pp. 46-52.
- Klerks, J., Verbert, K., and Duval, E. (2014*) Enhancing Learning with Visualization Techniques.Handbook of Research on Educational Communications and Technology,* pp.1-42.
- Koschmann, T.D. (1994) *Toward a Theory of Computer Support for Collaborative Learning. The Journal of the Learning Sciences*, **3** (3), pp. 219-225.
- Luther, A. (2000) *The Old Method of Teaching VS The New Method of Teaching*. *Journal of Thought*, **35** (2), pp. 59-69.
- Marjaan, L. and Mozghan, L. (2011) *Collaborative Learning: What Is It*? *Prodecia Social and Behaviourist Sciences*, [Online], pp. 491-495.Available at www.sciencedirect.com. [Accessed on 5 May 2019].
- Marjan, L., andSeyed,M.G.(2012) *Benefits of Collaborative Learning*. *Social and Behavioral Science*, 31, pp. 486-490.

- Morais, D.C, Carreras, A., De Almeida, A.T., Vetschera, R. (2019) *Group Decision and Negotiation: Behaviors, Models and Support*,pp. 214-216.Loughbrough.
- Myller, N. (2009) *Collaborative Software Visualization for Learning: Theory and Applications*, PhD thesis, Joensuu University: Joensuu.
- Oxford (2019) *Oxford Living Dictionary* [Online] [Accessed on 9 June 2019].University Press.
- Pamela, D. (2006) The Sage *Dictionary of Social Research Methods* [in] Jupp, V.London: Sage Publications.
- Pateşan, M., Balagiu, A., and Alibec, C. (2018) *Visual Aids in Language Education .International Conference Knowledge-Based Organization*, **24** (1), pp.356-361.
- Pathan,M.M.,and Alseid,S.M. (2013)*International Journal of English and Translation Studies*, **1**(2).
- Paul, R., Thérèse,L. (2007)*Technology in Support of Collaborative Learning.Educational Psychology Review*, **19** (1), pp. 65-83.
- Pea, R. D. (2002) *Learning Science through Collaborative Visualization over the Internet.Nobel Symposium*, pp 1 -14.
- Purchase, H. C., Andrienko, N., Jankun, K. T. J., and Ward,M. (2008). *Theoretical Foundations of Information Visualization*. In *Information Visualization Part of the Lecture Notes in Computer Science Book Series*, pp 51-70.
- Reid, N. (2003) *Getting Started in Pedagogical Research in the Physical Sciences*. [Online]Available at: http//hlst.ltsn.ac.uk/assets/ps/documents/practice-guides/ps0076-getting–stratred-in-pedagogia-research-in-the-physical-scineces-aug-2004.pdf.[Accessed 9 August 2011]
- Reusser, K., and Pauli, C. (2015) *Co- Constructivism in Educational Theory and Practice* in*International Encyclopaedia of the Social and Behavioural Sciences*.3, pp. 913-917.

- Romana, D.(2019*) Harnessing the Use of Visual Learning Aids in the English Language Classroom, Arab world English journal*, 2, pp. 3-17[Online] at https://www.researchgate.net/publication/220029726.
- Singla, R.K. (2009) *Business Studies: Class XII.* New Delhi VK.
- Stahl, G., Koschmann, T., and Suthers, D.(2006) *Computer-Supported Collaborative Learning: An historical Perspective. Cambridge Handbook of the Learning Sciences*, pp. 409-426.
- Sousa, L.PQ., Tiraboshi, F.F., Lago, N.A., Figueiredo, F.J.Q.(2019) *Collaborative English Language Learning: Some Reflections from Interactions between* Pairs.*ResearchGate*, pp. 259-286.
- Tavakoli, H. (2012) *Dictionary of Language Acquisition: A Comprehensive Overview of Key Terms in First and Second Language Acquisition*, pp.68.69.
- Thomas,W.M.,and Growstone, K. (1993)*The Interdisciplinary Study of Coordination*. *Computing Surveys*, **26**(1), pp. 87-119.
- Troike, S .M. (2006) *Introducing Second Language Acquisition*: New York: Cambridge University Press.
- Veřmiřovský, J. (2013) *The Importance of Visualizationin Education*, [in] *E-learning and Lifelong Learning.* pp. 453-463.
- Zambrano, J. R., Kirschner, F., Sweller, J., and Kirschner, P. A. (2019) *Effects of Prior Knowledge on Collaborative and Individual Learning. Learning Instruction*, 36, pp. 1-8.

Appendices

Appendix 1: Students' Questionnaire

The present study investigates the students' attitudes toward the use of collaborative visualisation to develop their communication skills in English. We would be grateful if you accept to fill in this questionnaire. Your answers will help us to reach the aims of this study, so please try to answer these questions honestly. We want you to know that all your answers will be treated anonymously.

Thank you very much for your collaboration.

Section One: General Information about the Participants

Q1: What is your option?

M1.....

Q2: How long have you being studying English?

……Years.

Q3: Have you ever been abroad at a linguistics seminar?

Yes, I have □ No, I have not □

Section Two: Students' Attitudes towards the Use of Collaborative Visualisation in English in the Department of English.

N.b: Collaborative visualisation allows multiple users to communicate, interact and explore a visual representation by building on different views and knowledge blocks contributed by each person.

- ''Collaborative learning is a set of teaching and learning strategies promoting student collaboration in small groups (two to five students) in order to optimize their own and each other's learning '' (Johnson & Johnson, 1999 cited in Le, et al., 2018).

Q1: *''Mutual activation (active collaboration among students) and share of knowledge is foundational for developing students' communication skills''.*

- Strongly agree □
- Agree □
- Slightly agree □
- Disagree □
- Strongly disagree □

Q2: ‘‘*Grounding* (knowledge of the basics of something) *or creating a common frame of reference* (particular set of beliefs or ideas on which you base your judgment of things)’’, to promote students’ communication skills, is:

- Very important □
- Important □
- Slightly important □
- Not important □

Within the process of collaborative learning, three activities can be distinguished: focusing, checking, argumentation.

Q3: Do you try to maintain the discussion during a collaborative activity?

- Yes □ - No □

If yes,

- ➢ Asking questions □
- ➢ Suggesting ideas □
- ➢ Giving one’s opinion □
- ➢ Repairing focus divergence □
- ➢ Clarifying and summarizing what has been said □
- ➢ Providing feedback □

Q4: You check the understanding of information being communicated by:

- Asking verification questions□
- Indicating agreement / disagreement□
- Negotiating meaning□

Q5: Do you think that negotiation during collaborative activities is important for developing your communication skills?

-Yes □ - No □

Justify:
……
……
……
……
……
……
……

Q6: Do you better learn when collaborating or when learning individually? Why?

Put a tick on the answer (s) that suits you.

Because,

- Collaborative learning enhances involvement in the classroom□
- Collaborative learning improves confidence through interaction□
- I feel uncomfortable and distracted when practicing a collaborative activity□
- I do not have the opportunity to voice my ideas and opinions freely within a group□

Section Three: Students' Attitudes towards Developing Communication Skills through Collaborative Visualisation.

Q1: How can collaborative visualisation help the students develop their communication skills?

- It promotes the exchange of information □
- It encourages you to participate more □
- It allows you to learn more □
- It develops your critical thinking □
- It facilitates the understanding of presented information □
- It supports the remembering of the presented contents □

Q2: '' The combination of Collaborative Learning and Visualisation gives better results in learning in general and in developing communication skills in particular''

- Strongly agree □
- Agree □
- Slightly agree □
- Disagree □
- Strongly disagree □

Justify by choosing the arguments that fit you.

- It is not sufficient to communicate effectively and clearly □
- It is time consuming □
- It is difficult and requires a lot of efforts □
- It makes communication flexible □
- It is enjoyable □
- It increases credibility of the communicated message or information □

Q3: Do you agree that making use ofcollaborative visualisation may lead to debates?

- Yes □ - No □

Q4: To what extent the use of collaborative visualization would improve your communication skills?

- Very much □
- Somewhat □

- Do not know □
- Not very much □
- Not at all □

Q5: How can collaborative visualisation, both synchronous and asynchronous, help in developing communication skills?

- It enables students to see data, communicate and debate in context □
- It provides immediate feedback □
- Better real time response □
- It motivates to rapidly think and answer □
- It provides the ability to communicate with a remote team with members of multiple zones □
- Having a record of the communication shared that can be referred later on □
- The chance to think before responding □

Appendix2: Teachers' interview

Introduction

This interview is part of a research work that aims at gathering data about teachers' attitudes toward developing communication skills through the use of collaborative visualisation. We would be very grateful if you accept to do with us an interview in order to answer some of our questions. Be sure that all your answers will be treated anonymously.

Thank you very much for your collaboration.

Section One: General Questions

Q1: How long have you been teaching English?

- Less than ten years - More than ten years

Q2: Have you ever been abroad for a training period?

Section Two: Teachers' Attitudes towards Collaborative Learning

Q3: Do you agree that *''Mutual activation (active collaboration among students) and share of knowledge is foundational for developing students' communication skills''.* Please, would you explain?

Q4: Do you think that ''*Grounding* (knowledge of the basics of something) *or creating a common frame of reference* (particular set of beliefs or ideas on which you base your judgment of things)'' is important to promote students' communication skills?

Within the process of collaborative learning, three activities can be distinguished: focusing, checking, argumentation.

Q5: Do your students try to maintain the discussion during a collaborative activity?

- Yes - No

If yes,

- ➢ Asking questions.
- ➢ Suggesting ideas.
- ➢ Giving one's opinion.
- ➢ Repairing focus divergence.
- ➢ Clarifying and summarizing what has been said.
- ➢ Providing feedback.

Q6: Do you check your students' understanding of what has been being communicated in the classroom? How, if yes, is it by

- Asking verification questions?
- Indicating agreement / disagreement?
- Negotiating meaning?

Q7: Do you think that negotiation among students during collaborative activities is important for developing their communication skills? If yes, how?

Section three: Teachers' Attitudes towards Developing Communication Skills through Collaborative Visualisation.

Collaborative visualisation allows multiple users to communicate, interact and explore a visual representation by building on different views and knowledge blocks contributed by each person.

Q8: Do you think that collaborative visualisation should replace the traditional way of teaching?

Q9: Do you agree that collaborative visualisation is

- A good strategy of teaching.
- It needs to be encouraged.
- It makes the lesson more enjoyable.
- It should be used in all modules.

Q10: Do you think that using collaborative visualisation would improve students' communication skills?

Q11: Do you agree that making use ofcollaborative visualisation may lead to debates?

Q12: What are the difficulties that you may encounter with the implementation of collaborative visualisation?

- Lack of materials.
- Lack of motivation.
- Large classes.
- Lack of time.
- Assessing students' individual performance.