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**The implementation of Competency Approach in  
Algerian Foreign Language Classroom: The Impact of  
Social Interactions on Knowledge Construction Process  
and the Development of Learning Competences**

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## DECLARATION

I hereby declare that the substance of this thesis is entirely the result of my investigation and that due reference or acknowledgement is made, whenever necessary, to the work of other researchers.

Date: 11/09/2016

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## DEDICATION

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## ABSTRACT

Researchers suggest that successful implementation of the CBA leads to the creation of different types of mediated socio-educational interactions that support the collaborative process of knowledge construction. However, the existing literature does not indicate whether the qualities of socio-educational interactions, as well as the affordances of use of the CBLT by teachers in Algeria offer the social and cognitive support necessary for the collaborative knowledge construction process to take place. The aim of the present study is to examine the extent to which classroom discussions, mediated by the affordances of the scaffolding of teachers and the new program, reach high levels of collaborative knowledge construction. This thesis develops two methodological frameworks for the presentation of structural patterns of classroom interactions and the analysis of the impact of the affordances of teachers' efforts to implement the CBLT on learners' learning opportunities from a socio-constructivist perspective. This study examines through interviews with inspectors and teachers and video recordings of classroom lessons, the quality of training, teaching, and learning experiences of two different middle school groups of learners of English in Algerian schools, taught by two different teachers with different teaching backgrounds. Results show that teachers provide different types of scaffolded interactions which lead to the creation of different patterns of classroom interactions and exchanges that affect differently learners' engagement in the collaborative knowledge construction process. Trained teachers have a better understanding of the learning principles of the CBLT. They could create interactions with positive affordances for learners to perform different interactive and negotiation roles for active engagement in the collaborative knowledge process. However, results show that untrained teachers failed at providing their learners with the socio-cognitive support they needed to create ZPD for collaborative knowledge construction. Besides, results show that teachers' teaching styles, task design and size of classes play an important role in supporting the collaborative knowledge construction process.

## LIST OF ABBREVIATIONS AND ACRONYMS

AEF	Algerian English Framework
CBA	Competency-Based Approach
CBLT	Competency-based language Teaching
EFL	English Foreign Language
Gr1	Group One
Gr2	Group Two
I	Initiations
IC	Initiation Continuity
I-IC-R-RC-F	Five Part Exchange; Initiation-Initiation Continuity-Response-Response Continuity-Feedback
IC-R-F	Three Part Exchange; Initiation Continuity-Response-Feedback
IC-R-RC-F	Four Part Exchange; Initiation Continuity-Response-Response Continuity-Feedback
I-R-RC-F	Four part Exchange; Initiation-Response-Response Continuity-Feedback IRF Initiation-Response-Feedback System
L2	Second Language
R	Response
RC	Response Continuity
T1	Teacher 1
T2	Teacher 2
ZPD	Zone of Proximal Development

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# GENERAL INTRODUCTION

## 1. Background of the Study

In 2002, English language teaching witnessed a great movement of reform in Algeria. The National Commission for Educational Reform (PARE) in collaboration with UNICEF introduced the competency-based curriculums in Algerian primary, middle and secondary schools. The Competency Based Approach (CBA) involved fundamental pedagogical changes in the curriculum and instructional approaches. It implied a shift from a content-based curriculum that promoted theoretical understanding of concepts to a process-based curriculum that promoted collaborative co-construction of knowledge. The adoption of these new perspectives in Algeria emerged as a dominant force in efforts to understand and improve language learning.

The CBA draws on socio-constructivist theories of learning. One of the common threads of socio-constructivism is the idea that development of understanding requires the learner actively to engage in collaborative knowledge construction process. Jenkins (2000) argued that: “The development of understanding requires active engagement on the part of the learner” (p: 601). From this viewpoint, the ideas and thoughts identified within the mind of learners are the products of social as well as individual cognitive processes of learning. Knowledge hence exists as a social entity, not just as an individual possession. Socio-constructivism has brought out how knowledge construction and appropriation are as much a function of the immediate context of social interaction as well as individual cognitive processes (Vygotsky, 1978; Wertsch; 1991; Leontiev, 1981; Lantolf, 2000, Karppinen 2005; Ravenscroft, Wegerif, and Hartley, 2007).

This perspective of social interaction and collaborative knowledge construction serves as a strong foundation for the Algerian competency-based teaching methodology. It refers to an educational movement that advocates defining educational goals in terms of precise measurable description of the knowledge and

social and individual mental skills required for effective performance of a real-world task or activity, that learners should possess at the end of a course of study (Guskey, 2005; Weddel, 2006; Thinktwice, 2007, Griffith, 2014). Competency based education addresses what the learners are expected to do rather than what they are expected to learn about (Weddel, 2006). In other words, CBA is a productive education, which focuses on engagement of learners in the collaborative process of knowledge construction for the development of competencies that lead to autonomous learning. It shifts the orientation of the content, largely but not exclusively, away from the rote memorization of factual knowledge to collaboration and knowledge construction. (Woods, 2008; World Bank, 2011; Wangeleja, 2010).

Thence, rather than a solitary process, the new Algerian educational program assumes that effective learning occurs through collaborative learning where knowledge is jointly constructed through the creation of ZPD mediated by teachers' scaffolding.

The Algerian ministry of education made lot of efforts to make it operational and facilitate its implementation in Algerian schools. There have been serious financial and human commitments to retrain and support teachers, head teachers, inspectors, and other educational professionals to ensure that they have the necessary competences and confidence to implement and effectively handle the pedagogical approach. Since then, a growing number of seminars were organized throughout the country, under the supervision of general inspectors of English language, to help teachers get acquainted with the new books and teaching methods and sufficiently equip them with the knowledge needed to competently and competitively solve the development challenges, which face the nation.

However, little or no research at all has been undertaken to check whether CBA objectives in terms of language curriculum is really or practically applied in Algerian English language classroom and whether the quality of socio-educational interactions as well as the affordances of the use of the CBLT by teachers in Algeria offer the social and cognitive support necessary for the collaborative knowledge construction process to take place. The aim of the present study is to examine the extent to which classroom discussions, mediated by the affordances of the scaffolding of teachers and the new program, reach high levels of collaborative knowledge construction.



## 2. Statement of the Problem

As explained in the Introduction of the present chapter, the need for changes in the pedagogical instructional approach, called for teacher training to equip them with the necessary competencies for handling the new teaching paradigm. Although PARE (2006) pointed out that teacher training is a priority required to provide for a well-educated, professional and skilled teaching force, to date, much of the required interventions have not taken place. General teacher training program has been uncoordinated, underfunded and poorly staffed (Semmouk, 2005; Bouhadiba, 2006, Benadla, 2013; Mirza, 2015). Lack of training might affect negatively teachers' practices.

Besides, despite the fact that the competency-based curriculum is more than twelve years young since its inception in Algerian schools, there is no clear evidence of whether or not teachers are appropriately implementing competency based teaching approaches. Daily contacts with inspectors, teachers and learners' parents indicate that the curriculum may be poorly implemented because the majority of English language teachers did not aptly understand the requirements of the educational guidelines (Bouhadiba, 2006, Benadla, 2013; Mirza, 2015). There is a wide literature offering criticisms of competence-based education and training, and the major criticism concerns the definitions of competence and the knowledge construction process (for more details, see Chapter Two). Lack of understanding of key concepts of the reform stems from lack of training, which in turn would affect negatively the implementation of the socio-constructivist principles of teaching and learning in language classrooms.

On the other hand, there is a common agreement among researchers that competency based language teaching environments are a good fit for promoting the type of learner-centred and collaborative learning that is central to the socio-constructivist theory of learning. Studies carried out to investigate types and patterns of interaction generated in CBLT setting (See Section 9 of Chapter Two) have reported an increase in the quantity of participation and interaction compared to traditional contexts of instruction. However, few studies are being conducted on

the quality of social mediated interaction and even less on their socio-constructivist dimension. In the early days of the implementation of this pedagogical approach, Erben (1999) stated that the use of the CBLT remains under researched. Furthermore, Batainah and Tasnimi, (2014) and Griffith (2014) pointed out that the existing studies offered no empirical evidence to support the claims that scaffolded interactions generated through CBLT promote collaborative co-construction of knowledge. Besides, my review of the literature (see Chapter Two) shows that current studies did not provide enough knowledge about the extent to which learning in CBLT meets the theoretical socio-constructivist expectations, in terms of the creation of opportunities for the collaborative meaning construction process to take place. Sing and Khine (2006) explained that current studies were generally based on quantitative ways of measuring participation. The results obtained through quantifying participation and interaction seem collectively to have caused us to lose sight of the point that not all interactions are conducive to constructive collaboration and that quantity does not guarantee quality. So the view which says that interaction is important does not however hold that all forms of scaffolded interactions are equally productive for socio-constructivist language learning.

Hence, research on the study of the quality of interactions from a socio-constructivist point of view is still lagging behind. There is little knowledge about the extent to which the actual dynamics in this particular CBLT environment meet the theoretical socio-constructivist expectations. It makes good sense, therefore, to want to try to understand the contribution of the emerging socio-educational-mediated interactions for enhancing to the individual and social processes of knowledge construction.

### **3. Research Questions**

In the light of this background, it is thus, the intent of this study to investigate the extent to which competency based teaching approaches have been implemented in English language teaching in Algeria. This is done through the investigation of the extent to which socio-constructivist aims of promoting social

interactions for the realization of the collaborative construction of knowledge are achieved in CBLT settings. Hence, the major research questions that guide the present study are:

- How do inspectors and teachers perceive training opportunities and adequacy of training support?
- What are the patterns of classroom interactions and learners' engagement in collaborative knowledge process?
- Do teachers' scaffolded and mediated interactions support collaborative knowledge construction process, and if so to what extent?
- What is the effect of the affordances of teachers' patterns of interactions on patterns of learners' engagement in constructive discussions?
- To what degree do these patterns contribute to the Knowledge construction process?

#### **4. Hypothesis and Assumptions**

In view of the above reasoning, I hypothesize that if scaffolding and social mediated interactions are seen as tools to enable learners to act for change in their lives, critical thinking for active engagement in the collaborative construction of knowledge will be promoted. The first main assumption then is that teachers need to have considerable skills to match the curriculum to learners and thus, requiring an intensive widespread training for all foreign language teachers. I assume that lack of understanding of key concepts of the CBLT due to lack of training, affects negatively teachers' understanding of this approach.

The second major assumption of this research is that what counts as evidence of learning in this pedagogical tradition is the co-construction of new knowledge through collaborating in the (ZPD) where learners are supported with different mediational social interactions and teachers' scaffolding. I make the hypothesis that learners benefit and get more involved when they think about it that

each activity builds on previous material so that knowledge and skills build logically towards achieving and developing specific competences.

The third major assumption of this research is that interaction does not equate collaboration and that learning opportunities are not guaranteed by the quantity of interaction in which learners are involved; not all interactions are productive and make progress. I make thus the hypothesis that there is a need to consider not just the quantity of interaction but more, its nature and quality from a socio-constructivist perspective. I hypothesize socio-educational interactions should be analyzed as a means of gaining insights and understanding of the impact that the affordances that might have the implementation of the new program by teachers on the process of knowledge construction.

The third major assumption of this research is that learning needs to be viewed as a comprehensive process of socially negotiated construction of knowledge and analyzed as such. I assume that the real importance of the analysis lies in its power to help us understand the complexity of the relationship between the concepts of scaffolding, competence, and individual and social processes of knowledge construction, and in particular of the special role mediated social interactions may play in that relationship. This has implications as far as the analysis of the knowledge construction process is concerned. I assume that the analysis of this process implies the analysis of the different elements of the process all together, without which an understanding and exploration of this process is deemed impossible.

Therefore, it is this sort of relationship between mediated social interaction and its impact on socio-constructivist learning outcomes that needs to be established for a better understanding of the teaching/learning phenomena in Algerian English language classrooms.

## **5. Aims of the Study**

This study hence aims at investigating the extent to which teachers are trained and well prepared to implement the socio-constructivist principles of

learning in their classroom practices. Having said this, this study seeks at understanding the contribution of teachers' scaffolding to the creation of social mediated interactions that facilitate learners' engagement in the creation of ZPD for collaborative knowledge construction and internalization.

Henceforth, the aim of this research is to increase understanding of the ways collaborative knowledge construction takes place or not in Algerian English classrooms that implement the CBA. This is in attempt to extend understanding of the implementation of CBA, by exploring whether and how social and individual modes of thinking work together through classroom exchanges and the use of the affordances of the new programs, to support socio-constructivist principles of learning.

To sum up, I attempt in this study to refine research and give due weigh to the investigation of the social and individual learning processes of language learning by exploring the impact of teachers' scaffolded mediated interactions on learners' learning opportunities to engage in high order thinking for collaborative and autonomous learning to take place.

In the present research, the process of collaborative knowledge construction is defined as as a social and collaborative process in which different perspectives are exchanges, negotiated and then incorporated. Hence, the social creation of new shared agreed upon understandings within contexts of instruction by exchanging, negotiating and incorporating different concepts and opinions. (For detailed definition see Chapter Two).

Constructive discussion is defined as instances of collaboration where learners use different meditational tools to create ZPD (for a detailed definition of ZPD, see Chapter Two) for the exchange and negotiation of information that lead to the construction of newly agreed-upon meanings. Interaction is defined as the active involvement of learners in the process of collaborative meaning construction, i.e., the specific patterns and quantity of communication.

Collaboration is defined as the process whereby students work together to create agreed upon new understandings, realize shared goals and objectives (for a detailed definition of collaboration, see Chapter Two). Thence, collaborative interaction is defined as the process through which collaboration, information sharing, negotiation and co-construction of meaning occur in a socio-constructivist learning environment.

Affordances are defined as ‘what things furnish, for good or ill’ (Gibson, 1966, p. 285). By affordances also I referred to all the distinctive features of the learning environment that facilitate or hinder understanding.

To sum up, this study seeks then to check the extent to which the currently practiced socio-educational mediated interactions offer the social and cognitive support necessary for the collaborative meaning construction process to take place.

## **6. Research Design and Methodology**

The design of this research focuses on the analysis of the quantity and quality of interaction patterns from a socio-constructivist principle. It assumes the knowledge construction process to be empirically observable through analyzing classroom interactions as well as inspectors’ and teachers’ perceptions of their training and teaching experiences. Two types of data informed the present research: the primary data comprised video-recordings of classroom English lessons; the secondary data comprised interviews conducted with teachers and inspectors. I interviewed ten inspectors about their perceptions of the quality of the training offered to teachers. I interviewed twenty five teachers about their perceptions of their training, if any, CBA, and their teaching experiences. I video-recorded two different groups of learners learning English in middle schools in Algeria involved in the research. I video-recorded four classes with each of the two groups. I intended to interview the maximum of inspectors and teachers. Only ten inspectors and twenty five teachers accepted to be involved in the research.

Due to the lack of models of presentation and analysis of interactions from a socio-constructivist point of view, this thesis brings together two lines of research.

The first develops a methodological framework for the presentation and analysis of structural patterns of classroom interactions. The second develops a methodological framework for the analysis of the impact of the affordances of teachers' efforts to implement the CBA on learners' engagement in the collaborative knowledge construction process from a socio-constructivist perspective.

## **7. Structure of the Thesis**

This thesis contains five chapters. The current introduction explained the aims and objectives of this research and positions the study within a socio-constructivist framework of language learning.

The first chapter reviews the existing theoretical and empirical work on which the research is based. It demonstrates that learning mediated by different affordances of tools of communication is fundamentally social in nature. The chapter starts with a consideration of key elements of the socio-constructivist approach as explained by Vygotsky (1978/1981) and the way they relate to learning, in particular language learning. The chapter then discusses the definition of the CBA and its underlying main learning concepts. The socio-constructivist perspective is then related to studies of competency based pedagogy. With attention focused on classroom socio-educational interactions, key aspects of the collaborative meaning construction process and gaps in the literature were identified, showing the relevance of the research questions raised by this thesis. The chapter finishes by defining our research questions.

The second chapter starts by describing the data and procedures of data collection. Then, it explains my procedures towards the development of the methodological framework for the transcription and analysis of the socio-educational-mediated interactions from a socio-constructivist point of view.

The third chapter deals with the analysis of interviews to elucidate participants' perceptions about their overall training and teaching experiences.



The fourth chapter shows how the methodological framework is implemented in this study. It shows how data from the classroom lessons is analyzed and the results obtained.

The fifth chapter deals with the interpretation and the discussion of the results of the present study.

Finally, this thesis suggests some methodological and pedagogical recommendations. Besides, it deals with the limitations of this research.



## CHAPTER ONE: REVIEW OF THE LITERATURE

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## **Introduction**

The pedagogic design of the CBA has been greatly informed by the socio-constructivist view of learning, particularly the importance of mediation. The mediational tools present in classrooms are significant in that they allow groups of people to learn together rather than rely solely on their experience and cognitive development. In this regard, the present study adopts a socio-constructivist view of learning. It seeks to examine the impact of the affordances of classroom interaction mediated by teachers' scaffolding in English language classroom on the collaborative knowledge construction process.

In this chapter, the theories and the empirical studies conducted to date are reviewed. I start by examining the key concepts of socio-constructivism and their applicability to language learning and particularly to language learning. This necessitates a definition and understanding of the concepts of 'knowledge', 'interaction', 'collaboration', and 'knowledge construction' within a socio-constructivist approach. I then proceed to a critical review of some empirical research that attempted to examine the affordances of classroom interactions in the context of the implementation of the CBA. I finish by raising the research questions that need to be investigated in this study.

### **1. Constructivists' and Socio-constructivist Perspectives on Knowledge and Interaction**

There are two different versions of Constructivism but they commonly agreed that learning is an active process of knowledge construction. One of the common threads of cognitive constructivists and socio-constructivists is the idea that development of understanding requires the learner to actively engage in knowledge construction. Jenkins (2000) argued that: "The development of understanding requires active engagement on the part of the learner" (p: 601). Brooks and Brooks (1993) stated that: "The theory defines knowledge as temporary, developmental, socially and culturally mediated, and thus, non-objective" (p. vii).

Thus, constructivists have shifted the focus from knowledge as a product to knowing as a process. Cognitive constructivism and social constructivists argue that knowledge is the result of social as well as individual processes of learning. However, the role of social interaction and the ways in which it relates to second language learning are interpreted differently by the two constructivist theories. Cognitive constructivists believe that learning is individual then social. However, socio-constructivists believe that social learning precedes individual learning. In order to gain a better understanding of the concepts of ‘knowledge’ and ‘interaction’, it is worth examining the way these two concepts emerged and evolved differently from cognitive and social constructivist points of view.

Cognitive constructivism is a form of realism where reality can only be known in a personal and subjective way. This view holds that knowledge is a subjective interpretation imposed by the individual on the world. Knowledge does not exist outside of the learner, it exist inside his/her mind. Doolittle and Hicks (2003) explained that cognitive constructivism disregarded the social context in which the learning process occur and referred specifically to knowledge construction as an internal process and that each individual constructs individually his/her own meanings. In this direction, von Glaserfeld (1995) argued that knowledge is not passively received but built up by the cognizing subject. Cognitive constructivists argued that we can understand the learning process better by first understanding how the human brain processes and learns new information.

The establishment of the epistemological basis for cognitive constructivism is largely attributed to the work of Von Glaserfeld (1998) who was greatly influenced by Piagetian theories on the nature of knowledge and cognitive development. Piaget focused on the active role of the individual in learning. He considered children’s active construction of their own understanding as fundamental to their cognitive growth, and viewed peer interaction as a potent source of progress (Piaget, 1932). He explained that: “All knowledge is tied to action, and knowing an object or an event is to use it by assimilating it to an action scheme” (Piaget, 1967, pp. 14-15). He considered learning as a product of self-organization which according to Payne involved:

[a] product of self-organization involving an iterative process whereby interaction in an experiential world produces a state of mental dissonance in the individual, to be resolved by adaptation or cognitive changes entailing the coordination of inner experiences with outer experiences, within the specific community which would restore the individual to a state of equilibrium. (2009, p. 233)

Furthermore, Piaget believed that our understandings of reality are constantly being revised and re-constructed through time and with respect to exposure to new experiences. He further argued that:

[w]hat remains is construction as such, and one sees no ground why it should be unreasonable to think it is the ultimate nature of reality to be in continual construction instead of consisting of an accumulation of ready-made structures. (1970, pp. 57-58)

Accordingly, interactions between the cognitive processes and environment are considered as sources of perturbations or cognitive conflicts and opportunities for mutual adaptation that lead to changes in individual interpretations of experiences from the world (Von Glaserfeld, 1989). Interaction is considered then as the source of cognitive conflicts and cognitive change. Hence, cognitive constructivists view learning as an active, creative, and interactive process and view knowledge as something children must construct and less like something that can be transferred (Florin, 1990).

Constructivists believe that, because individuals make meaning based on their prior experiences, anything they produce is considered as knowledge. Von Glaserfeld (1998) introduced the concept of viability of knowledge to replace the concept of truth in constructivism. According to Von Glaserfeld (1998), viability of knowledge is relative to a context of goals and purposes.

While from cognitive perspectives knowledge is generally represented in terms of cognitive structures that are acquired and organized in memory, social constructivists generally regard learning as the appropriation of socially derived forms of knowledge that are not simply internalized system over time but are also

transformed in idiosyncratic ways in the appropriation process (Hicks, 1995). This is to say that while cognitive constructivists stress heterogeneity of thoughts as individuals actively interpret social and cultural processes, highlighting the contributions that individuals make to the development of these processes, social constructivists emphasize the homogeneity of thought among the members of the community engaged in a collaborative work.

Social constructivists have taken Von Glaserfeld's concept of viability further, defining viability as that which fits the social context, not only the individual's schemes and interpretations. It is through checking out our understandings and perspectives with others that individuals develop a sense of the viability of ideas. Knowledge hence is always connected to the situations in which it was constructed. It exists not only in people's minds as argued by cognitive constructivists but "Is spread across its component parts, some of which are in the mind and some in the world much as the final picture on a jigsaw is spread across its component pieces" (Brown and Palincsar, 1989, p. 399).

From this viewpoint, the ideas and thoughts identified within the mind of individuals are the products of interactions with the social context. Socio-constructivists contend then that knowledge exists as a social entity, not just as an individual possession and that the essence of human knowledge is that it is shared. From this perspective, mental functioning of the individual is not simply derived from social interaction; rather, the specific structures and processes revealed by individuals can be traced to their interactions with others. Socio-constructivism hence has brought out how knowledge construction and appropriation are as much a function of the immediate context of social interaction as of individual cognitive processes. Vygotsky (1981) rejected the conventional separation between the social and psychological aspects of cognition and development and considered the learning process as both social (inter-mental) and individual (intra-mental). He argued that inter-mental learning (in which the process is mediated by other persons and cultural artefacts and signs) precedes intra-mental learning in which the capacity is carried out by the individual acting via psychological mediation (Lantolf, 2000). Lantolf believed that we organize our thinking through the organization

of the artefacts present in the learning environment. The socio-cultural view of learning can be broadly stated as a process of “enculturation into a community of practice” (Cobb, 1994, p. 13) whereby guided social participation in shared knowledge construction, mediated by technical and/or psychological tools, provides learners with support to increase the potentiality of cognitive growth, and lead to transformations in individual understandings with the appropriation of the shared knowledge (Lantolf, 2000). In this way, Vygotsky’s semiotic theory provided a link between psychological processes within the individual and cultural forms of behaviour between individuals and suggested that “the internalization of cultural forms of behaviour involves their reconstruction on the basis of sign operations” (Vygotsky, 1978, p 57). Accordingly, through these mediational means, or ‘sign operations’, external social interactions become ‘internalized’, i.e. reconstructed internally, as psychological processes or ways of thinking. From a Vygotskian perspective, cognitive development is studied by examining the processes that one participates in when engaged in shared endeavours and how this engagement influenced engagement in other activities.

Constructivists from different persuasions agree that learning is an active process of knowledge construction. I now move on to consider how knowledge construction is considered by them.

The notion of knowledge construction underpins the conception of CBA; hence it is central to the current research. To create any kind of knowledge, for instance meaning, learners need to go through different steps. This is in keeping with the fundamental socio-constructivist view which states that the social, the physical and the cognitive are parts of the same larger processes that also underlie second language (L2) development (Atkinson, 2002). Thus, meaning construction is a comprehensible process made up of different interactive constructs, namely collaboration, mediation, ZPD and internalization (these concepts are defined in the coming section 2.3). They are potential clues that can be used as an indication of students’ engagement in collaborative meaning construction. Thus, in order to provide a theoretical as well as a methodological framework for the examination of

the concept of the meaning construction process in this study, it is necessary first to look at what this process entails.

## **2. Definition of the Knowledge Construction Process**

The very first important theme in Vygotsky's hypothesis is that individual development, including higher mental functioning, has its origins in social sources (Wertsch, 1991). It has been stated that every function in the cultural development of the child appears twice: first in the social and later in the psychological and that "All higher psychological functions are internalized relationships of the social kind, and constitute the social structure of personality" (Vygotsky, 1960, pp. 197-198).

Knowledge is then created among people in their collaborative meaning-making. Learning is hence viewed as a meaning-making process which takes place in social interaction when participants collaborate to carry out learning activities to attain a shared goal. Learning activity is a matter of constructing new understandings and meanings within contexts of instruction. The concern is not with the transmission of known facts but with the construction of personally meaningful knowledge. Karppinen (2005) clearly stated that constructive learning means that learners accommodate new ideas into their prior knowledge. He added that this process of constructing knowledge is a process of meaning-making, not of knowledge-reception. Knowledge construction is then seen as a social and collaborative process in which different perspectives are exchanged, negotiated and then incorporated (Pea, 1993). Solomon (1993) explained that this exchange of ideas and negotiation of meaning affect the individual's cognition as well as the group's distributed cognitions as participants transmit, negotiate and transform their ideas and create new knowledge. Socio-constructivists' theoretical insight rested on the premise that individuals learn better when their knowledge is challenged, reformed, and elaborated through interaction with others (Mercer, 1994). When challenged, individuals discuss and criticize others' contributions, modify them, and/or present alternatives. By doing so, learners are pushed to work collaboratively



to test multiple perspectives and create an agreed upon new knowledge (Chan, Burtis, and Bereiter, 1997).

It becomes clear that collaboration serves as an instrument for thinking because in the process of explaining, clarifying, elaborating, and defending our ideas and thoughts we engage in cognitive processes such as integrating, elaborating and structuring (Brown & Palinscar, 1989; Jonassen et al., 1995). Therefore, it is in the process of articulating, reflecting and negotiating that learners engage in a meaning-making and hence learning. Learning is thus an active process in which individuals co-construct meaning by sharing concepts and opinions and negotiating by analyzing, discussing, and evaluating the shared knowledge, and experiencing new situations and applying newly constructed knowledge. Viewed from this perspective, collaborative work is hence considered to involve both externalization and internalization processes through which meanings constructed between people in the inter-mental plane are taken in, transformed, and turned into personal meaning-making systems by an individual.

So far, the meaning construction process is defined as a system made up of different constructs that are interactive, interrelated and interchangeable. A change in one element causes a change in the rest of the elements. For a successful transfer of socially newly constructed knowledge from the inter-mental to the intra-mental planes to be possible, the different constructs need to operate together. Thus, to examine and analyze the meaning construction process, there is a need to understand its underlying core elements and the way they relate to each other.

## **2.1. Mediation and Mediated Social Interaction**

The second main Vygotskian theme identified by Wertsch (1991) is that human action is mediated by tools and semiotic signs where “The semiotic means include: language; various systems of counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps and mechanical drawings; all sorts of conventional signs and so on” (Vygotsky, 1981, p. 137). The semiotic means are both the tools that facilitate the co-construction of knowledge



and the means that are internalized to aid future independent problem-solving activity. In the same line of thought, Leontiev (1981) called this process appropriation and stated that:

[c]hildren cannot and need not reinvent artefacts that have taken millennia to evolve in order to appropriate such objects into their own system of activity. The child has only to come to an understanding that it is adequate for using the culturally elaborated object in the novel life circumstances he encounters.

(1981, p. 63)

This is to say that learning is considered as a semiotic process attributable to participation in socially mediated activities. They function as a mechanism through which the transformation of constructed knowledge from inter-mental to intra-mental functioning occurs. As assumed by Vygotsky (1978), effective learning occurs through collaboration in mediated activities, and with support from people and objects present in the learning environment.

Socio-constructivism emphasizes then mediated social interaction as the source for knowledge construction. Mediated socio-educational interactions provide opportunities for the social and individual planes of psychological activity of learners to interact. This idea is better explained in the description of the following construct.

## **2.2. ZPD**

Vygotsky (1978) argued that learners work together to co-construct knowledge through agreement between the different cognitive patterns within an individual's brain and consensus, which is an agreement between the different cognitive patterns of different individuals. He further explained that learners acquire new strategies and knowledge as they engage in collaborative activities and internalize the effects of working together. Learning triggers internal developmental processes that operate only when the child interacts with people and objects present in the environment. In support of this perspective, Vygotsky (1981) introduced the

construct of the ZPD which he defined as the difference between what a person can achieve when acting alone and what the same person can accomplish when acting with support from someone else and/or cultural artefacts. He argued that to understand the relationship between development and learning we must distinguish between these two developmental levels: the actual and the potential levels of development. The actual refers to what the child can accomplish and demonstrate alone. Potential levels of development are what children can do with assistance, under adult guidance or in collaboration with more capable peers. ZPD is regarded as a better, more dynamic and relative indicator of cognitive development than what children accomplish alone.

Although Vygotsky framed all the key constructs of his theory in terms of children, different researchers have shown (Ravenscroft, Wegerif, Hartley, 2007) that it can be applied to situations involving a learner and a more experienced peer or the teacher.

ZPD is thus defined as the site where the social forms of mediation develop. It is more appropriately conceived as the collaborative construction of opportunities for individuals to develop their mental abilities (Lantolf, 2000). ZPD is established between the learner, tutor, and the learning environment which form a “dynamic whole” (Duffy & Cunningham, 1996. p: 185). Vygotsky's ZPD emphasizes his belief that learning is, fundamentally, a socially mediated activity. Thinking and problem-solving skills can, according to Vygotsky, be placed in three categories. Some can be performed independently by the child. Others cannot be performed even with help. Between these two extremes are skills the child can perform with help from others. Those skills are in the ZPD. If a child uses these cognitive processes with help of others, such as teachers, parents, and fellow students, they will develop skills that can be independently practices.

I may say that rather than a solitary process, the ZPD are zones where learners collaborate through articulating ideas, sharing information, negotiating meaning through socially mediated interaction and hence co-construct new shared knowledge with support from the tutor and more advanced peers. This support from the tutor and interested researchers is largely known as scaffolding. In the field of

teaching and learning, a fundamental concept is essential for the creation of the ZPD. This concept is known as scaffolding. Donato (1994) explained that “Scaffolded performance is a dialogically constituted inter-psychological mechanism that promotes the novice’s internalisation of knowledge co-constructed in shared activity’ (p. 41). Jonassen (1994) argued that the collaborative process of knowledge construction requires articulation and reflection on knowledge which involves both internal negotiation and social negotiation under the guidance of the tutor and peers. According to Vygotsky’s ZPD, scaffolding is an integral part of the collaborative knowledge building and meaning construction process. Research on scaffolding in language learning has shown how learners working together reach a higher level of performance by providing assistance to one another (Brooks, 1992; Donato, 1994; Ohta, 1995; Ohta, 1997; Ohta, 1999). It is defined as the support provided by peers, teachers or reference sources such as dictionaries which enable students to perform increasingly well (Yang & Wilson, 2006). However, Duffy and Cunningham (1996) argued that the sources of scaffolding are not limited to the tutor or expert peers, but encompass the affordances of the whole learning environment which include “any artifact in the environment... as well as the cultural context” (1996, p.183). Bonk and Kim (1998) stated that: “Scaffolding is a teaching method that provides the learner with support or assistance to complete a task or solve a problem that would not have been mastered without help” (P. 70). In this regard, Hammond and Gibbons (2001) interpreted scaffolding as high challenge and high support. To put it differently, teachers need to set up tasks which challenge students’ current capacity and provide them with support to enable them to perform at this new level. Teachers need great skills in assessing and then exploiting their students’ ZPD.

### **2.3. Collaboration**

Collaboration is the process whereby students work together to realize shared goals and objectives (Mangenot & Nissen, 2006). Collaborative knowledge construction is the creation process of knowledge as a social product (Bereiter &

Scardamalia, 1996). Distributed cognition is defined as cognitive processes that are distributed across multiple members of a social group who think in conjunction using available culturally provided tools and implements (Salomon, 1997). Hutchins (1995) affirmed that cognition is situated in socio-cultural environments that affect knowledge construction therefore cognition processes do not occur solely 'inside' the individual. Collaboration therefore allows learners to share ideas, negotiate them and co-construct new knowledge of theories and concepts (Hmelo-Silver, 2004; Palincsar & Herrenkohl, 1999) and shared meaning (Roschelle, 1996). When collaborating, learners distribute the cognitive load among group members as well as support each other taking advantage of the distributed expertise within the group (Pea, 1993). They discuss and integrate each other's perspectives, synthesize their ideas, and co-construct the meaning of tasks. Hence, it has been argued that integration occurs when individual learners operate on the basis of the reasoning of their learning partners while working together (Nastasi & Clements, 1992).

## **2.4. Internalisation**

As is explained earlier, successful learning involves a shift from collaborative inter-mental activity to autonomous intra-mental activity. Internalisation of social interactive processes happen in the ZPD (Vygotsky 1978; Wertsch 1985), the interactional space within which a learner is enabled to perform a task beyond his or her own current level of competence, through assisted performance. So, the convergence of thinking with culturally created mediational artefacts occurs in the process of internalisation, or the reconstruction on the inner, psychological, plane, of socially mediated external forms of goal-directed activity. Internalisation is, then, the process through which a person moves from carrying out concrete actions in conjunction with the assistance of material artefacts and of other individuals to carrying out actions mentally without any apparent external assistance (Lantolf, 2000). From this socio-constructivist perspective, as learners participate and engage actively in classroom activities, they internalize what

they have learned from working together (Palincsar & Herrenkohl, 1999; Vygotsky, 1978).

### **3. Interrelationship between the Constructs of the Meaning Construction Process**

As is explained above, the core notions underlying meaning construction process are the concepts of mediation, collaboration, ZPD and internalization. The examination of the different concepts shows that they are interactive, tightly interrelated, and influence each other. They are in a relationship of complementarity. If meaning construction is to take place, the different elements need to operate together. For instance, the zone of proximal development cannot be created if learners do not interact and if support (scaffolding) is not provided by more experienced learners or teachers. Guided participation in shared meaning construction mediated by technical and/or psychological tools provides learners with support that enables higher potentiality of cognitive growth, and leads to transformations in individual understandings with the appropriation of such shared knowledge. When collaborating, learners work together to build new active, responsive and common understandings and meanings through sharing and negotiating information. When sharing and negotiating information, learners exchange ideas, explore issues, take positions, build on each other's ideas (Pawan et al., 2003) and scaffold each other (through explaining, agreeing, disagreeing, arguing), negotiate (solve communicative problems), reflect on and re-evaluate these positions, and subsequently reach higher-level understandings which might result in construction of new shared knowledge (Kamhi-Stein, 2000; Lapadat, 2002; Pena-Shaff & Nicholls, 2004).

Therefore, instances of meaning construction are marked by the presence of exchanges where participants share information, explore issues, question, check, clarify, challenge and integrate the shared information.

I conclude by saying that what counts as evidence of learning in this tradition is the co-construction of new meanings through collaborating in ZPD

where learners are provided with different mediational tools and scaffolding that support the collaborative construction and its internalisation. This has implications as far as the analysis of the meaning construction process is concerned. The analysis of this process implies the analysis of the different elements all together, without which an understanding and exploration of this process is deemed impossible.

Different language learning researchers made claims about the importance of the notions underlying knowledge construction processes to language learning. The next section highlights these claims.

#### **4. Socio-Constructivism and Language Learning**

Language learning is one of the most impressive mental operations of the human mind in view of the complexity of grammatical structures, the size of the mental lexicon, and the multiple functionality learners of any language are confronted with. Language learning theories have drawn on and been influenced by different learning theories, including behaviourist and cognitive theories of learning. They have been the main influences on materials and curriculum design in recent decades. The limitations of these approaches have become apparent because of their emphasis on objectives and transmitting information rather than developing learning strategies, skills and competencies. Consequently, social-cognitive approaches which focused on knowledge as something that should be constructed rather than transmitted, hence adding a cognitive as well as a social apprenticeship to the learning process, have been increasingly implemented in the design of learning and teaching approaches. Language learning is therefore described as an interactive and a dynamic process, in which new meanings are constructed when learners are placed in a collaborative social context of exploration rather than in a context of mere formal instruction. In this context, Lantolf and Pavlenko stated that socio-constructivist theories of language learning supported their belief that it was the use of language for communication which leads to language development (Lantolf & Pavlenko, as cited in Larsen-Freeman, 2003). Larsen-Freeman (2003)

pointed out that language learning is always connected to an action and a purpose. In the same line of thought, Van Lier's (2000) ecological view of L2 learning considered interaction and negotiation of meaning to be at the core of the language learning process. He stated that for negotiation of meaning to take place, learners should be involved in interactions and collaborations where they share the same purpose rather than just a generic conversation.

Many language learning researchers agreed on the applicability of the socio-constructivist approach to teach and learn languages. It has been argued that social constructivism is able to bring about changes to the epistemology of the learning of science, mathematics, and foreign language learning as well. Knowledge construction can be a useful theoretical framework to help transform the epistemology of L2 learning (Lantolf, 2000). They suggested that simple training in structural and vocabulary knowledge would not result in real linguistic competence and language proficiency. The development of skills and strategies of language processing, learning competencies and skills of meaning construction are needed for effective learning to take place.

Therefore, L2 learning researchers have advocated the expansion of its theoretical framework of research to the socio-cultural perspective and emphasized the integration of collaborative learning into L2 learning. Language learners need individually and collaboratively to construct the meaning of words, phrases, sentences and texts. Learning involves an active process in which "learners construct meaning by linking new ideas with their existing knowledge" (Naylor & Keogh, 1999, p.93).

For instance, it is argued that learners are able to ultimately enhance their lexical ability through generating, sharing and improving their conceptual artefacts (e.g. grammatical rules or meaning of words) by interactional moves (Chen, Wen & Looi, 2009). These authors stated that: "learners may improve their ideas in essay-writing or text-comprehension through brainstorm-and-inquiry approaches, so that their syntactic ability as well as lexical ability can be improved at the same time" (2009, p. 337).



Another example given by language researchers is reading. Social constructivists considered reading, like learning, as a social practice where “the social context affects when you read, what you read, where you read, who you read with and, of course, why and how you read” (Yang & Wilson, 2006, p. 366). Luke and Freebody (1990) pointed out that making meaning is another essential reading resource where it is not enough to just hear or see the words on the page. The readers also have to make efforts to interpret and make sense in their own minds of what the writer says, which is intra-mental dialogue in Vygotsky’s terms. In listening to the author’s words and discussing them with their peers, students need to construct their own representation of the author’s message, which is inter-mental dialogue (Lewis & Slade, 1994).

Meaning construction with the aim of allowing learners to develop greater flexibility and awareness on communicative and linguistic learning levels needs is the basis for L2 learning.

## **5. Educational Reform in Algeria**

For any responsible authorities in the world, enhancing the educational system is a priority, since education is the tool by which the leaders can form the future generations.

Ignored problems in any educational system may expand to more serious problems at a larger scale in the future society. The Algerian policy makers, being aware of the seriousness of this sensitive sector, have been concerned with supplying the future generations with the ‘appropriate’ training. They have been setting up special goals to achieve the intended model future citizen.

Therefore, since the independence (1962), the Algerian educational system has witnessed many changes according to the most ‘said efficient’ teaching methods in the world. The Grammar Translation Method was inherited from the already prepared French colonization syllabi. The Audio lingual Method was soon adopted, then, because of its behaviourist approach, relying on the principle of stimulus-response, the learner was treated as a ‘machine’ that responds to the teacher’s



stimuli to learn. This proved to be unable to form learners who can communicate effectively as far as language teaching is concerned. For this reason, recourse was called from the communicative approach in the 1980s, with the ‘teaching with objectives method’. However, little was done to prepare the Algerian classrooms to adopt this teaching method, mainly in terms of classroom density and teaching tools. As a result, it proved to be a failure (Benadila, 2013; Bouhadiba, 2006; Semmouk, 2005).

An urgent reform at all the educational levels was urgent in order to remedy the problems found in the previous system. There was a transition to the fundamental school of nine years of studies. It was split into two educational stages, which are the primary and the middle school. The primary school includes a five year studies period while the middle encompasses four years with a final national exam at the end of each stage. In order to solve the problem of those learners who have already been schooled in the previous system and finished their first part of six years of studies, they were integrated within the new system by being learners of first year middle school instead of being a seventh year learner, studying four years in the middle school, instead of three. After this stage of studies, the learners go to the secondary school to pass three years ending with the national exam of ‘baccalaureate’, before passing to university studies.

The change was not restricted to the academic years distribution but in the teaching approach as well. The previous teaching method; ‘the teaching with objectives’, relied on teaching units to be accomplished in a definite period of time, marginalizing the learners’ achievements. It was substituted by a teaching method adopting the CBA principles. In language teaching, the term CBLT can be found in writings about the topic to refer to the Competency Based Language Teaching. In other terms, the approach of teaching is termed. CBA, to refer to the theory of teaching/ learning believed in, and which appears in the teaching of any subject in the educational curriculum, be it Mathematics, Physics, or Arabic, while the term CBLT is restricted to the teaching method adopted for teaching a English as a Foreign language, in our case, it is EFL.

Despite all the efforts spent in Algeria in order to pursue the mission of enhancing education, the educational level in general, not least that of EFL has witnessed a dilemma in the 1980s onwards. Because of the spoon-feeding nature of the adopted teaching method as well as being bent to time and not to the learners' achievements, EFL learning has reached an alarming situation in which it was divorced from its communicative nature. It became, thus, treated by the learners as a mere subject to be restricted to classroom use and never go beyond its boundaries. It became learnt solely on purely instrumental motives such as getting the average grades to pass to the next level (Bouhadiba, 2006).

In the educational reform, EFL is given a special status, being the language of globalization. It is learnt since the learners' first year middle school, after being acquainted with French in their primary school education; the country's second language. EFL is compulsory for the four years of middle school, but with a coefficient that is less important component to the other subjects like Mathematics, Arabic, and Physics. EFL remains compulsory in the next stage of studies; i.e. the secondary school, before taking their final national baccalaureate exam. In this three years stage, its coefficient depends on which studies stream is it; it is more important for literary streams than scientific or technological ones, in which technical and scientific subjects like Mathematics and Physics are more important.

As far as the middle school is concerned, since their first year middle school, the learners study EFL three times a week with a specialized teacher in EFL. They take two tests and one exam each trimester, that is to say three times a year. The change of teaching method has brought new requirements from the teacher.

## **6. CBA in language Teaching and Learning**

Socio-constructivist theory of learning informed the design of the CBA of language teaching and learning classroom. It focuses on "what learners are expected to do with the language" (Richards & Rodgers, 2001, p. 141). This approach emerged in the United States in the 1970s and can be described this kind process as "defining educational goals in terms of precise measurable descriptions of the

knowledge skills and behaviors students should process at the end of a course of study.” (Richards & Rodgers, 2001, p. 141).

In CBA, learners study English within situations and contexts that are varied and relevant. In other words, language is introduced and practiced in different situations that are similar to situations that could occur in real-life. The aim is that learners develop language and problem-solving abilities that they can use in new and challenging situations in school and out of school. Therefore, learners will see learning English as useful to their student life and future.

CBA involves clearly describing learner competencies which are described as: the ability to act in English using a range of skills and knowledge; and the ability to use English in various situations that may be different from the situations in which the skills and knowledge were learned.

Thence, the competencies are linked to learners’ needs in and out of school. They learn to speak, read, listen and write, and to re-use language in new situations. Teachers teach these skills in an integrated way, not separately, since that is how they are used outside the classroom (Griffith, 2014). It is important that teachers help learners to practice English in varied contexts or situations if they are going to be able to remember and use what they have learned when they need it. It takes a lot of practice using English in different contexts for learners to be able to use English in real-life situations.

CBA thus is based on linking learning carried out at school to varied and relevant contexts-of-use in order to make the learning useful and durable. The aim is for learners to develop intellectual, linguistic and problem-solving capacities in school that will enable them to tackle cognitively and pragmatically challenging situations both in and out of school. Learners will thus see learning as being worthwhile and having relevance both for their studies and their future.

CBA focuses on the action of foreign language by helping learners to develop capabilities as speakers, listeners, readers and writers. It can be motivating and inspiring for teachers to see students using English to express themselves and

complete tasks competently and confidently. We want our learners to reach their full potential in the subject we are teaching and to become active members of their community and the world. By developing English competency, the learners are able to express themselves and communicate about their world to others, and gain access to the international community. In addition, as learners take on an active role as English language learners, they take responsibility and develop problem-solving skills useful to their future as citizens of the world.

## **6.1 Competency-Based Approach and Socio-Constructivism**

Social interaction is central to the CBA pedagogy. Jonnaert (2015) and Griffith (2014) claimed that better possibilities for greater interactivity between learners, and between teachers and learners can be achieved using this teaching approach. These new possibilities have been linked with increasing interest in social constructivist pedagogy, which focuses on social interactions to build knowledge together in groups. Jonassen et al. (1995) suggested that potential for increased opportunities for collaboration and mediated social interactions among learners has connected classroom communication to socio-constructivist pedagogy.

Arnold and Ducate (2006) explained that the fact that many educators see CBA as a valuable type of teaching approaches that fits with socio-constructivist pedagogy is partly due to certain inherent features of the methodology, which affect and shape participants' mediated interaction. CBA invites learners to collaborate to construct knowledge through the creation of ZPD. There have been many reports of successful implementations of CBA in different international in relation to the promotion of knowledge construction processes. Researchers claimed that CBA often engages participants in intensive information exchanges (Anderson & Kanuka, 1998; Pawan et al., 2003), in-depth information processing (McKenzie & Murphy, 2000), critical thinking (Newman, 1995; Newman, 1996) and engagement in argumentation processes like (Doolittle & Hicks, 2003; Pena-Shaff and Nicholls, 2004) that

facilitate collaborative knowledge construction (Gunawardena et al., 1997; Anderson & Kanuka, 1998; Kamhi-Stein, 2000; Sengupta, 2001). A common idea runs across all of them which is the importance of the affordances of the methodology for the creation of better opportunities for increased levels of interactions and collaborative knowledge construction. Researchers (Wang & Chen, 2009; Mirza & Lamy, 2010; Bower, 2011) suggested that the implementation of CBA provide unique opportunities for mediated interactions, collaboration and constructive discussion in language classrooms. They stressed that it is particularly suited to provide the socio-cognitive support and mediated social interactions seen as fundamental to the creation of ZPD and promotion of collaborative as well as autonomous learning. The underpinning teaching pedagogy is claimed to facilitate constructivist teaching and learning.

## **6.2. Definition of the Concept Competency**

Whenever the term competency is mentioned, a know how to act process is implied. A competency is a system of conceptual and procedural parts of knowledge organized into operating schemes that help identify a problem-task and its solution through an efficient action within a set of situations. Mrowicki (1986, as cited in Weddle, 2006) defines competencies as follows:

“Competencies consist of a description of the essential skills, knowledge, attitudes, and behaviors required for effective performance of a real-world task or activity. These activities may be related to any domain of life, though have typically been linked to the field of work and to social survival in a new environment.” (p. 2)

Richards and Rodgers (2001) cite Docking (1994) who defines competency as

“An element of competency can be defined as any attribute of an individual that contributes to the successful performance of a task, job, function, or activity in an academic setting and/or a work setting. This includes specific knowledge, thinking processes, attitudes, and perceptual and physical skills.” (p. 145)

Having said this, a competency may be then defined as the ability to act using a range of skills and knowledge in various situations that may differ from those in which they were learned. An individual's competency in a certain area develops over time. A competency is firmly linked to a context-of-use. In other words, students will be prepared to use English effectively in real-life situations by drawing on and manipulating what they have learned in school. Rationale in this curriculum, language is viewed as a set of interacting competencies. Therefore, the ability to use language as a speaker, listener, reader and writer is critical in the goals of the curriculum. The program is therefore always centered on the learners and the development of their mental and social capacities in order for them to acquire, in the most effective way possible, competency in English. Competencies are linked to their in-school and out of school needs. Learners learn to speak, listen to, read, write and re-use what they have learned in new situations. Nunan (2007) suggested that these skills are taught in an integrated way, as used in real-life. It is no longer sufficient to dispense information to learners, rather the aim is to help learners to play an ever more active role in their own development and make them responsible for their own learning. In order to take this active role, learners need opportunities to find the answers to questions arising from their own daily life and to become more responsible and autonomous. In this approach to learning, learners confront complex and significant situations; their personal process of adaptation relies on their cognitive and affective resources while also taking into account the influence of their social and cultural interactions with the world around them. By framing the aims of the curriculum in terms of competency, the focus is on what learners can actively do in and with the language rather than on a discrete list of items they are expected to remember. Hence, I conclude that a competency is a set of mental and social capacities that learners have to develop to use language in real life context and situations.

## 7. CBA in Algeria

One might come across a diversity of definitions of CBA. We will attempt to give a comprehensive one as presented by the Ministry of National Education in the national program of EFL in the First Year Secondary School teachers' guide (2004). It is defined in relation with the definition of the competency, which is:

“... a know how to act process which interacts and mobilizes a set of capacities, skills and an amount of knowledge that will be used effectively in various problem- situations or in circumstances that have never occurred before.” (p. 4)

Although the competency-based program is a novelty, its objectives are not new. Actually, educationists have always been interested in developing general “know- how” processes and in fixing knowledge acquired in class. This program will allow the Algerian learner to develop a capacity to think and act according to a vision of a world that he will construct day by day. Establishing a program based on logic that is centred on competencies fits in a set of instructions commissioned by the Ministry of Education. These instructions are based on worldwide research that highlights the importance of the links between learning and context of use, thus helping the learners in making learning meaningful. For several decades, competencies have been used in the educational field. Since emphasis is put on the learner's social and personal development, the aim is to make him reinvest his knowledge while performing tasks at school level as well as at social and professional levels. The program has been conceived with the purpose of ensuring sustainable and viable learning.

Central to the Ministry of National Education's goals for national education reform has been the development of school curricula aligned to a CBA. The major focus has been the facilitation of this process by working with the Ministry to ensure that English language teaching and learning education in Algerian schools is carried out by teachers and supervisors trained to the highest standards of



international best practice in the delivery and supervision of a CBA syllabus. Upon assessment of Algeria's previous language learner standards, it was determined that teachers would benefit from the clarity provided by an integrated framework of articulated strands set out for each year of middle school and high school and describing the levels of competence to be achieved each year in each of the following areas of English language learning: oral interaction, listening, reading, productive speaking, writing and linguistics. In this way, teachers could coordinate their teaching to build on and prepare for prior and future years of study, and they could more effectively teach and assess their students using a clear guide for expected student achievement. To this end, the

EFL teaching is promoted in CBLT in the sense that the learners should be able to use it to communicate and not to keep their linguistic knowledge passive. Learners are trained, since their first year of the middle school education, to communicate orally as well as in the written form. They should master functions in which they need to use a set of linguistic forms. These are, thus, situationalized and never presented overtly (Comission Nationale des Programmes, 2004). The English syllabus for the middle school four years aims at achieving linguistic, methodological and cultural objectives.

The learner should achieve a certain communicative competence that enables him to communicate effectively. None of the four linguistic skills should be neglected. Since their first year, the learners are trained on listening and speaking, including pronouncing the different English sounds. They are, also, exposed to written texts in which they explore different functions and different linguistic forms which they should reproduce later. They become responsible for their own learning so that they should manage how to learn. They are exposed to other cultures than theirs. They can compare their own culture to others so that tolerance is raised, which is an important component of globalization.

One might dare to conclude the EFL syllabus during the four years within the educational reform is said to enable the learners to learn English effectively if the teacher knows how to monitor his classroom practice and present his



material attractively to raise his learners' motivation. Indeed, CBLT carries 'glittering' tenets that might solve the educational dilemma.

One cannot deny that in a vertical standpoint, considering particular individual learners, the approach has proved to be fruitful, giving tangible results in terms of the learners' level, i.e. a second year middle school learners' linguistic level is remarkably better than a former ninth year fundamental school learner' ability to use English. However, adopting a horizontal standpoint, the concrete situation appears quite different from the expected one. EFL teaching is still suffering from several problems that have to be solved.

### **7.1. Algerian English Competency-Based Framework**

Algerian English Framework (AEF) was developed as a guideline for the achievement of English language learners in grades six through twelve (See appendix 5). It draws on the internationally recognized Common European Framework, while reflecting the Algerian context and working within it.

Framing learner end-of-year achievement as competencies highlights the students as the agents of learning and fosters a change from the traditional classroom role of teacher as the front of knowledge and students as passive receivers of this knowledge. In this older dynamic, it is sufficient for students to know about the language and not be required to be able to use it for communicative purposes. However, in our modern world, a passive knowledge about English is not sufficient, particularly after seven years of study. The AEF will be used to aid teachers in coordinating with each other and materials writers to support Algerian students of English in achieving English language proficiency that meets the challenges and requirements of communicating in the international community.

A beginning language learner can do less in each competency than an advanced language learner. This is reflected in the AEF which describes the level of attainment of each of the competencies for each grade in school. In order to develop interactive, interpretive and productive competencies, language learners also need to develop supporting competencies. Supporting the idea that whatever there are

strategies include linguistic Competency and strategic Competency. First, linguistic competency includes the learning and mastery of grammar, pronunciation and the vocabulary needed in a given context. There is a separate set of descriptors of linguistic competency for each grade level. Second, language strategies are ways that help students to acquire, remember, organize and use information on an ongoing basis. The language strategies are incorporated into the competencies, rather than listed separately.

The pedagogy that forms the basis of the curriculum is rooted in the Guiding Principles. The Guiding Principles are organized around a view of language, a view of learners and learning and a view of teachers and teaching. This section explains the pedagogy that supports the teaching of English. The section is organized around the Guiding Principles. Each principle is followed by the background to the principle, the pedagogy needed to enact the principle and examples to illustrate the pedagogy in the classroom.

The educational purposes of the Algerian English Curriculum are framed in a set of nine Guiding Principles that are the foundation of the curriculum plan. They are responsive to the social and educational context in Algeria, they derive from sound educational theory and they are appropriate for Algerian learners and teachers. The Guiding Principles are organized around a view of language, a view of learners and learning and a view of teachers and teaching. The principles are closely intertwined and mutually compatible. The first two principles describe the purposes for learning English in the world today—to use it as a tool to participate in global information exchange and learning and to develop communicative abilities. As befits a curriculum focused on learner competence, the majority of principles are related to learners and learning. The learning experiences in the classroom are the means for achieving the desired outcomes. The principles capture what learners need in order to learn, as well as the dispositions and approaches to learning that they will cultivate. The last two principles are focused on what teachers need to know how to do in order to provide the kinds of learning experiences that will help learners attain the learning outcomes of the curriculum. In order to enact the principles in classroom practice, teachers and learner need to develop corresponding

competencies. The Guiding Principles is a list of teacher competencies for each principle, is a combined list of the thirty teacher competencies.

## **7.2. Guiding Principles for Teaching English in Algeria**

English is a tool for communication that enables learners to make connections with the world and communicate something about one's self, community and country to others. Hence, the target aim is the development of the communicative competence which involves interacting with others using receptive and productive skills, supported by the ability to use vocabulary and grammar appropriately, and employ a range of mental capacities of high and low order thinking that help construct new knowledge about the language. I may say then that successful learning depends on supported and mediated interactions for collaborative knowledge construction. Learners benefit and get more involved when each activity builds on previous material so that knowledge and skills build logically towards achieving and developing specific competences.

Another important aspect of the CBA curriculum is the type of tasks. Meaningful activities and tasks support and encourage learning. Classroom activities and tasks draw on learners' lives and interests and help them to communicate ideas and meaning in and out of class. Besides, learning is described as an active, evolving process. Learning a language requires opportunities to use what one knows for communicative purposes, making mistakes and learning from them. The aim is to perform competently, while recognizing that errors may still occur.

Furthermore, assessment is an ongoing part of learning ongoing, or regular, assessment should take various forms and address the competences that have been learned in class, so that the assessment can provide useful information on individual progress and achievement, which teachers and learners can review to aid learning.

Teachers are facilitators of learning. Teachers support learner learning by taking a primarily facilitative role in the classroom: designing and structuring learning experiences with learner interests and needs in mind; guiding and

monitoring learner learning; assisting learners in contributing to their own learning in a learner-centered teaching environment. Hence, teachers foster a supportive learning environment and effective classroom management. Teachers have a positive impact on learner learning by creating a supportive and relaxed learning environment and using appropriate classroom management: communicating warmth and respect for learners, encouraging them to participate and work cooperatively and to develop self-confidence.

An important aspect of the success of this approach is teacher competencies. In order to enact the principles in classroom practice, teachers need corresponding competencies. Each principle is followed by the teacher competencies needed in order to develop learning experiences that are consistent with the principle. For instance, to carry out the first principle which is English facilitates two-way communication with the world, teachers need to plan activities that allow learners to practice and develop real-life communication skills for reading, writing, speaking and listening. This teacher competency is essential for this principle because in order to communicate something about themselves in English to people in other parts of the world and to learn about others, students need to engage in activities that develop real-life communication skills (Jonnaert, 2015). There are a total of thirty teacher competencies. These are discussed in the following section.

### **7.3. Target Language Competencies**

As described by the AEF, language involves three basic competencies: interactive competency, interpretive competency, and productive competency. First, interactive competency is the ability to use language orally to interact with others in order to create social relations, express needs, understand and address needs of others and to get things accomplished. Engaging in a discussion is an example of using one's interactive competency. Second, interpretive competency is the ability to understand written language through reading or spoken language through listening and to interpret it appropriately.

Reading is the ability to understand and interpret written texts, listening is the ability to understand and interpret oral language. Reading and listening are thus addressed separately in the curriculum. Third productive competency is the ability to produce coherent, appropriate and relevant messages in writing and speaking. It is also the ability to effectively express ideas and organize thoughts appropriately. Productive competency is more often associated with writing because writing involves producing texts such as letters or essays. Productive speaking competency is also the production of texts; it differs from interactive speaking competency in that it does not involve interaction with other speakers. Giving a lecture or a presentation are examples of using one's productive speaking competency. Learners have different levels of competency at different levels of language proficiency.

#### **7.4. Teacher Competencies and Roles**

Sturgis and Patrick (2010) suggested that the role of the teacher changes from one of being an information-giver to that of a facilitator. This view does not suggest that teachers no longer provide information, but that they give different types of information and deliver it in different ways (Paul, 2008).

Starting from the perspective that English facilitates two-way communication with the world, teachers need to be equipped with new competencies that enable them to help learners make connections with the world and communicate something about one's self, community and country to others. These competencies can be summarized as focus on scaffolding efforts to develop collaboration among learners.

The teacher organizes learners so that interaction can be facilitated so that the teacher is not the focus of the lesson and collaborative as well as autonomous learning are fostered. Teacher varies patterns of interaction so that he ensures that all learners find their involvement sufficiently challenging by creating supportive and relaxing learning environment for collaborative knowledge construction to take place.

First, teachers are scaffolders. They support learner learning by taking a primarily facilitative role in the classroom: designing and structuring learning experiences with learner interests and needs in mind; guiding and monitoring learner learning; assisting learners in contributing to their own learning in a learner-centered teaching environment. Teachers find out the needs, interests, and language difficulties of the learners and select and introduce activities and materials for language work that meet these needs.

Griffith (2014) suggested that, to adopt this very difficult role of scaffolder, teachers need to adopt new teaching strategies different from their traditional teaching strategies. They need to plan activities that allow learners to practice and develop real-life communication skills for reading, writing, speaking and listening (e.g. interviewing classmate, writing about a past experience, reading an email, listening to a phone message). In addition, they need to choose topics and tasks that allow learners to develop skills in learning and communicating about themselves and their community, and about their country and the world. They need to introduce a variety of topics of interest to the learners that are related to other cultures, comparison of cultures and international issues. To do so, teacher plans lessons that have communicative objectives and whose steps build toward meeting them. Teachers introduce grammar, pronunciation and vocabulary in context, with a focus on communicating meaning. Teachers teach learners how to use language strategies to aid in their learning and communication.

In the same realm of thought, Ash (2012) stated that teachers need to break down functions, genres and skills into smaller component/skills/parts in order to present realistic ‘chunks’ of the language for learners to process. Having said this, teachers stage the lessons so that what the learner learns/practices in each step prepares for the next ones. Hence, teachers plan lessons that are interconnected and work together as a series to build toward short term goals and long term competencies. Teachers need to supplement and adapt the textbook to plan activities related to learners’ interests, prior knowledge and experience. This is to say that teachers set tasks that allow the learners to discover how the language works in its form, meaning and use and ensures each is clear for learners, so that learners have

to think and use their previous knowledge and imagination to prepare for and carry out classroom activities. The tasks should develop cooperative learning and encourages peer help and readiness to exchange with others. Teachers hence need to contextualize the activities and provides a communicative purpose for them. They should provide a balance of activities that focus sometimes on accuracy and sometimes on fluency where learners use previously studied language and skills and incorporate new language and skills. Teachers give learners opportunities to recognize errors and figure out for themselves how to correct them.

Teachers use effective techniques to build learner self-confidence and foster a group feeling (cooperation, respect, enjoyment, trust, etc.). The teacher sets tasks that develop cooperative learning and encourages peer help and readiness to exchange with other

Finally, teachers need to regularly assess learner learning using a variety of assessment activities that assess what learners know about language, and also what learners are able to do as speakers, listeners, readers and writers. The teacher teaches learners to assess themselves and their peers so that they are aware of their progress.

## **7.5. Learners' Roles**

Learners are no more passive recipients of information conveyed by teachers. They are rather involved in active collaborative learning where they have to use their social and individual mental capacities to transform information conveyed by teachers into knowledge. Sturgis (202) suggested that learner's role is to integrate, produce, and extend knowledge by taking an active part in their own learning and work towards being autonomous learners. They learn to think critically and to adapt and transfer knowledge across a variety of settings (Marcellino, 2005; Wong, 2008). Learning requires from the learner to go through a process of personal appropriation. Because of this conception of learning, the learner continually questions his own convictions. This permanent questioning leads the

learner to revise his prior-knowledge and its scope to compare his own representations with those of his classmates, to search for information and validate it through consulting various sources of documentation or people in possession of information. This presupposes that the learner creates situations of learning and assessment relating both to the process and the results. The interactions with his classmates and his teacher help the learner to:

- Make a representation of situations.
- Find various ways of performing tasks.
- Construct and call upon various resources.
- Proceed to an assessment of his progress during the activities and at the end of activities.

To do so, the learner will appeal to cognitive, affective and motivational strategies in order to set a balance between his previous knowledge and his newly acquired knowledge. The reflection the learner will operate on his own learning processes will assure the quality of his acquisition and facilitate his retention. Since learning is a challenging intellectual process, while accomplishing a task, the learner displays appropriate behaviours while doing a specific action. This is performance.

## **8. Waves of Research on the Collaborative Knowledge Construction Process with Relation to CBLT**

An examination of the current literature shows that researchers have approached the analysis of classroom interactions differently. Kern, Ware and Warschauer (2004) identified two waves of research on language learning which parallel pedagogical changes. They note that the first wave “tended to focus on the most quantifiable and easily measured aspects of communication,” while the second



pushed for “greater attention to particular practices of use, described and evaluated in terms of their specific social contexts” (p. 243).

To examine the effects of classroom interactions on collaboration and knowledge construction processes, some researchers provided accounts of rates of interaction to argue for engagement in constructive discussions that facilitate meaning construction. Some studies focused on the quantity of classroom interactions generated using the CBA. Focus on the quantity of interactions stems from the belief that increased levels of mediational social interaction facilitate the creation of ZPD where learners collaborate to co-construct knowledge.

Thus, in terms of quantity, Weddel (2006) showed that effective student-teacher interactions can and do take place. He provided evidence of a change in the patterns of interaction as well as a substantial increase in the amount of participation. In their study, using quantitative accounts, Griffith (2014) have demonstrated that interactive CBLT courses democratized and equated participation. He highlighted the importance of the CBLT as the ideal medium for collaborative learning through increased levels of social interaction both with learners and with learners. Bartram (2005), Catno, Darr, and Campbell (2005) used quantitative analysis to study the direction of interactions to check if the use of CBLT promotes more learner-centered learning. The results of their research showed that teachers seemed to be less concerned to keep control of the tutorial, resulting in less teacher-led sessions. They noted that CBLT classes provided slightly more interactions between students and among teachers and learners than traditional teaching settings. In addition, student-content interactions were at high levels.

In terms of quality, however, I did not have to delve deep into the literature to discover that very little attention is directed toward the study of the quality of interactions CBLT settings and still less to the study of the socio-constructivist dimension.

Many studies have voiced the need for further research on the quality of interaction in the context of CBLT (Paul, 2008; Sturgis, 2012; Griffith, 2014).

Available literature revolves around certain aspects and issues related to CBLT: task design (Nunan 2007), changes in teachers' role (Hampel, 2009; Guichon, 2012; Drissi, 2011), research on indicators of social-emotional presence (Satar, 2010). Some studies seek evidence of collaboration. Zahner, Fauverge, and Wong (2000) have provided evidence that CBLT is effective in supporting collaborative learning. Schwienhorst (2004) and Gurell, Kuo, and Walker (2010) stressed that CBLT settings allow learners to collaborate and negotiate meaning as well as rehearsing the oral skills.

Different researchers claimed that there are several advantages of the CBA. First of all, CBLT focuses "On language as a tool for communication rather than on language knowledge as an end in itself." (Nunan, 2007, p. 425). It promotes responsible and accountable teaching (Findley & Nathan, 1980). Referring to benefits of CBE, Norton (1987, as cited in Sullivan, 1995) stated that in CBE learners' confidence is enhanced because they can achieve competencies required in the performance in real life.

However, current literature does not offer studies that study the affordances of use of the CBA in relation to enhancement of the collaborative knowledge construction process. Moreover, current studies focus on the analysis of only some aspects of the process of knowledge construction but do not study the process as a whole. All in all, different researchers have examined the affordances of classroom interactions for different purposes. A brief description of some recent studies with their different perspectives better highlights the point.

Some studies focused on rates of participation as indicators of engagement in constructive discussions and learning, including Okada et al. (2007); Hauck and Youngs (2008); Betbeder et al. (2008); and Örnberg Berglund (2009). They examined the frequency as well as the interactive and communicative purposes of interactions. The researchers focused on the rates of use of interactions by learners and teachers as indicators of engagement in interactions and learning. The results showed that the implementation of CBLT led to more equal participation rates.

Okada et al. (2007) investigated the concept of knowledge mapping in relation to various data collected during lessons using the CBLT. Using

visualizations, they analyzed participation rates in different lessons. Based on the participation rates, they illustrated how participation patterns may alter depending on the purpose of the interaction.

Berglund (2009) analyzed interaction in classrooms from an ecological perspective with two main foci: participation rates and conversational feedback strategies. The study was based on the analysis of interaction among learners of English. Her study described the influence of task design on learner interaction in CBLT settings. Her focus was on how the affordances of the CBLT influenced the strategies employed to create opportunities for collaboration. Quantitative data were used to investigate participation rates, with the aim of seeing whether CBLT in fact supports equalization; that is, whether the opportunity to choose a preferred mode of interaction ensures even participation rates. The qualitative analysis of conversational feedback strategies showed that whereas some social learning strategies were employed, the learners did not manage to fully act upon the communicative affordances of the CBLT, as the feedback ratio during and after the lessons was relatively low. These findings were related to task and tool design and the article discussed how design improvements in these areas might result in a more constructive language learning ecology. The results showed that the affordances of the implementation of the CBA did not automatically lead to more even participation in the verbal modes; instead these rates seem to depend on other factors such as, for example, language proficiency and previous experiences with CBLT.

Sauro (2009) analyzed classroom interactions to identify the way learners used the affordances of the CBLT to perform different interactional roles. The main purpose of this study was to explore how a pair of second language learners utilized the scaffolding of their teachers to negotiate interactional asymmetries that might have otherwise limited their opportunities to use the L2. She analyzed classroom interaction strategies of a pair of L2 learners. Results showed that the affordances of the CBLT provided learners with strategies that could help them garner increased opportunities for target language production.

In their study, Wong (2008) investigated the use of CBLT. He described the main features in terms of the design affordances of the CBA. He highlighted their respective affordances, that is, their specific potentials and limitations for representation, meaning making and communication in general and intercultural communication in particular. He focused on the exploration of how these affordances influence task design and execution as well as participant interaction during the project. The results showed that the different affordances of the implementation of the CBA created distinct learning environments allowing for different levels of interaction. Moreover, He suggested that teachers need to be trained in the design of tasks that make efficient use of the CBLT so that there was a need for the learners to stretch, change, adapt and modify the means of representation, communication and interaction available to them.

In another study, Betbeder et al. (2008) analyzed the affordances of CBLT. They focused on the rates of participation for the realization of their learning tasks. They studied the rate and quality of students' speech acts which occurred during language classrooms. The results showed that learners had better opportunities to apply more learner-centered learning and more active learning pedagogies but at the same time require an increased level of collaborative competency.

The studies described above agreed that CBLT creates a new environment with different features for the exchange and construction of knowledge. It is also argued that the way learners make use of the affordances of the CBLT influences the shape of interaction in terms of quality and quantity. Furthermore, the above mentioned studies suggested that the affordances of the CBLT and the way it is implemented by teachers influence the way learners collaborate to negotiate meaning and co-construct knowledge. Researchers like Richards and Rogers (2001), Jonnaert (2015), and Mulder, Eppink, Akkermans (2011) claimed that the affordances of use of CBLT create new formats of learning where learners have to develop new learning competences besides the four learning competences (listening, speaking, writing and reading). It is defined as the ability to use the affordances of classroom interactions effectively for meaning making and collaborative learning.

However, the majority of the existing studies offered no insights into the nature of the affordances of the BLT for the creation of opportunities for the creation of ZPD for collaborative knowledge construction. For instance, the aforementioned studies stated that classroom interactions promote collaboration but did not show how the generated affordances of the classroom interactions foster collaborative construction of knowledge and the realization of socio-constructivist learning. As is shown earlier, current studies are generally based on quantitative ways of measuring interaction, such as: measures of turn taking, the number of contributions, the educational purposes behinds the use of each tool (Stickler and Hampel, 2010; Mirza, Lamy, 2010). Students' rates of participation and interaction have been for years the most cited data on the educational benefits of the CBLT. (e.g., Harasim, 1990; Pena-Shaff, Nicholls, 2004, Griffith, 2014, Jonnaert, 2015). To put it differently, it is claimed that the higher the level of turn-taking, or the greater number of times learners participate, the greater the level of interaction occurring. However, I concluded that these quantitative indicators addressed neither the processes nor the quality of learning taking place.

This indicates that the claim that CBLT promotes socio-constructivist principles of learning is based on the premise that high levels of participation are equated to collaboration, and collaboration to engagement in ZPD and hence in knowledge construction processes. However, interaction is not collaboration and quantity alone does not account for the quality of interactions nor engagement in the knowledge construction process. Interaction should not be equated with collaboration, and collaboration should not be equated with the knowledge construction process. Paul (2008), for instance, explicitly warned about the danger of confusing the quantity of learner activity for learner learning, or mistaking group interaction for group participation. I assume that the mere generation of more opportunities to interact may not necessarily lead to educationally productive and constructive collaboration and quality learning. Mediated interactions and collaboration are key elements in the knowledge construction process but do not comprise the process itself.

On the other hand, Mackay (2007) suggested that the advantages and constraints of the use of the CBA change over time and that studies cannot therefore provide only a limited understanding of these affordances if they do not consider longer-term impact (Walther, 1996). In addition, when interacting with others, specific protocols for how to deal with the communicative affordances of the environment develop, and by analyzing interactional patterns, these conventions could be detected (Hutchby, 2001)

However, Sullivan (2005) Mackay (2007) and Sullivan (ibid.) suggested that there are no valid procedures for teachers to develop competencies for most programs. They showed that unless training and follow up assistance is provided for the teachers, there is a tendency to slip back into the role of the traditional teacher.

Within a socio-constructivist perspective on language learning, the concept of mediation is inherently fundamental to the analysis of the collaborative meaning construction process. I assume that we can understand the opportunities that learners have to collaborate to construct meaning when engaged classroom discussions only if we examine the mediational affordances of use of the CBLT by teachers.

The available studies do not examine meaning construction as a comprehensible process; rather they focus on individual aspects of this process like the quality of multimodal classroom interactions and extent of collaboration. However, since I assume in order for the meaning construction process to be a comprehensible process, I need to examine the way all its elements take place, relate to each other and the way they are mediated by the different affordances of use of the CBLT. To put it differently, to examine this process, I need to examine the types of mediational interactions and the possible opportunities they offer for the process of collaborative meaning construction.

In spite of the repeated claims that the affordances of mediated interactions generated by the use of CBLT support socio-constructivist learning (knowledge construction), there is little evidence from the research literature to prove the actual achievement of these aims. There is a need to broaden the scope of research on classroom interaction to encompass the examination of the quality of classroom

interactions from the socio-constructivist point of view with due focus on the affordances generated from the use of the CBLT by teachers.

## **Conclusion**

In my view, it is the establishment of this sort of relationship between the affordances of mediated classroom interactions and their impact on the meaning construction process that would allow for a better understanding of the teaching/learning phenomena in CBLT.

In line with these assumptions, Hauck and Hampel (2006) suggested that it might be useful to consider the process of making meaning using the affordances of teacher's scaffolding. Hauck (2007), Hopkins et al., (2008), and Wang (2004a) have urged the widening of the scope of research in the field of CBLT to focus on the processes of making meaning while mediated by the scaffolding of teachers.

The ways students use the available affordances of the implementation of the CBLT by teachers as well as the affordances of teacher's scaffolding to determine the way knowledge meaning is communicated and collaboratively constructed. I assume that the way teachers, with different backgrounds and expertise, implement the CBLT can lead to the creation of new types of mediated interactions that offer different affordances for collaborative knowledge construction. I assume that one way of analyzing the impact of mediated interactions on the knowledge construction process is by focusing on the affordances of use of the CBLT by teachers with different expertise and backgrounds, and the options these affordances might offer, that is, the options provided by the environment to learners, particularly those that are acted upon by learners.

Finally, I join the call for the investigation of the knowledge construction process in the context of CBLT and add to it another dimension. The aim of this research is to investigate mediated interactions to understand how the affordances of the implementation of the CBLT by teachers as well as teachers' scaffolding influence, the way they mediate learning and influence positively or negatively the way learners create ZPD to engage in collaborative meaning construction.



In the light of this background, I raise questions about the extent to which the socio-constructivist aims of promoting social interactions for the realization of the collaborative construction of knowledge are achieved in CBLT settings:

- How do inspectors and teachers perceive training opportunities and adequacy of training support?
- What are the patterns of classroom interactions and learners' engagement in collaborative knowledge process?
- Do teachers' scaffolded and mediated interactions support collaborative knowledge construction process, and if so to what extent? What is the effect of the affordances of teachers' patterns of interactions on patterns of learners' engagement in constructive discussions? To what degree do these patterns contribute to Knowledge construction process?

This chapter demonstrated the key concepts that inform the design on competency based language teaching. The following chapter introduces the methodology adopted by the present study to analyze the collected data.



## CHAPTER TWO: RESEARCH DESIGN AND METHODOLOGY

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## **Introduction**

The previous chapter demonstrated that CBA was fundamentally cognitive and social in nature and positioned the present study into a socio-constructivist perspective. This chapter explained how the socio-constructivist principles of learning were used to analyze the way learners engage in constructive interactions for collaborative knowledge construction. The analysis of this process served to show the extent to which teachers succeeded or failed at implementing the CBA in their classrooms.

The chapter explained the way I proceeded to bring answers to the different research questions raised in the previous chapter. In particular, I explained my procedures for the description and analysis of the different types of data of this research.

The present chapter comprised different sections. The first section described the context of data collection and the description of participants. The second section explained the procedure towards the development of a socio-constructivist methodological framework for the transcription, description, and analysis of classroom interactions. Focus was on the development of models of transcription and analysis that took into account: the quantity and quality of interactions, and the possible effects of the affordances of interactions on students' engagement in the collaborative knowledge construction process from a socio-constructivist point of view. In addition, the second section also explained the procedures involved in the design, conduct, and analysis of teachers' and inspectors interviews. The last section describes how I managed to get the ethical approval to collect data.

### **1. Research Design (Context and Procedures of Data Collection)**

To bring answers to the different research questions of the present study, different data collection tools were used. First, as outlined by the first research question (Chapter one, Section 8), this research sought to capture teachers' perceptions about their training and teaching experiences; hence the need for

interviews. Second, to describe and analyze the collaborative process of knowledge construction, observation of how learners engaged in interactive participation was needed. It became then clear that it was by observation and video-recordings that the primary data was collected. Video-recording allowed repeated viewing and transcription of interactions, essential for proper analysis.

Hence, two types of data informed the present research: the primary data comprised video-recordings of classroom English lessons; the secondary data comprised interviews conducted with teachers and inspectors.

In the first section of the present chapter, I described the procedures of data collection from face-to face English classrooms. In the second section of the present chapter, I described the procedures of data collection using interviews.

The present study investigated the interaction patterns and the collaborative knowledge construction process of two groups of upper intermediate proficiency learners of English language at two different secondary schools in Algiers and Sétif, Algeria. I chose these schools because they started applying CBA since 2006. I observed two classrooms of English learners whose age ranged between fourteen and fifteen. For matters of generalization, I observed four groups of learners who were taught by four different teachers. I wanted to have a representative number of students taught by different teachers to have a better picture of the implementation of the CBA in different learning situations. The groups were observed during a whole semester. Two high proficiency groups (which corresponds to level C1 of the Council of Europe Common European Framework of Reference for Languages) and two upper intermediate proficiency groups (L211 students seeking to attain Level B2 of the Council of Europe Common European Framework of Reference for Languages) were observed and the face-to face English classes were video-recorded. I opted for different levels as, based on my previous research (Mirza, 2010, 2014) and on the present literature review, learners' proficiency levels had an impact of their strategies to engage in collaborative knowledge construction process.

However, data from the high proficiency group was not used in this research. The ethical approval forms were not sent at the right time to this group. As was explained in the Ethics section of the present chapter, teachers were invited to

send information on my behalf to their learners as I was not allowed by the Headmaster of the school to get in touch with them directly. Despite my multiple requests, the high proficiency groups' teachers did not submit the forms to their learners at the right time. It was only at the end of the course that the teachers responded and submitted the forms to their learners. These concerns were discussed with my supervisor and as an alternative it was suggested to use the data from the video-recordings of the two intermediate proficiency groups only. Nevertheless, it was suggested to use the data obtained from the high proficiency groups to test my transcription and coding scheme and to check the reliability of my proposed models of transcription and analysis. Hence, data from the high proficiency groups was used to test the reliability of my coding schemes.

The groups were taught by two different teachers. The first teacher was trained and seemed to have a good background about CBA. The second teacher was not trained and did not seem to have a good background about the CBA. The reasons behind this choice were to check the ways teachers with different backgrounds about this teaching methodology implemented it in their English classes. Besides, the purpose was to check the extent to which training was important in preparing teachers meet the requirement of the new reform.

The groups were observed during one academic semester. The two groups were observed and video-recorded. I observed more than twenty five lessons with each group. I video-recorded four lessons with each group. Each recording was of approximately one hour. The recorded sessions were fully written up, transcribed and coded. To transcribe and code data, I used the multimodal transcription and analysis software Atlas-Ti.

A E F is a comprehensive, general description of the expected level of attainment of each of the competences for each grade level and across grade levels. AEF is organized around competences that correspond to those in the Common European Framework of Reference (2001), but have been adapted to reflect the Algerian middle school and high school context. They correspond to levels A1, A2 (basic language user) and B1 (independent language user) in the Common European

Framework. The leap from being a basic language user (A2) to an independent language user (B1) is significant and thus significant time is devoted to the B1 level. MS1 corresponds to level A1; MS2 corresponds to level A2; MS3 corresponds to level A2+; MS4 and SE1 correspond to level B1; SE2 and SE3 to B1+. The aim is for Algerian pupils to become independent users of English by the end of the seven years of English instruction.

The English course was designed to enable students achieve a level of language proficiency equivalent to level B1 of the Council of Europe Common European Framework of Reference for Languages. The groups were taught the English course three times a week. It focused on the development of the four skills, but also addressed other skills concerned with comprehension, analysis and manipulation of different material, for example, summarizing, expressing opinion on written passages, style and register, appreciation and accuracy. The course was lively and varied, with a wide range of mixed-media material that were selected in order to build up students' confidence in the different language skills. The materials were interactive and encouraged students' participation and active interactions. CBA invited teachers to use a wide range of interactive audio-visual, web-based and printed material. Hence, the course was structured around themes, each covering a different aspect of life in English-speaking countries. The course offered tasks developed by the academic course team at the Ministry of education. The tasks were based on key socio-constructivist principles of interaction, collaboration and learner-centered learning. Tasks required collaborative interactions like role plays and debates. The activities covered the four language skills.

To answer my first research question about the perceptions of inspectors and teachers about their understanding of the process of the implementation of the competency based approach; I conducted interviews with 30 teachers from different schools from different regions in Algeria. I conducted interviews with 6 inspectors. I will talk about this point in details in the upcoming sections.

## 2. Methods of Representation and Analysis of the Primary Data

Each of the following two main sections focused on discussing the methodology adopted to bring answers to each of the research questions of the present research. I then suggested models of presentation, transcription and finally analysis of the data generated. The suggested models served at highlighting the patterns of classrooms and the impacts these patterns had on the way learners collaborated to co-construct knowledge.

Finding models of analysis was one of the main challenges of the present research because of lack of methodological frameworks for the analysis of the social and cognitive aspects of learning. To answer the different research questions of the present study, there was a need to adopt an appropriate methodology that permitted the analysis of the social and cognitive aspects of interactions. In my attempts to describe patterns of interactions and the process of knowledge construction, I raised the following questions: What did the literature tell us about our particular object of study? How did insights from different research on interactions and socio-constructivist learning help us to structure the way researchers approached the description and the analysis of interactions and the collaborative process of knowledge construction?

However, different researchers made the same claim about the lack of research on the presentation and analysis of interaction patterns from a socio-constructivist perspective. Different researchers (Mirza, Lamy, 2010; Develotte et al., 2011; Hauck et al., 2010; Satar, 2010) claimed that because of the lack of adequate conceptual and practical frameworks or methodologies for describing, analyzing and evaluating interaction taking place in the foreign language classroom, it was difficult to make the foreign language teaching and learning more transparent or demonstrate how social and individual processes of learning take place through collaboration.

Research literature provided many methodologies which entered, to some extent, in competition with one another in their quest of achieving the best and most complete description of classroom talk. But up to the time I started my research, no

model was able to give a complete and satisfactory description and analysis of the social and classroom reality from. Mirza and Lamy, (2010); Develotte et al., (2011); Hauck et al., (2010); Satar, (2010) claimed that existing models failed to give exhaustive description and analysis of classroom discourse and interaction. Researchers faced many problems when applying the existing models. Classroom researchers were in search at an adequate and unique methodology to carry out classroom research and bring answers to the unresolved problems and issues facing the existing descriptive models.

Methodologies would need to take account of the specific feature of foreign language classroom. The main problem was with the ways classroom interaction and communication were defined and thus tackled by researchers. Seedhouse (2005) stated that although there was a large number of competing systems for the analysis of classroom discourse, none of them was able to incorporate the unique feature of foreign language classroom interaction. "The connection between the pedagogical purposes which underlie different classroom activities, the linguistic forms, the discursive features and patterns of interaction which result from those classroom activities". Seedhouse (2005: 405). The pedagogical purposes of the language classroom were distinguished from history, geography or science classrooms by their direct link to linguistic forms and patterns of interaction produced. In a foreign language classroom, linguistic forms have a dual role. They can serve as a vehicle but they can also be the focus and aim of the lesson itself. Long (2001: 85) asserted that: "Second language classrooms differ from most others in that language is both the vehicle and object of instruction". Scholars claimed that the linguistic forms and patterns of interaction which the learners produce were inevitably linked in some way to the pedagogical purposes which the teacher introduces in the foreign language classroom environment. Indeed, if the teacher does not introduce any pedagogical purposes, the speech event which takes place cannot be considered as a foreign language lesson. So, foreign language classroom interaction has a unique feature stated above. This remains the case whatever method the teacher uses, and any methodology for the description, analysis and



evaluation of foreign language interaction must be able to handle this unique feature.

In addition, communication is viewed as a basic vehicle and goal of foreign language teaching. Recent approaches to English language teaching research have considered communication in the classroom as one of the most essential concepts in language teaching. Karamavadivelu (1993: 276) says “theorists and participators alike almost unanimously emphasise communication of one kind or another”.

Communication takes place whether or not it is intentional, conscious or successful. A communication of some kind is therefore always taking place in the language classroom whatever we do, even if teachers stand on their heads wiggling their toes at the students. As such, and according to (Hinneman & Mc Ewen (1975), Watzlawick et al. (1980), Ellis & Beattie (1986), there is a general consensus that it is not possible not to communicate. Along the same lines, Watzlavick (1980: 76) points out:

“Activity or inactivity, words or silence, all has message value. They influence others. And these others, in turn, cannot but to respond to this communication and are thus themselves communicating”. Researchers found themselves in the paradoxical situation of having adopted communication as a major basis, vehicle and goal of what we do in foreign language classroom while they do not have adequate conceptual or practical framework or methodology for describing, analyzing or evaluating communication which takes place in foreign language classroom. We still do not have any detailed knowledge about the structure of interaction and communication in the classroom”. (Krumm: 1981).

It is clear from the citation that communication was assumed as a straightforward and uniform concept which is easily definable and identifiable. However, researchers provided different definitions and classified into different types. Although none of the coding schemes explicitly say so, the underlying assumption appears to be that all communication in foreign language classrooms is undifferentiated and can be judged according to a single monolithic criterion. This "bucket" approach to context and interaction has recently been challenged by many



researchers researching into foreign language classrooms. Some researchers found that different varieties of communication occur in foreign language classrooms and that we cannot analyze it in a monolithic way. Van Lier (1988) identified four different types of foreign language interaction. Ellis (2003) identified five different types of foreign language interaction. Tsui Bik-may (1987) identifies three different types of classroom interactions. Seedhouse (1994) identified four different types of foreign language interaction which he called modes. The four different researchers defined communication hence interaction in different ways. So, the purpose of this section has been so far to demonstrate that there are different varieties of interactions occurring in foreign language classes. It is therefore, unsound to attempt to evaluate all varieties of communication hence interactions according to the same criterion. I need a methodology to account for all the varieties of classroom interactions.

Another important point is that there is currently no valid basis for the evaluation of foreign language classroom interactions and the process of knowledge construction. Researchers (Van Lier: 1988, Seedhouse: 2013, Guichon, 2014, Bouchard, 2010) claimed that there was no basis for evaluating the social and cognitive aspects of interaction because of lack of a methodology or framework. Thus, a methodology is required for the evaluation of foreign language classroom interaction. If a system for the description and analysis of foreign language classroom discourse is to be of any practical use, then it must be capable of being used to evaluate foreign language classroom discourse: evaluation of discourse is after all what the foreign language classroom is about.

Therefore, in the first place, this section focused on the challenges of describing the patterns of interactions and the collaborative knowledge construction process, in particular, from a socio-constructivist perspective.

## 2.1. Analysis of the Video-Recordings

The first section of this chapter aimed at describing the methodology used to answer the first research questions:

- What are the patterns of classroom interactions and learners' engagement in collaborative knowledge process?

The first primary data was the video-recordings of the face-to face lessons from each group. As explained in the preceding chapter, this study aimed at checking whether the implementation of the CBA increases learners' opportunities to collaboratively construct knowledge during English classes.

The analysis of the primary data went through three steps:, namely, a) transcription and coding of the data, b) quantification of patterns of interactions and constructive exchanges, and c) analysis of their effects on knowledge construction process. In so doing, this study undertook a more finely grained analysis of the structure of interaction to track its nature. Thence, to observe and analyze the knowledge construction process, I needed a methodology, without which the objective I purported to achieve would become unattainable. The first step was to identify the units of analysis.

### 2.1.1 Units of analysis

The identification and particularly the conceptualization of the boundaries of my units of analysis was a big issue in this study. One of the most important ideas in any research study is the unit of analysis which is defined as the major entity which represents the target data and which will be subjected to statistical and qualitative analysis (Muukkanen, Lakkala, Hakkarainen: 2001). The unit of analysis determines how the data is to be broken down into manageable items for subsequent coding and categories of analysis. The choice of units of analysis affects the accuracy of the coding and the extent to which the data reflects the true content

of the original conversation or discourse. Hence, the recognition and accommodation of units of analyses in educational research require deep reflections. Muukkanen, Lakkala and Hakkarainen (2001) and Veldhuis-Diermanse (2002) warned that evidence that analyses based on different units or units that were not explicitly identified could lead to very different and misleading interpretations. To come to grips with units of analysis and related issues, it was worth avoiding the risks of collecting and analysing data in ways that conceal more than they revealed, as described by Cronbach (1976).

Henri (1992) suggested that ideas in classroom discussions were the result of a collaborative endeavour. The production of constructive discussions (which were defined as instances of collaboration where students used different mediational tools to create ZPD for the exchanges and negotiation of information that lead to the construction of meaning) implied that collaborative learning took place which was related to the concept of knowledge-building discourse (Scardamalia & Bereiter, 1994). In this regard, Fischer et al. (2002) pointed out that the social modes of co-construction described to what extent learners referred to contributions of their learning partners, and this was found to be related to knowledge acquisition. In this same realm of thought, Mercer (2004) asserted that two important aspects should be taken into account if we wanted to explain how talk was used to create knowledge, understanding, and meaning, namely context and continuity. Here, the context included whatever was present in the environments that mediate communication. By continuity, he meant the fluidity of change and a dynamic interactive flow of discussion. Mercer observed “As learning is a process that happens over time, and learning is mediated through dialogue, we need to study dialogue over time to understand how learning happens and why certain learning outcomes result” (2008, p. 5). Therefore, it was important to consider each communication exchange both independently and as part of a continuous train of a dynamic interactive flow of communication. It was worth investigating the way learners interacted, the types of their contributions or communication exchanges, and the way these build up into an ongoing meaning construction process reflecting on their learning. The knowledge construction process as reflected in oral as well as written exchanges showed the

way they were related to each other. I assumed that the analysis of exchanges and their interdependence helped to determine the way meaning construction mediated by the different tools of communication offered by classroom audio-graphic conferencing took place.

As a result, I decided to explore the quantity and the quality of all communication exchanges. In this regard, I decided to segment the data into turns and exchanges to examine the interrelationship between the different turns and how they build up into exchanges and constructive discussions as long as discussion develops. Since this study examined classroom discourse that displayed the spontaneity of speech and structural forms of written text, I decided to analyze patterns of turns and exchanges in classroom interactions.

Thence, there was a need to describe the structural interactive patterns of turns and exchanges. However, the challenge was thus finding a coding scheme which could be used to demonstrate this interplay between turns and exchanges through describing their structural patterns. As I previously mentioned, literature provided different models of analysis, but none of them could take into account the social and individual aspects of classroom interactions. In the following section I introduced and discussed the main competing research methods and models of interaction and discourse analysis which were and are currently dominating this area. Once the main approaches introduced and discussed, they were systematically followed by a critical discussions to argue whether or not they were adapted to be implemented in the present research. Obviously, this historical survey allowed the choice of the most adapted and geared methodology I felt most suitable for the present research.

### **2.1.2 Models of the Analysis of Patterns of Interaction**

So far, second language methodology has had to evolve new concepts, instruments and procedures to adequately describe and analyze interactions. In the following section, prominent interaction and discourse analysis models were considered, critically discussed and justification for the methodology of the present research was provided.

### **2.1.2.1. Interaction Analysis Models**

Interaction analysis was developed by the end of the sixties when the influence of sociological investigation of group processes had led to the development of systematic observation and analysis of classroom interaction, in terms of social meanings and inferred classroom climate inherent in the nature of the dependency of student behaviours on the atmosphere and interaction engendered by the teacher. Interaction was viewed as a chain of teacher and students' behaviours. In this tradition, five main models were proposed:

#### **2.1.2.1.1 Flander et al's Model (1960)**

Flander's model proposed that all instances of ten pre-determined behaviour categories related to classroom interactions be recorded by trained observers who were present during regular class sessions. Flander (ibid.) subdivided these ten interaction categories into four broader groups. The first category was described as indirect teacher talk which was subdivided into four sub categories: teacher accepts student's feelings; teacher praises or encourages students; teacher accepts/uses ideas of students; and teacher asks questions. The second category was described as direct teacher talk which was subdivided into six categories which were: teacher lectures or gives information; teacher gives directions; and teacher criticises students or justifies his own authority. The third category was described as student talk which was subdivided into two further subcategories which were students respond to teacher and students initiate talk. The last category was called others which referred to invisible factors like silence.

#### **2.1.2.1.2 Moskowitz's Model (1971)**

Moskowitz expanded the ten categories of the Flander system into twenty when she developed the FLINT, i.e., Foreign Language Interaction system to give birth to a model meant to fit the needs of foreign language supervisors and teachers.

She added the category of joking to the categories under indirect teacher talk; correcting without rejecting and directing pattern under the direct teacher categories. The greatest expansion came in the other category where she coined one category in the Flanders system silence or confusion into five in FLINT: silence (pauses in the interaction, during a non verbal interaction), silence (while teacher uses a piece of audio-visual equipment), confusion (work oriented; more than one person talking), confusion (work non-oriented; noise) and laughter, uses English and non verbal (gestures and facial expressions).

#### **2.1.2.1.3. Bailey's Model (1977)**

Bailey offered the most thorough critique to date of interaction analysis à la Flander and FLINT. She offered, instead, a simple system called the time interval record system where no more than five or six objective categories may be used (teacher asks questions, teacher lectures, students respond, teacher praises, teacher uses students' native language. The system is designed for real time-coding in interval of 10 or 15 seconds.

#### **2.1.2.1.4. Fanselow's Model (1977)**

Fanselow adopted Bellack's categories directly from mother tongue classroom research. This model is considered as a multidimensional system. It works either by live observation or analysis from a recording. This FOCI for observing communication used in settings (FOCUS) instruments illustrates the use of different analytical dimensions for multiple coding. The unit of analysis, instead of a temporal judgement, is the pedagogical discourse move with the categories of the pedagogical purpose dimension (structuring, soliciting, responding, reacting) constituting the major criteria for segmenting the classroom interaction. Fanselow adopted these four categories directly from the L1 classroom research of Bellack et al (1966), but he entirely modified their instructional content dimensions and added the medium and use medium dimension. Thus, Fanselow's analytical system does

not only include a dimension of pedagogical function but also a dimension of content, speakers and others.

#### **2.1.2.1.5. Naiman et al's Model (1978)**

This model is better adapted for real time observation. It maintains several dimensions like Fanselow's model (pedagogical discourse activity, mode, subject, matter, and clues). But it breaks down in more details the pedagogical functions of the linguistic units being analysed: clarification, elaboration, repetition. These dimensions are interested in the sort of information a teacher might provide when giving feedback following learners' errors or lack of responses.

#### **2.1.2.1.6. Allwright's Model (1980)**

Allwright claimed that learners are at least as interesting as teachers, because they are the people who do whatever learning gets done, whether it is because of or in spite of the teacher. Teachers have been studied, though, because they are commonly held responsible for “producing learning”. This makes sense, clearly, when we consider the time, effort, and money we spend training people to teach. He suggested that it also would seem sensible to suggest that, since it is learners who do the learning, we should take a close look at what the learners actually do. He further claimed that curiously the case study approach, so central to the methodological baggage of first and second language acquisition researchers, has not, typically, been thought sensible for learners in class. The result was that what we know about second language acquisition is perhaps of limited relevance to language teaching and classroom learning. He claimed that the central concern here was the nature and patterns of learner's participation in whatever happens in the classroom. For many years teachers have been urged to secure the active participation of all learners at all times, in the belief that this was a key variable.

He further suggested that the management of participation by the teacher and the learner is a negotiated process, and potentially an important one. Such

classroom negotiations are not just about the amount of public work any one learner is prepared to perform. They are directly or indirectly concerned, potentially at least with all aspects of the management of learning. He tried to put such an approach in the context of a general conceptual framework which can be developed into a system for the analysis of recorded classroom data which takes teachers' and the learners' behaviours. As such, he proposed four modes of participation and five factors influencing interaction and hence participation in the language classroom. First, compliance which is the likely response of co-operative learners to directions from the teacher. Learners respond just to what their teacher requires from them no more nor less. Second, direction where the teacher initiates, evaluates and directs interaction in the classroom. In this case he attempts to impose his ideas without leaving to learners any possibility to express their own opinions. Third, negotiation which is said to take place when attempts are made by learners to reach decision making. In this case learners are given the opportunity to participate, ask questions, initiate, and negotiate meaning. He suggested that the negotiation of meaning that occurs in interaction plays a key-role in second language development. Through negotiation, learners are able to manage their own learning. By questioning, checking, asking for clarification or extra-explanation, learners can take advantage from the learning opportunities that are presented to them. Finally, navigation which is defined as the attempt of learners to escape from the teacher and seek to change direction to the course of events.

Several critical issues are to be mentioned with regard to the descriptive models described above. First, the unit of analysis by which the classroom events were segmented was not well specified in all of them. The move in Fanslow's case as well as the various teacher eliciting, evaluating, and students responding actions in Naiman et al's scheme did not specify in which way the discourse is to be segmented. Second, the three-second unit in Moskowitz and Flanders and the Second-unit in Bailey obviously obscured the highly different behavioural units in which the various coded events would occur. As a characterization of the discourse these systems obviously ignored many features – while concentrating on the control



and the development of topic they neglect what may be crucial aspects of the turn taking system. Third, possibly because of the crude division of all utterances into instances of initiative or response, possibly because of the temporal rather than linguistic unit of analysis, Flanders discovered no larger structures, except statistical tendencies which form patterns characterized by a predominance of teacher or pupil initiatives. This could be explained by the fact that Flanders' major interest is topical not structural. He focused on who controls the topic not the talking. Fifth, they led each categorical decision to be made primarily on the basis of some observable change in pedagogical function or behaviour, whereas the unit of analysis should preferably be determined before the decision of pedagogical function. Sixth, the third point relates to the interpretative complexity of deciding amongst the categories. Each decision must be done or made on the basis of either the non-verbal or the linguistic behaviour alone, or the surrounding discourse. But it was required that the analysis takes into account not only the immediate context but the entire proceedings of the lesson. This fact did limit the final power of analysis to describe and explain fully what took place in a given situation. Fanslow (1977) and Naiman's (1978) essence of instrument was to consider pedagogical events as a sequence of moves typical of the well known teaching cycle: solicit, respond, react. Their model allowed an analysis of interactive structure of discourse beyond pair-work linking. Finally, Allwright's model gave an excellent account for the turn taking behaviour of classroom interaction as well as the modes of participation linked to the different discursive and socio-psycho-affective factors of the different participants. Hence he provided a more complex description of classroom interactions looking at the phenomenon of classroom pedagogical discourse in terms of five important aspects of interaction and proposed four modes of participation. However, the unit of analysis was not predetermined.

These systems were widely used by researchers. However, because of the issues we highlighted above, they are not likely to cope with the needs of the present research and thus I disregarded them and started looking into discourse analysis models.

### **2.1.2.2. Discourse Analysis Method**

Discourse analysis method arose from a linguistic perspective in an attempt to analyse fully the discourse of classroom interaction in structural-functional linguistic terms. The method referred to the study of the relationship between language and the contexts in which it is used. It grew out of the contributions of various disciplines. I tried to discuss the leading models of this tradition at the aim of finding an adequate coding scheme to my data.

#### **2.1.2.2.1. Bellack et al's Model (1966)**

Bellack's model was the pioneering study within this tradition. His system had several points in its favour: firstly: the analysis was in terms of linguistic not temporal units; secondly he had intuitively more acceptable ideas about initiating and responding behaviour, considered as structurally not topically reciprocal; thirdly he introduced an extra category, reacting, to cope with teacher utterances which were related to, but not called for by, pupil utterances; it offered a simple description of classroom discourse involving a four-part framework. First, structure which was defined as an initiation move. It set the content for classroom behaviour by launching or halting or even excluding interaction between teachers and pupils. Second, soliciting which was designed to elicit verbal responses to encourage persons addressed to attend to something or to elicit a physical response. All questions are solicitations, as are commands and requests. Third, responding which highlighted a reciprocal relationship to the soliciting move and occurred only in reaction to them. Its pedagogical function is to fulfill the expectations of the solicitation move, and then learners answer. Fourth, reacting which was occasioned by structuring, soliciting, responding or a prior reacting move. Their pedagogical function was to serve to modify by clarifying, synthesizing and responding. Pedagogically, these moves served to modify (by clarifying, synthesizing, or expanding) and /or to rate (positively/negatively) what has been said previously. Reacting moves differed from responding moves; while a responding move was

always directly elicited by a solicitation; preceding moves served only as the occasion for reactions. Coulthard (1992) claimed: “Moves occur in classroom discourse in certain cyclical pattern or combination, which designated teaching cycles. A typical teaching cycle begins either with a structuring or a soliciting move continued with a responding move by the learner addressed and ends with an evaluative reaction by the teacher”. (Cited by Anton (1999; 125). Hence he isolated twenty one different teaching cycles and suggests that styles of pedagogical discourse can be described in terms of cycle activity, percentage of teacher initiation cycles and distribution of cycle types. Bellack et al’s immediate concern was not with devising an efficient technology for teacher training, nor even with establishing direct relationships between teaching styles and student learning. They were trying to understand how language was used to structure that environment. Unlike Flanders who saw classroom interaction in terms of a limited set of teaching acts, crucially relatable to a distinction between relatively authoritarian and relatively democratic teaching styles, and thus to more or less effective instruction, they saw classroom interaction more as social game, bound by conventions, and consisting of an implicitly agreed set of moves by all participants, rather than a set of teaching acts.

#### **2.1.2.2.2. Landsheer and Bayer's Model**

In this model, the focus was on the teacher's verbal behaviour and the pedagogical discourse of the teacher. They attributed five functions to the teacher's verbal behaviour. The first category was defined as organizational function where the teacher managed the learners’ participation and behaviours. He structured the work of the learners and solved the conflicts. The second category was defined as development function. The teacher tended to reinforce his learners' verbal behaviours. The third category was defined as the evaluation function where the teacher comments on his pupils’ responses and behaviours. The comment may be positive or negative. The teacher may impose information, answers, opinions, etc...

As far as the affective function is concerned, the teacher expresses his emotions and feelings when evaluating his learners.

#### **2.1.2.2.3. Van Lier's Model**

Van Lier (1988) described classroom discourse in terms of two dimensions. He classified the discourse of classroom interactions according to whether the teacher controls the topic (what is being talked about) and activity (the way the topic is talked about). Based on this classification, four basic types of classroom interaction were identified. The first type of classroom interaction takes place when neither the topic nor the activity is controlled by the teacher. The second type occurs when the teacher controls the topic but not the activity. This type of interaction requires teacher transmitting some information or explaining an issue. Type three involves the teacher controlling both the topic and the activity. Type four occurs when the teacher controls the activity but not the topic. This type of interaction involves the teacher setting up small group work prescribing the rules but giving freedom of choice of topic (quoted in Ellis: 1990)

#### **2.1.2.2.4. Sinclair and Coulthard's Model (1975)**

Sinclair and Coulthard Model was called the Birmingham model. Sinclair and Coulthard led a team which took Bellack's ideas among others, as their starting point first for a similar study of classroom language use. It was devised in 1975 and slightly revised in 1992. These two scholars believe that teachers and pupils speak according to very fixed perceptions of their roles and where the talk could be seen to conform to highly structured sequences. The model analysed spoken interaction and it implies patterns that reflected the basic functions of interaction and offers a hierarchical model where the units can be seen to combine larger ones, and where the larger units were seen to consist of smaller units. Classroom interaction was a hierarchically structured system of ranks analogous to the rank-scale approach to sentential linguistic description outlined by Halliday

(1961). The analytical level of discourse fell in between that of the linguistic level of sentential analysis and the special pedagogical level of programmes and courses. Hence, to describe the interactions inside the classroom Sinclair et al devised a rank scale.

The eventual system offered a description of discourse in terms of five ranks; lesson, transactions, exchanges, moves and acts. Each rank was related to the one above by a “consists of” relationship: each level builds up the elements of the higher rank in accordance with the hierarchical structure. Transactions have a structure expressed in terms of exchanges; they begin with a boundary exchange followed by a succession of informing, directing, or eliciting exchanges. Eliciting exchanges are expressed in terms of moves; they consist typically of a teacher question followed by a pupil answer and a teacher evaluation which produces the pattern T-P-T. In other words, the teacher almost has the last word and two turns to speak for every pupil turn. They suggested that the three move eliciting structure was the normal from inside the classroom. Moves were composed of acts. Hence the model comprised different levels.

The units at the lowest rank of discourse were defined as acts. They described three major types of acts which probably occurred in all forms of spoken discourse: elicitation, directive, informative, and they appear as the head of initiating moves. An elicitation is an act the function of which is to request a linguistic response (although the response may be a nonverbal surrogate). A directive is an act the function of which is to request a non linguistic response. It is simply an acknowledgement that one is listening. An informative is as the name suggests an act whose function is to pass on ideas facts, opinions, and information to which the appropriate response is an acknowledgement that one is listening. They are frequently realized by interrogatives, declaratives and imperatives. At the head of each initiating move by the teacher is one elicitation, directive, or informative. Where a move is made up of more than one act, the other acts are subsidiary to the one which is the head, and optional in the structure. The teacher’s initiation is typically followed by a responding move from a pupil, and the structures here are sufficiently regular for us to identify a regular type of response to each.

The second level of the hierarchical model was defined as moves. Moves are made up of acts, and moves themselves occupy places in the structure of exchanges. There are five classes of moves (framing focusing, opening, answering and follow up) that these realize two classes of exchanges: boundary and teaching. Each of these moves has a different function. Framing moves are indicators by the teacher that he regards one stage in the lesson as ended and that another is beginning; it is realized by a marker followed by a silent stress, 'right ^'. Then we have the focusing moves the function of which is to talk about the discourse, to tell learners what is going to happen or what has happened. Focusing moves have an optional marker and starter, a compulsory head, realized by meta-statement or a conclusion, and an optional comment. There are opening moves whose function is to cause others to participate in the exchange. Opening and answering are complementary. The purpose of an opening may be passing on information or directing an action or eliciting a fact. The type of an answering move is predetermined because its function is to be an appropriate response in the terms laid down by the opening move. The structure of the opening move is complicated. Much of the complexity arises from the element select which is where the teacher selects which pupil he wants to respond to. Select can be realized by a simple teacher nomination, or by a pupil bid followed a nomination, or by a teacher cue followed by a bid and a nomination. Hence, Sinclair and Coulthard regard the function of an opening move, with elicitation or directive as head, as not only requesting a reply or a reaction but as also deciding who should respond. An opening move ends after the responder has been selected. Prompt and clue can also occur in a post head position. Answering moves have a simpler structure. There are three types of head appropriate to the three heads of opening moves. The response appropriate to an informative is simply acknowledgement that one is listening, and this can be, and usually is in the classroom, non verbal. Following a directive the head of an answering move is realized by react, but the pupil may also acknowledge verbally that he has heard. Following an elicitation there is a reply, and sometimes a comment as well. Follow up, the third class of move in teaching exchanges is an interesting category. Its function is to let the pupil know how well he/she has performed. It has a three-term

structure, pre- head, head, post head, realized by accept, evaluate, and comment respectively.

The third level of the hierarchy was defined as exchanges. There are two major classes of exchange, boundary and teaching. The function of boundary exchange is to signal the beginning or end of what the teacher considers to be a stage in the lesson. Teaching exchanges are the individual steps by which the lesson progresses. Boundary exchanges consist of two moves, framing and focusing; often the two occur together, the framing move frequently occurs on its own, the focusing move does so rarely. Free exchanges comprise six categories which are divided into four groups according to function. And two of the groups are further subdivided according to whether teacher or pupils initiates. The four main functions of exchanges are informing, directing, eliciting, and checking and they are distinguished by the type of act which realizes the head of the initiating move, informative, directive, elicitive and check respectively. The structure of each exchange is expressed in terms of Initiation (I), Response, Feedback (F). The four main exchanges are as follows. First, informative exchange which is used when the teacher passes on facts, opinions, ideas, or new information to the learners. Learners may, but usually do not, make a verbal response to the teacher's initiation. Thus the structure is I (R); there is no feedback. Second, directive exchange which covers all exchanges designed to get the pupil to do but not to say something. The response is a compulsory element of the structure. Feedback is not an essential element of this structure although it frequently occurs. The structure is IR (F). Third, elucidative exchange which includes all exchanges designed to obtain verbal contributions from pupils. In this case feedback is an essential element. Having given their reply, pupils want to know whether it was the right one. Thus the structure is IRF.

The upper level of the hierarchy was defined as transactions. It is a thematic unit. They found that entire lessons consist of transactions and each transaction within the lesson is explicitly signaled by a framing move consisting of a phrase such as: Ok, Right, Then, Now. They normally begin with a preliminary exchange and end with a final exchange. Within these boundaries a series of medial



exchanges occur. Although the researchers identified eleven types of medial exchanges, they cannot yet specify in detail how they are ordered.

#### **2.1.2.2.5. Roulet, Orecchioni and Camba's Model (1995)**

Proposals going in the same direction were carried out by other theorists. Roulet (1995) gave a more coherent and sophisticated version of the model. On this point, the proposals vary regarding the number considered and as for the labeling of the units. In addition, the model of Roulet (ibid) and the team work of Geneva of analysis of the speech regard the speech produced by the ordinary interaction as a succession of exchanges, interventions and principal and subordinate acts (in the first version of the model, the model included the row of transaction). With another dimensioned, Orecchioni (1990, 1995 chapter 4) and the team researchers of the university of Lyon describe the structural organization of the conversations of the general type in terms of five levels: three levels of dialogic units; interaction, sequence and exchange, and two levels of monologue units: intervention and acts. Chaudron (1988) worked within the general framework of Sinclair and Coulthard model. He limited himself to specific areas of discourse: feedback as error correction.

I could notice many issues with the discussed models. First, Landsheere and Bayer and the Bellack models were concerned with the functions of the teacher's verbal behaviours and his linguistic activities inside the classroom. They did not provide any structure for the classroom. Second, it was evident that the unit of analysis in Bellack's, Landsheere and Bayer's, and Van Lier's models were not specific. Bellack's model viewed classroom interaction more as a social game bound by conventions, consisting of an implicitly agreed set of moves by all participants rather than a set of teachers' acts. Bellack's model progressed a considerable way towards the kind of functional and structural analysis of discourse, but his categorization of utterances was in terms of discourse function rather than pedagogical function since he was not interested with classroom interaction. Hence,



I omitted the possibility of using this system. Finally, Sinclair and Coulthard's model provided a hierarchical ranking of classroom discourse and hence the unit of analysis was well determined. However, the model did not adequately account for the interactive choice available to all participants. It coded utterances in terms of their effect on the discourse only, not taking into account the participants of that discourse; focus was on the product of discourse.

Now, as far as the present research was concerned, I raised the following question: which descriptive model could be used to describe my data? The diverse and controversial issues pertaining to the elaboration of a consistent and efficient tool for describing models remained vivid. This situation led many scholars to attempt to build up a descriptive methodology to satisfy, to some extent, all these diverging positions discussed above.

I believed that none of the stated model could be implemented to describe and analyze my data. I was in a need a model for analyzing and evaluating classroom interaction which can ink pedagogical purposes underlying communication with the resultant joint discourse of the teacher and learners in terms of the socio-cognitive patterns of interaction, hence, the need to rely on a multiple perspective model. Whichever methodology is developed for the analysis of foreign language classroom interaction, it must be able to assimilate into a multiple perspective approach. In recent years, it has become increasingly popular and fruitful in the field of classroom research to think of developing an approach like this. In this respect, Green and Harker (1998) characterized what has come to be called the multiple perspective research bringing a number of theoretical and analytical traditions to bear on a problem. These scholars have detailed the advantages of a multiple perspective approach to classroom research. They claim that this multiple perspective approach can be accomplished in a variety of ways and for a variety of purposes. All these ways of development of a multiple perspective approach prove at least the complexity of the task at issue. No single approach is able to account for such complexity. While the multiple perspective approach did not claim any kind of descriptive exhaustiveness, it did provide a more- in-depth picture than can any single perspective previously. This meant that

an adapted framework could be verified and supported by other established and complementary methodologies.

To sum up, I stated that that no one model could be used per se to fulfill the task of describing and analyzing my data. Nevertheless, my attention was attracted by Sinclair and Coulthard's model. First, I assumed that the only aspect which made unanimity amongst them had to do with the Sinclair and Coulthard's IRF cycle. However, before achieving this, we need to revisit classroom reality under the light of the IRF cycle.

The aim of English Language teaching is to make learners speak fluently in the target language in other words, to communicate genuinely. In his best known and most influential recent article on the subject of patterns of classroom interaction and genuineness of interaction "Communicative language teaching." Nunan (1988: 67) based his argument on his characterization of genuine communication. He suggested that "genuine communication was characterized by the uneven distribution of information, the negotiation of meaning (through for example clarification requests and confirmation checks), topic nomination and negotiation by more than one speaker and the right for interlocutors to decide whether to contribute to an interaction or not. In other words, in genuine communication, decisions about who says what, to whom and when are up for grabs". He claimed that in a teacher-fronted lesson, the interaction tends to be orchestrated by the teacher. In learner-centered classes speaking-rights tend to be more equal and the interaction should, in theory, be closer to Nunan's definition of genuine interaction or free conversation. But when Nunan (1988) examined five exemplary communication lessons, he found that when the patterns of interaction were examined more closely, they resembled traditional patterns of classroom interaction rather genuine interaction. All the transcripts demonstrated interaction in which the teacher is the predominant figure. He sums up the results of the research "there is a growing body of classroom centered-research which supports the conclusion drawn here that there are comparatively fewer opportunities for genuine communicative language use in the classroom." Nunan (ibid.), then, states that the most commonly occurring pattern of

interaction was teacher initiation, learner response and teacher follow-up (IRE cycle). In the same realm of thought, Dismore (1988) stated that the above pattern was the main structure occurring in teacher-student interaction. Cazden (1987) notes that the three-part sequence of teacher initiation, student response and teacher evaluation is the most common pattern of classroom discourse at all grade levels. Both Nunan (*ibid.*) and Dismore (*ibid.*) consider this as the main reason for asserting that there is little genuine communication in the language classroom. Nunan (*Ibid.*) has abandoned conversation analysis and turned to discourse analysis (Sinclair & Coulthard) and isolated a single recurrent exchange structure to assert that the communication in the transcripts was not genuine. Within the same line of thought, Eggins and Slade (2004) and Walsh (2011) argued that traditional I-R-F interaction still prevailed with one reason being that teachers and learners regarded questions and answers routines as appropriate behaviours for the class. They further suggested that learners were socialized from an early age to answer question and respond to prompts.

Hence, there was a consensus among educational researchers on the definition of pedagogical exchange that was conceptualized as a hierarchical organisation of turns and moves (Sinclair, Coulthard: 1975, Fischer: 2003, Sotillo: 2000, Orechioni (2000, 2005), Roulet: 1999). An exchange consists of at least an initiating and a responding turn, performed by a minimum of two participants. A turn consists of at least one move that indicates its pragmatic function. Thus, pedagogical exchanges are distinctive for their three-part structure of I-R-F: an initiation (I) by the teacher, followed by a response (R) from students, followed by feedback (F) to students' responses from the teacher that closes the exchange. I, R, and F were defined as the different interactive roles participants might adopt while interacting.

The analysis hence sought to determine how the turns were realized, the way they built up into exchanges that, in turn, built up into constructive discussions. As a consequence, the research was designed to analyze the turns and exchanges in classroom communication in an effort to capture the patterns of classroom interactions, extent of intensity of multimodality and its possible effects on the

meaning construction process. The analysis of the quality and quantity of turns and exchanges was believed to determine the interactive and communicative functions of classroom multimodal interactions hence their patterns. I decided then to split up the data into turns and exchanges and analyze the structure of classroom turns and exchanges in terms of the interactive function of each turn using the IRF system introduced by discourse analysis researchers. To realize this purpose, I opted for discourse analysis which is assumed to allow the interpretation of language use and participants' interactive roles while using the different meaning-making available to them. Discourse analysis is distinctive from other models (conversation analysis for instance) for its focus on processes of communication (Van Dijk, 1997). It holds that language is a dynamic means of expressing intended meanings in interaction (Wetherell et al. 2001). "It involves not just the study of the textual data, but is balanced by a consideration of the general principles of interpretation by which people normally make sense of what they hear and read" (Brown, Yule, 1983: p. 27). The aim of discourse analysis is to understand interactive behaviour through the meaning making strategies reflected in speech acts.

However, having identified the turn and exchanges as the unit of analysis it was still however difficult to apply the three-exchange structure (IRF) described above to my data because classroom discussions did not progress in a linear way. Discussions were not strictly structured the way it was described by traditional discourse analysis researchers (Sinclair, Coulthard: 1975). Rather, there was a hybrid interaction where different speakers communicated simultaneously to perform different interactive and communicative roles. For instance, one student might be acting as a respondent contributing a new idea. Another student might simultaneously be trying to reinitiate and revive an already closed discussion in a preceding exchange.

To describe the interactive functions of the different turns performed by participants in this particular research, two new interactive functions were defined.

- **Initiation continuity (IC):** when a participant reinitiates an already closed exchange while a new exchange has already started.

participants reinitiate the same discussion though the teacher has already provided feedback and closed the exchange.

- **Respond continuity (RC):** when a participant builds on others' contributions within the same exchange (follow up on previous turns), or when his response is associated with a preceding closed exchange.

This was illustrated by the following example.

### **Extract**

T1: yes good now here are other presentation pictures, now the lady on the picture is very sad, according to you what should we advise her to do?

#### **Feedback + Initiation**

L1: I think she should eat chocolate

#### **Response Continuity**

L2: chocolate yes euh she should visit her friends

#### **Response continuity**

L3: she would better sleep or eh hh watch TV

#### **Response Continuity**

L5: yes sleep I sleep when I am sad

#### **Response Continuity**

Teacher 1: yes very good, L4 what do you do when you are sad?

#### **Feedback + Initiation**

L4: I go to the swimming pool

Response

Teacher 1: (the teacher is writing on the board while L4 responds) we use the expression would better and?

#### **Initiation Continuity**

L 5: miss we use should

#### **Response**

Turns were related and built on each other. This linkage was very important and needs to be presented. In this regard, Hepburn and Potter (2004) explained “We may refer to the concept of prospective or continuous classification where “each utterance is oriented to what comes before, and sets up an environment for what comes next”. (p. 190). The teacher evaluated the learner’s answer and initiated another exchange. She invited learners L1 to respond. Successively, other learners started to build on L1’s contributions adding their personal opinions and experiences before the evaluation of the teacher. Their contributions were qualified as “response complete” rather than “response” where learners built on L1’s response rather than suggesting different ideas. While L4 was responding to a new initiation, the teacher went back to previously discussed ideas to reinitiate a new discussion over these same ideas and another learner responded to this new re-initiation. This example showed that participants could simultaneously use different modes of communication to realize different interactional functions; some initiated a new exchange while others were still responding to the current non-closed exchange, others trying to reinitiate a previous already closed discussion while some others tried to respond to previous replies building on each other’s’ ideas.

It was assumed that the analysis of the new interactive roles would allow us to know if the communicative exchanges were thematically related and interdependent. Analysis of interactive categories as frequencies of initiation (I), initiation continuity (IC), response (R), and response continuity (RC) turns could reveal depth of information exchange and extent of collaboration during classroom interaction. The high percentages of (I) coupled with high percentages of (R) might imply a tendency to focus on own contribution rather than building on previous contributions. The high percentages of (I) coupled with high percentages of (RC) might imply a tendency to follow up on previous turns. The high percentages of (IC) coupled with high percentages of (R/RC) might imply a tendency to follow up on previous exchanges which might suggest greater collaborative efforts to actively attend to the meaning and implications of others’ contributions and further develop the topic of discussion through reinitiating turns, as opposed to only focusing on own contributions. In this regard, the study of the structure of multimodal

interactions in terms of (I), (IR), (R), (RC) served to depict the path of information dissemination and progression of constructive discussion.

To sum up, given the focus of the first research question on the analysis of patterns of classroom interactions, I opted for the IRF system proposed by discourse analysis to study the patterns and structure of classroom interactions. There was a need to modify the three-structure I-R-F exchange and turn it into a five-structure exchange I-IC-R-RC-F. This adapted structure would reveal the extent of participation in terms of the frequency/range of turns and exchanges showing the mediational choices adopted by participants.

## **2.2. Analysis of the Collaborative Knowledge Construction Process**

This section explained how this research sought to answer the third research question:

Do teachers' scaffolded and mediated interactions support collaborative knowledge construction process, and if so to what extent? What is the effect of the affordances of teachers' patterns of interactions on patterns of learners' engagement in constructive discussions? To what degree do these patterns contribute to Knowledge construction process?

As it was stated earlier, one of the premises in Vygotsky's (1978) theoretical framework was that mental processes could only be understood when there was understanding of the tools and signs that mediated them.

The description of the simultaneous use of turns of communication and their possible interdependence was one of the most difficult issues in this research. It was exactly this interdependence that determined the way meaning construction took place. Fischer et al. (2002) suggested that the social modes of co-construction indicate the extent to which learners refer to the contributions of their learning partners, and this has been claimed by Fischer et al. (ibid) to be related to



knowledge acquisition. At some point, the same work was being done twice: the description of the interactive functions of turns and the description of the tools being used to perform these same functions. However, I realized that the description of the interactive functions should not be separated from the description of the interdependence between turns of communication simply because they were very interrelated. I thought of providing a full description of the interactive and communicative function of each turn, and its relating turn to which it is thematically related.

In sum, I ended up by defining two new interactive roles which were (I) and (IC), the adoption of turns and exchanges as unit of analysis, and the conception of a new way for the representation and transcription of classroom data.

Hence, to address any progression or evolution of patterns of classroom discussions within the groups, I used the I-IC-R-RC-F exchange system borrowed and modified from discourse analysis. Discourse analysis regarded discourse as the main actor in the construction of realities, but socio-constructivist researchers believed in the joint social construction of realities through the negotiation of collective and individual understandings. Discourse analysis focused on interpreting individual contributions and did not allow deeper enquiry into the social process of knowledge construction. It provided a pedagogical interpretation of the participants' individual interactive actions which was only a first step to understand their socio-constructivist functions. As such, there was need for a model to dive deep into participants' discussions to comprehensively depict what was actually taking place from the socio-constructivist point of view.

To find the appropriate model for the analysis of the collaborative knowledge construction process was not easy too because of the lack of models of analysis. As it was explained earlier, research on classroom interactions in supporting knowledge construction processes is sparse and the analytical models for examining classroom interactions are mainly designed for a classroom discussions. I could not find appropriate analytical methods for examining interactions from the socio-constructivist perspective. It is still pointed out that much research and development remains to be done in order to understand the process of knowledge construction.



The following section explained the challenges I was confronted with in my search for a model of analysis as well as the solutions that I could propose.

The purpose of this study was to characterize students' discussions with respect to the relations between participants' interactions and the collaborative meaning construction process. Thus, it was necessary to consider the contribution of this interdependence to students' participation in the knowledge construction process.

The current literature showed that research has failed to design and conceptualize techniques and theories for the guidance of data analysis research. It seemed that current studies were generally based on quantitative ways of measuring participation (for instance measures of participation opportunities, the length of a turn, and the length of sentences to examine the quality of classroom interactions (Sing, Khine, 2006). However, these quantitative indicators did not address either the processes or the quality of learning taking place (Mason, 1992, Pena-shaff et al., 2001 and Romiszowsky, 1996). Students' rates of participation and interaction were the most cited data on the educational benefits of interactions (e.g., Harasim, 1990, Hiltz, 1990 and Pena-Shaff et al., 2001). This implied that the claim that the implementation of competency based approach promotes socio-constructivist principles of learning was based on the premise that high levels of participation were equated to collaboration and learning. However, participation is not collaboration and quantity alone does not account for the quality of interactions nor their socio-constructivist dimension. Content analysis researchers have tried hence to focus more on the quality rather than the quantity to assess learning processes. (Butler, 1992, Gunawardena, 1997, Newman et al., 1996, Newman et al., 1995, Pena-Shaff et al., 2001, and Zhu et al., 1996.

Nevertheless, only a few important models of analysis that used the principles of constructivism as a framework to describe discussions could be identified. The models stated underneath were designed to analyze the quality of interaction. The models were based on the premises that higher forms of learning are socially mediated and co-constructed in collaborative interaction and mutual

sharing of information. The following section detailed the contributions and deficiencies of the most important content analysis methods.

Henri (1992)	Newman (1995)	Zhu et al (1996)	Pena-Shaff & Nicholls (2004)	Salomon (2000)	Gunawardena et al (1997)
Participative dimension	Problem identification Elementary clarification a triggering event arouses observing or studying a interest in a problem identifying its elements, observing their linkages	Participation categories	Questioning Reply (sharing information	access and motivation	Statement and application of newly constructed knowledge
Interactive dimension	Problem definition In-depth clarification define problem boundaries,	Participants roles	Interpretations Clarifications	Online socialization	Dissonance and Inconsistencies

	analysing a problem to ends and means understand its underlying values, beliefs and assumptions				
Social dimension	Problem exploration: inference admitting or proposing an idea, based on links to admittedly true propositions	Meaning categories: question, answer, reflection, comment s, discussion, information sharing, scaffolding	Conflict, assertions, consensus building	Information exchange	Negotiation/co-construction
Cognitive : elementary clarification, in-depth	Problem applicability Judgement evaluation		Judgement (justifying the relevance Of new	Knowledge construction where discussions	Testing tentative constructions

clarification, inference, judgment, the development of strategies	of alternative making decisions, evaluations solutions and new ideas and criticisms		knowledge	and collaborati on take place	
Meta-cognitive dimension	Problem integration Strategies acting upon understanding to for application of solution validate knowledge following on choice or decision		Reflective (self appraisal and acknowledging learning	Developme nt of practice and reflective communiti es	Statement and application of newly constructed knowledge

**Table 2.1. Content Models of Knowledge Construction Analysis**

Henri (1992) developed a theoretical framework for the analysis of the learning processes involved in computer conferencing. The framework addressed the participative, interactive, social, cognitive and meta-cognitive processes. The cognitive dimension was defined in terms of different elements such as

understanding, reasoning, critical thinking, problem resolution and depth of processing. Henri proposed different categories to analyze the elements of each dimension. For instance, she defined the following categories to analyze the cognitive dimension: elementary clarification, in-depth clarification, inference, judgment, and the development of strategies (See table 1).

Newman et al., (1995) developed a set of indicators based on Henri's indicators and Garrison's stages of critical thinking (See Table 3.1). They included relevance and importance of contributions, novelty of information, ideas and solutions, bringing in outside experience or knowledge to address the problem, linking ideas and interpreting information, justification of statements and solutions, and critical assessment of own or others' contributions.

Zhu et al., (1996) aimed to evaluate meaning negotiation and knowledge construction of tutorials in a graduate level distance-learning course within a constructivist framework. They coded the messages into participation categories, participant's role, and meaning categories. Meaning categories (question, answer, reflection, comments, discussion, information sharing, and scaffolding) were defined a priori. However, this model suffered from the same problems as the preceding ones. Although some of the categories provided good descriptors, others (e.g., comment, discussion, and information sharing) were very broadly defined. In addition, Zhu did not code raw data. Messages were only coded after they had been summarized and synthesized.

Pena-Shaff et al., (2004) analyzed students' interaction and meaning construction in a college-level course. The researchers analyzed and coded the messages according to whether they were interactive ("interactive") or not interactive ("monologue") messages, as well as on the type of learning process taking place.

Salmon (2000) used constructivist principles of teaching to explain and assess the progressive development of the learning community. The model suggested that a social community included five stages: (1) access and motivation, (2) socialization (3) information exchange (4) knowledge construction where

discussions and collaboration take place, (5) development of practice and reflective communities.

Gunawardena et al., (1997) developed an “interaction analysis model” to describe hierarchical phases in the co-construction of knowledge based on a constructivist perspective. The model elucidated how participants in a constructivist-learning environment arrived at a higher level of critical thinking through five hierarchical phases of interaction (debate) with peers in the co-construction of knowledge. These stages were: sharing/comparing of information, discovery of dissonance and inconsistency, negotiation of meaning/co-construction of knowledge, testing and modification of proposed synthesis, agreement/application of newly constructed meaning.

While these studies did examine the processes of critical thinking and knowledge construction, many were in the end limited to producing just quantitative analyses. The categories and the coding schemes of the four first models were criticized. It was pointed out that they were very broadly and vaguely defined making it difficult to sort messages in the categories proposed (de Wever, et al., 2006). For instance, Henri’s model was not empirically tested. As Henri herself pointed out, her framework was simply an attempt to provide an initial model for analyzing the content of discussions. Henri et al, Newman et al., Pena-Shaff, and Zhu’s indicators were suggestive for identifying cognitive processes found in classroom messages. However, the authors did not provide category descriptors to aid in the classification which made it difficult for me to sort student messages into their category system. Despite the fact that Salmon’s model drew on constructivist principles of learning, it focused on the measurement of the outcomes that resulted from the learning process and the development of a learning community rather than the process of social construction of knowledge itself.

It was difficult to implement these models in the analysis of the present research data. The frameworks of the discussed models addressed the participative, interactive, social, cognitive and meta-cognitive processes that might occur in learning environments. However, Henri et al (1992), Newman et al. (1995), Pena-Shaff (2004), Zhu (1996), and Salmon (2000) did not provide category descriptors

to aid in classification. On the other hand, the coding gave no impression of the levels/progression of the process though it was argued that meaning construction evolves through series of phases.

Gunawardena et al's. (1997) model thoroughly explained the different stages of the social knowledge construction. It allowed the description of cognitive presence which was defined as "the extent to which participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison et al., 2000. p: 4). Garrison and Andersen (2003) defined it as "the intellectual environment that supports sustained critical discourse and higher-order knowledge acquisition and application" (p: 55). It also allowed a description of the development of the ZPD, scaffolding presence or assisted performance as well as the direction of cognitive and social processes of meaning construction. The presence and interactions between these elements in Gunawardena's model were considered crucial prerequisites for a successful learning experience. The cognitive presence reflected the "intellectual climate" (Garrison, 2000, p: 2) of the learning environment. The existence of assisted performance indicated the existence of a social climate that "Facilitates the knowledge sharing process necessary to sustain cognitive presence and mediate all these components" (Anderson et al., 2001, p.5).

However, this model was questionable in its context because the data for it came from a highly structured, formal preconference debate among professionals that took place in a conference debate. In this regard, Pena-schaff et al argued:

"It's not clear how well their findings would apply to discussions undertaken by students, who are themselves not yet proficient in the arts of persuasion and argument, and whom we as educators are trying to assist in developing the kinds of cognitive structures that the participants in the pre-conference debate already possessed" (2004, p. 65).

I tried to apply this model in my previous research because the classification of phases of knowledge construction was important. However, the coding categories did not allow the treatment of my data from a teaching-learning

context. I was obliged to refine it by adding and deleting some codes to accommodate the data left untreated. In an effort to solve this problem there was a need to design another model which was an adapted version of Gunawardena's classification. The categories of Gunawardena's classification of phases of knowledge construction were modified to fit with the nature of my data from an learning context. Hence, a category system based on previous research was initially applied to the data and then modified to provide more detailed categories and indicators.

A scan of the different models (Table 3.1) showed that researchers agreed on certain categories to be directly related to the process of knowledge construction. Fischer (2006) viewed students' discussions as collective information networks in which content changed and evolved dynamically by adding information, explaining, evaluating, summarizing, or transforming it. Of the categories identified in Table 3.1, statements of clarification, interpretation, conflict, assertion, judgment and reflection appeared to be most directly related to the process of knowledge construction. Adding information means that a new input was linked to the discussion. Explaining information meant that earlier stated information was made clear, specified, categorized, or illustrated. Evaluating meant that learners stated the strength or relevance of added and/or explained information. In transforming knowledge, learners evaluated and integrated the added and/or explained information into the collective knowledge base. Summarizing means that learners have already internalized the new information and were finally able to reorganize, restate, or use it.

In my previous research, I had to add the category 'requests' to all the sub-phases proposed by Gunawardena et al., as the inquiry process "makes covert abstract processes visible, public and manipulable and serves as a necessary catalyst for reflective meta-cognitive activity" (Puntambekar *et al.*, 1997). Requests indicated that students attempts to make sense of and understand the topics discussed. It was argued that by posing questions, elaborating on the ideas presented, debating and interpreting their own statements and those of others, students explore the discussed content, reach their own interpretations about the



concepts/ideas being discussed, only then can they internalize the newly discussed and constructed information.

Furthermore, it is argued that meaning construction is reached through negotiation and debate. According to Fischer et al (2002), Weinberger and Fischer (2006), the social modes of meaning co-construction described the extent to which learners referred to the contributions of their learning partners as well as negotiate and debate the exchanged information. They argued that this has been found to be related to knowledge acquisition. Based on this argument, my indicators that were defined as negotiation functions focused on debate and negotiation interactive categories. For instance, my proposed negotiation function categories included questions, reply, support, acceptances, explanation, consensus building, clarification/elaboration, evaluations, conclusions and checks, challenges arguments, and counter-arguments. Thus, the proposed negotiation categories focused on how the students share and construct knowledge interactively through articulating thoughts to the group, questioning group members, accepting contribution of group members, applying others' perspectives, or disagreeing with, arguing, counter-arguing.

Moreover, it was argued that when we describe higher forms of thinking, only then we can assess the individual socio-constructivist dimension of learning (Hopkins and al 2008).The negotiation function categories reflect the forms thinking participants use when engaged in classroom interactions. Hence, the proposed negotiation categories offer a description of socio-cultural constructivist learning process in the sense that they allow the description of forms of thinking, social and the individual dimension of learning.

<b>Phases</b>	<b>Interactive codes</b>	<b>Comments</b>
Phase 1: sharing and comparing information (Basic negotiation	Information request	Ask to repeat, ask for information, exchange of ideas, experience or an opinion

functions)	Information provision	Repeat recognize given information, provide information, experience, ideas, opinions, ...
	Acceptance	Accept, a statement of agreement from one or more other participants
	Corroboration	Add or give similar examples, experiences, opinions...
	Comprehension check	To check understanding
Phase 2 (Medium/intermediate negotiation skills)	Explanation request	To ask to specify something, give more details, precisions..
	Explanation	Make clear, specify ...
	Disagreement	Identifying and stating areas of disagreement
	Rapid agreement	No other proposition and acceptance of the same idea, proposition and apply others' perspectives. Restating the participant's position, and possibly advancing arguments or considerations in its support
Phase 3 (Elaborate negotiation functions)	Exploratory request	Pointing at a problem, misunderstanding or disagreement.

		Recognition of some confusion/curiosity or perplexity as a result of a problem/issue arising out of an experience: posing a problem and enticing others to take a step deeper into it.
	Clarification/exploratory	Give more information, arguing own statements and establishing comparisons.
	Rejection	Express disagreement and refusal of the ideas, opinions, explanations, interpretations...
	Argument	Expressing reasoning, use of examples, analogies to defend ones ideas
	Assertion	Maintaining and defending ideas questioned by other participants by providing explanations and arguments that defend original statements. (Restatements of assumptions and ideas, defending own arguments by further elaboration on the previous ideas.

	Critical challenge/counter-argument	propose/suggest another direction for discussion or thought, and to assert the need for another direction for discussion or thought.
	Conflict	debating other participants` points of view, showing disagreements, presenting alternative or opposite positions
	Justification (reasoning)	Include constructed rather than retrieved beliefs and are used to present: goals, problems and solutions. It presents support or contraindication for alternative hypothesis. It is used to respond to a stated position/point of view with supporting or contrary evidence evidence/information. It is used to defend a stated position or challenge/dispute a stated position with information/evidence
	Concession	Recognize the validity of an alternative viewpoint

		expressed in a previous turn.
	consensus building	Co-construction build on each others' ideas trying to attain a common understanding of the issues in debate
Phase 4 (Highly Elaborate negotiation functions)	Reflective requests	To invite learners to reflect, test and evaluate the newly constructed meaning
	Testing	Evaluate and test new constructed meaning against previous knowledge or personal opinion
Phase 5 (Highly elaborate negotiation functions)	Summary and conclusions	To be able to restate and recognize the different points discussed
	Meta-cognitive requests	To invite learners to make statements illustrating their understanding and awareness of the newly constructed meanings
	Meta-cognitive statements	statements by the participants illustrating their understanding that their knowledge or ways of thinking (cognitive schema) have changed as

		a result of the conference interaction
	Application	To be able to use spontaneously and authentically the newly constructed meanings

**Table 2.2. Model of Knowledge Construction Analysis**

**Phase (1) sharing and comparing information** is compared to cumulative talk (Mercer, 2000) where learners build positively but uncritically on what the others say through performing the following low level negotiation functions: suggestions (information provision), additions (corroborations), acceptance, and agreements (acknowledgement). At this point, there is no continuity in the discussion and the construction of meaning. Articulating thoughts or putting forward statements in favour of a specific proposition are at a lower level.

**Phase (2) Dissonance and inconsistency/Quick Consensus Building** is compared to disputational talk (Mercer 2000) where consensus is quickly reached. Clark, Brennan (1991) argued that when negotiating and co-constructing meaning, learners needed to build a minimum consensus or common ground regarding the learning task. There are different styles of reaching consensus: quick consensus building and deep consensus building. During this phase, students perform moderate negotiation functions: disagreement, explanation requests and rapid agreement (non-negotiated agreement). Students build on each other's contributions and build consensus very quickly. In this case, students accept the contributions of their learning partners not because they are convinced, but in order to move up the discussion and be able to continue discourse (Clark and Brennan, 1991. Fischer et al (2001) and Weinberger and Fischer (2003) argued that quick consensus building indicated a lack of change of perspective and understanding; it was rather a coordinating discourse move. However, quick consensus building is

important in the management of interaction. Keefer et al., (2000) and Leitao (2000) argued that it was detrimental to individual knowledge acquisition, when learners disregarded other forms of consensus building in its favour.

Hence, there is no continuity of meaning construction at this moderate second level of the discussion. Hence, during phase (1) and phase (2), the discussion is at a low level of meaning construction where students simply exchange ideas.

**Phase (3) Negotiation and co-construction of meaning (Deep conflict and consensus building)** is compared to exploratory talk where students engage critically but constructively with each other's ideas trying to solve conflicts at the aim of building consensus. In language learning, the purpose of conflict solving and consensus-building tasks is to trigger negotiation and construction of meaning. The negotiation functions of this phase are qualified as high and elaborate negotiation categories. The majority of the interactive categories of this phase embody elements of argument for instance: concession, reason, justify, challenges, arguments, counter-arguments. Statements and suggestions are offered for joint consideration. These may be challenged, argued and counter-argued. Challenges are justified and alternative hypotheses are offered. Following argument construction, learning partners construct counterarguments in order to challenge the initial positions. Construction of counterarguments facilitates meta-cognitive activities and engages learners in rethinking their primary positions. Then, learners justify, reason, concede to refine their initial positions. Constructing arguments to justify their assertions facilitates domain knowledge of the content of discussion while constructing counterarguments to challenge the assertion of other learning partners trigger students to think further or rethink their initial argument. Finally, they try to elaborate a new agreed upon meaning to solve the conflict and build consensus.

Compared with the other two previous types, there is continuity in the construction of meaning. Meaning is made more publically accountable and reasoning is more visible in talk. Learners try to build a deep consensus. Crook (1995), Baker, de Vries, Lund and Quignard (2001) state that learners produce a more articulated discourse, elaborate meanings, clarify views, and to modify or

adjust their degrees of commitment towards their assertions, when they are faced with the requirement to defend their assertions and to critically evaluate those of their peers. According to Galloti (1989) and Shaw (1996), there are close connections between the concept of argumentation and the concepts of high forms of thinking. Learners have to consider each other's assertions and evidences for those assertions during argumentation and consensus building process, and in this way they engage in high forms of thinking. Subsequently, this third phase seeks to uncover the level of students' deep consensus building move. During this phase the discussion moves up to high levels; putting forward statements that aim to balance and to advance a preceding argument and counterargument is at a higher level of meaning construction.

**Phase (4) Testing tentative constructions (judgement of the relevance of the newly constructed knowledge)** is a high level of meaning construction. In this phase, students use highly elaborate negotiation functions to predominantly reflect on their newly constructed meaning by testing it against their previous knowledge, their existing cognitive schema, and their personal experience and interpretations.

**Phase (5) Agreement statement/applications of newly constructed meaning** is the highest level of meaning construction. This final phase is devoted to meta-cognitive statements where learners restate all the points discussed, make conclusions and illustrating their understanding that their knowledge or ways of thinking have changed as a result of classroom discussions. They end up using the agreed upon new meanings. The negotiation functions that form this phase are described as highly elaborate.

In sum, as illustrated in the table, the knowledge construction process is made up of five phases of meaning construction. These categories range from externalization of thoughts (focus on meaning of concepts) at a superficial level to a higher level of social interaction in terms of conflict-oriented consensus building, testing and finally internalization (application of concepts).

Thence, I proposed this hybrid model of analysis that drew on socio-constructionist interaction and content analysis models for the examination of the



way students co-construct knowledge in the context of language learning environments.

Based on the socio-constructivist methodological framework explained above, the analysis of the recorded lessons went through different steps.

- The transcription of the data using the methods of transcription and presentation explained above.
- The analysis of the patterns of classroom interactions. To do so, I used discourse analysis where I applied the five I-IC-R-RC-F system to describe and analyze the interactive roles of the different participants. Turns were coded in terms of the five identified interactive categories (I, IC, R, RC, and F) defined as interactive roles. I suppose that the organisation of interactions reflected in the interactive roles adopted by the different participants affects learners' degree of involvement in terms of quality and quantity as well as it determines the interactive and participative roles of the teacher and learners. It should be noted that discourse analysis was only used for the description of the structure and patterns of interactions.
- The coding of interactive categories into sub-categories based on the negotiation/communicative functions of turns. The communicative functions of turns were reflected by the negotiation functions performed by participants.
- Quantification of the different interactive and negotiation categories.
- The classification of turns into phases of knowledge construction according to their negotiation categories.
- The classification of exchanges into phases of meaning construction according to the extent of collaboration reflected by the extent of interdependence between turns and exchanges and the type of interactive and negotiation functions conveyed.

I proposed the following extract as an illustration:

## **Extract**

T1: Are you with euh with the use of Nuclear

### **Initiation (Exploratory question)**

L12: I am against euh it is bad to people it cause wars kills people like in Japan

### **Response (clarification)**

T1: ah ok good point, but you do not know the meaning of the word nuclear? It is a type of energy now what do you think? Should we used it or should we stop using it?

### **Feedback (Accept) + Initiation Continuity (Clarification + exploratory request)**

L9: we should stop it yes it killed people in Irak

### **Response continuity (assert)**

L3: no I am with miss I am with we use for ill ill euh ill persons with cancer + (T1 write on the board: with research medicines cancer)

### **Response continuity (reject + clarification)**

L19: no it kills a lot animals children towns in sahra in Algeria it destroyed we should stop it and not use it euh with ill people + (T1 write on the board: against dangerous war kills people)

### **Response continuity (challenge)**

L22: no science euh la recherche yes research is important we use it to euh to euh to create euh medicines cancer is horrible and kills person more now we should use it

### **Response continuity (counter-argument)**

L17: I am with for research we need medicines cancer is dangerous my uncle died last year he is ill euh was euhh I am against in wars

### **Response continuity (assert)**

L12: yes it must use in limited euh way

### **Response continuity (concession)**

L9: yes I agree not in wars but with cancer and medicines yes

### **Response continuity (consensus building)**

In this example, learners discuss an important concept that triggered intensive negotiations and debates. I first applied the I-IC-R-RC-F system on this long exchange to code the different interactive functions of the participants. As it is shown, the teacher's contribution was described as an initiation (I) as the teacher started a new topic. Then, the teacher's F and IC interactive categories were further sub-divided in terms of their communication functions into two negotiation functions: clarification and exploratory request. The teacher clarified the meaning of the concept then invited students to debate this same concept. His contribution was then described as I (clarification + exploratory requests). Concerning learners, as the exchange showed, some learners were with while others were against the concept which triggered an intensive debate. Hence, their contributions were all described as RC interactions as they were engaged in the process of negotiation and argumentation, clarifying, rejecting, challenging and asserting each other's' ideas. Then, their RC interactive categories were sub-coded in terms of their negotiation functions. For instance, the contribution of L22 is an RC (rejection) as learner L22 rejected Learner L12 and learner L9 ideas and justifying her rejections, the contribution of L4 was coded an RC (counter-argument) as the learner rejected others learners' ideas and tried to defend his own idea, and the final contribution of Learner L9 was coded as having two negotiation functions RC (concession + consensus building) as the learners stated that he finally understood L22's ideas, he stopped challenging and accepted student L3's clarifications and assertions.

Hence, in terms of the level of the knowledge construction, the extract showed that all of the participants used elaborate negotiation functions which indicated that their contributions reached Ph3 of meaning construction. In addition, the extract showed that the contributions made in the different modalities were interrelated as learners were referring to each other's' contributions building on each other's' ideas. As such, the exchange was described as ICRRCF exchange. The exchange or the discussion reached Ph3 of knowledge construction as participants were collaboratively working, their contributions were related, and they used elaborate negotiation functions building consensus at the end of the discussion.

Finally, characteristics such as objectivity and reliability are important criteria for any research (Rourke, et al., 2003, p148). To avoid shortcomings, the coding scheme was tested, developed and refined over a three-month period and intra-reliability was assessed where I had to code the data three times to check any discrepancies.

Moreover, in order to take account of the possible threats of validity and to add methodological rigor, I submitted data to double coding. Prepared data from the video-recorded lessons were analyzed according to the coding scheme by two other colleagues. In a first round, my colleagues and I coded turns into interactive categories. Then, the interactive categories were further sub-coded into negotiation categories. The three coders were required to code the data twice. There was a strong agreement between my colleagues and I and the inter-reliability was high. Cohen's Kappa is at .86 for the coding categories. My colleagues and I subsequently compared codes and resolved discrepancies.

The analysis of the different lessons provided detailed evidence of the ways in which participants interacted to participate in the collaborative knowledge construction process. However, it provided only limited evidence of the reasons for and the thinking behind participants' actions. Lessons were therefore supplemented by a series of interviews intended to reveal unexpressed aspects of participants' interactions and learning experience to provide different perspectives on that interaction, and thus to enrich understanding of the effects of different factors on learning and the implementation of the competency based approach (Zhu, 2006).

Hence, this research makes use of qualitative analysis of interviews to illuminate the qualitative analysis of face to face lessons' data.

### **3. Interviews**

To answer the third research question, interviews were conducted with teachers and inspectors.

- How do inspectors and teachers perceive training opportunities and adequacy of training support?

The second main source of data was the tutors' and academic inspectors' interviews to examine participants' views and accounts of their overall training and teaching experiences. Interviews proved to be beneficial in generating information participant's perceptions and eliciting participants' reflective perspectives on their learning experiences and their views concerning the implementation of the competency based approach. An interview "attempts to understand the world from the subjects' point of view, to unfold the meaning of people's experiences" (Kvale, 1996, p. 1). In addition, a form of triangulation was needed to enhance the validity of the study. The different evidence from interviews served to partially substantiate, or negate the results of the analysis of lessons. Interviews were also intended to add credibility to the research by including learners' accounts of their training and teaching activities as well as the researcher's interpretation of that activity. Thence, interviews were therefore carried out to extend and inform interpretation of the face-to-face data.

Prior to a systematic analysis of lessons, the application of the coding scheme allowed me make sense of the data and have a general idea of the outstanding features of each case. Based on these themes and identifies features I designed the questionnaires questions and statement and organized the interview questions around. I identified what counted as a theme from the analysis of lessons. The recurrent themes that emerged from the analysis of the tutorials were: the importance of collaboration, participation opportunities, the importance of the concept of competence, the type of tasks, and tutors' scaffolding. Based on these themes I designed the questionnaire and interviews' questions.

Only inspectors and teachers were interviewed. I opted for semi-structured interviews that allow "individuals to expand on their responses to questions" (Jones, 1991, p. 203). They provide interviewers with flexibility to probe in-depth providing richer data (Nunan, 1992). As advocated by Nunan (1992), the interviews

were determined by topics and issues rather than a list of questions. The interviews were semi-structured with some initial questions as the starting point opening up into more flexible exchanges. These questions, and the use of the method in this study, were trialed on two students with experience of classroom group learning. Their responses were considered as pilot data, and were not incorporated within the main study.

I approached many teachers all over the country. I attempted to interview a mix of trained and untrained teachers. The reason behind was to check the extent to which teachers were ready to implement the CBA and whether the training was beneficial. Only 25 teachers accepted to participate in the research. Besides, I tried to involve the maximum number of inspectors who were involved in the process of training teachers.. However, only six inspectors accepted to participate. Hence, I interviewed 25 teachers and Interviews were conducted over Skype and face to face meetings and lasted between 60-90 minutes each. In some cases, Skype interviewing was selected rather than face-to-face interviewing because the teachers were distributed within the country, so meetings would have been difficult to arrange, time consuming and expensive. The method allows both interviewer and respondent to select suitable interview times, provides time to consider questions and responses.

The interviews were conducted right after the end of the semester. It should be noted that participants' comments reflected their accumulated perceptions on the overall experience with potential influence of time on their memories and perceptions via retrospection.

Prior to the interview, I sent the consent form to teachers and a letter that explained the flexible structure of the interview and guaranteed anonymity and confidentiality. When interviewing teachers, I encouraged them to talk about their experience in as many directions as they wished. I finished the interview by asking them if there was anything they wished to add (Dornyei, 2007).

The conversations were recorded and then transcribed in full. Thematic qualitative analysis was used for the analysis of interviews. They were analyzed according to two main meaningful dimensions. First, the answers were grouped

according to central ideas and themes identified. Second, similarities and differences in tutors' answers were identified.

#### **4. Ethics**

First, it is worth mentioning that it was very difficult to have access to classrooms as I needed the permission of Educational authorities in Algiers and Sétif.

Ethical decisions in this study were governed by the instructional guidelines set by BERA guide (Revised Ethical Guidelines for Educational Research 2004) and the ethical principles for research involving human participants that determined that a human research ethics permit and informed consent from participants were required for this study. Consequently, permission has been sought from the Algerian Ministry of Education.

I got in touch with the headmasters of schools who asked teachers' permission to be observed. An information sheet and a consent form have been sent to participants where I explained what participation would involve. Three teachers volunteered. The teachers who agreed to be observed asked for the permission of their students who explicitly gave their consent. Participants were informed that the data was protected would be destroyed in case of withdrawal. The consent form included details on the aims of the project, what participation involved, and what would happen in case of withdrawal.

As anonymity, confidentiality and privacy are concerns in educational contexts, participants were given assurances regarding these matters. All research data was, and is, stored securely on a password-protected computer. To provide privacy and confidentiality in publication, I have anonymized the names of the participants throughout the thesis.

Informed consent has been obtained in March 2011 before the commencement of the main study.

I suppose that informed consent might present methodological risks of influencing participants' behaviours and consequently the quantity and quality of interaction.

## **Conclusion**

In sum, the modified five-structure I-IC-R-RC-F was used to describe the interactive functions of turns as well as the patterns of multimodal communication turns and exchanges. This description allowed capturing the dynamics underlying the interplay/interdependence between the different turns and exchanges. Such an analysis would indicate the impact of teachers' and learners' interactions on the progressions of discussion, which revealed depth of information exchange and extent of collaboration.

Describing and quantifying turns was important in this research. However, quantitative data alone offered no insight into the quality of interaction. To examine the quality of interaction, we need a model that analyzed the features of the teaching and learning from a socio-constructivist dimension was needed. However, research on the implementation of competency based approach and its impact on supporting knowledge construction processes was sparse. I could not find appropriate analytical methods for examining interactions from the socio-constructivist perspective. It was pointed out that much research and development remains to be done in order to understand the implementation of competency approach and the collaborative knowledge construction process.

Hence, I had to adapt or modify Gunawardena et al's model and propose a new coding to analyse my data. By proposing such a coding, I assumed that learning is a social active process, in which individuals create meaning by sharing ideas/opinions/concepts, negotiating by analyzing/discussing/evaluating the shared knowledge, and experiencing new situations and applying newly constructed meaning.

It should be noted that I did not carry out any statistical analysis of the quantitative data because I did not aim to generalize in statistical terms. I compared



data within and across groups via tables and graphs. To answer the third research question, questionnaires were administered to students and interviews conducted with tutors. I used quantitative and qualitative data to thematically analyze the questionnaires and the interviews.

The following chapter illustrated how the proposed methodological framework was implemented to analyze the different data of this research.

## **CHAPTER THREE: ANALYSIS OF INTERVIEWS AND DISCUSSION OF FINDINGS**

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## Introduction

The aim of this research was to increase understanding of the ways collaborative knowledge construction took place or not in Algerian English classrooms that implemented the CBA. This was in attempt to extend understanding of the implementation of the CBA, by exploring both whether and how social modes of thinking together through classroom exchanges and the use of the affordances of the new programs support collaborative knowledge construction process.

In any descriptive research the theoretical part needs a practical one in order to be satisfactory. Hence, this chapter was thoroughly devoted to discuss the practical section in our research. It dealt with the analysis of data. As it was stated in the previous chapters, the aim of this research was to check the ways CBA was understood and implemented by Algerian teachers in the Algerian classrooms. To do so, there was a need to check if constructive discussions were present in English language classrooms. Precisely, there was a need to check if learners were given the opportunity to collaborate and co-construct knowledge; a prerequisite of the socio-constructivist theory of learning on which drew the competency based approach.

Generally speaking, the present research was regarded as a primary research rather than a secondary one since it was derived from primary sources of information, such as group of students who were learning a language, rather than from secondary research, e.g., books about students who are learning a language. Moreover, this research was integrated within classroom centered research since the data required being collected from genuine classroom, i.e., classroom which have been specifically constituted for teaching purposes. In fact, we were attracted by Nunan's saying "If we want to enrich our understanding of language learning and teaching, we need to spend time in classrooms". (2004: 54). According to Allwright and Bailey (1991), basically, research on second language teaching can be done either by observation or by some form of introspection, or by a combination of

these two. In the current study, the data collection we chose video-recordings, questionnaires and interviews.

The analysis chapter revolved around two main sections. The first section started with the analysis of inspectors' interviews and teachers' interviews.

Interviews purported at checking the extent to which teachers were prepared to implement this teaching methodology in Algerian English Language classrooms. In particular, the aim was to gain a better understanding of the extent to which inspectors and language teachers understood the learning theories that underpinned CBA and their implications to their teaching practices. The second section presented the analysis of classroom observations which allowed the analysis of the individual and social processes of learning. As explained in the first chapter, socio-constructivist theories of learning suggested that learning is both social and individual where the social precedes the individual (internalization). The analysis of classroom observations served to examine the social aspect of the collaborative meaning construction. Finally, to analyze the individual aspect of learning and for reasons of validity and objectivity, the outcome of the analysis of interviews were examined in relation to the results obtained from the analysis of classroom observations and the analysis of the individual contributions of each student.

### **1. Analysis of Inspectors' Interviews**

I started by interviewing inspectors. The interviewed inspectors were appointed by the authorities to train teachers on how to implement CBA. They were invited to reflect on the way they perceived the importance of this approach and the way they introduced teachers to it. Hence, this section analyzed inspectors' interviews. It was organized around questions and themes of the interviews.

Inspectors shared a common agreement as far as the discussed issues were concerned. Hence, I used some extracts from their interviews as an illustration to their understanding of the CBA and their training to teachers.

- **How do you Perceive the Main Changes Involved by the Implementation of the CBA in English language classrooms?**

Inspectors were invited to explain the changes implied by the implementation of the CBA. The aim was to see if inspectors were aware of these changes and the way they took them into account when putting into practice while training teachers to implement the new programmes.

“Yes the changes , OK, yes euh personally I believe the changes euh I may say are both positive and negative, and we may evaluate this later together euh perhaps for a later evaluation. Yeah, for sure the most obvious and important change is that the assessment structure has changed and took different forms different from the traditional ways of assessment which focused on final products only. The assessment form is highly prescriptive and highlights in a very clear way what learners are expected to reach. The focus upon competences is essentially euh it makes for sure a fundamental difference to the whole teaching methodology and language teaching in Algeria now. With the CBA, is a greater opportunity for teacher autonomy, focus on the process of developing these competences, I mean a holistic approach which embraced a wide range of theories of learning. The traditional approaches were very much prescriptive and focused on behaviors a kind of of euh of I may say a technocratic mechanical tradition of teaching, but the new teaching methodology focuses more on developing the what to learn and more importantly how to learn.”

#### **Extract from Inspectors’ Interviews**

“I may say confidently this approach if it is correctly implemented, It is just brilliant, and sure whether you think that is good or bad is based on our personal experiences while trying to implement it, it is so different from what

we were used to in our schools, the main fundamental change I think is related to the way the different approaches that the Algerian schools new and were run: traditional approaches was very much a product-based model and the CBA is a process-based model and I think that, that is a very fundamental difference.”

### **Extract from Inspectors’ Interviews**

The inspectors pointed at very important and fundamental changes. The first aspect was the concept of competence and the change in criteria of evaluation and assessment of learning. The second aspect had to do with the focus on the process of learning and knowledge construction rather than focus on the final product and expected output. Inspectors agreed that this approach shifted the focus on input and output to focus on the process of transforming input into intake and then into social as well and personalized knowledge. They agreed that the CBA was more process oriented than product oriented. I invited both inspectors to reflect more on the last aspect.

- **Can I ask you to just elaborate on that a bit, the distinction between Product-Based and Process-Based?**

“Both yeah because you see as it was said before by my colleague we focus on what and how at the same time, it is based on the competences, yeah, the learner has to demonstrate his or her competence on the basis of certain performance criteria, he needs to develop more competencies geared towards more involvement in autonomous learning, self reliance, you see what I mean, the learner needs to develop the skills of collaboration, sharing with his peers and sure how to be independent at the same time”.

### **Extract from Inspectors’ Interviews**

“yes sure I think that the focus now is not on memorizing grammar items and vocabulary and then check if these are memorized you see it is is rather upon

achieving competencies thinking skills ways of doing things with language at the end but the focus is I mean on how to achieve it, yeah, there is a focus upon being competent in a particular area and because there is a wide range of competences that have to be achieved, yeah, it is a more integrated approach where we have a joint focus on the process of development of competencies and final achievement of these competencies, do you see what I mean?”

#### **Extract from Inspectors’ Interviews**

Inspectors highlighted the importance of competencies as well as the process of the development of these processes. Inspectors believed that this approach perceived competencies as a group of skills that learners needed to develop to process information conveyed by the teacher and transform it into knowledge through collaborative as well as individual work. Thence, inspectors defined competencies as knowledge that learners should construct rather than conveyed by their teachers.

- **You mentioned that CBA Implied a Change in the Assessment System; Could you please Summarize the Main Changes Please for us?**

“I may confidently say there is less focus on form only, there is rather more focus on assessing the mental skills the thinking process through reflection and meta-cognition learners is invited to reflect on their practices their thinking their collaborative efforts I mean we assess the learning process not simply how much language they memorize I may say.”

#### **Extract from Inspectors’ interviews**

“I agree with my colleague there is greater focus now on creating opportunities for learners to engage in the process of reflection synthesis meta-cognition there is a greater opportunity within the CBA model to work

on developing hence assessing the learning process itself, something we do not do euh in traditional approaches which focus more on rehearsal strategies and habit formation repeating the tasks without inviting learners to reflect on the task completion process which I call assessing the how.”

### **Extract from Inspectors’ Interviews**

In inspectors indicated to the importance of CBA where learners have the opportunity to develop their mental skills by constructing their own knowledge as opposite to traditional approaches where focus in n the final outcome. With the CBA model, students have the opportunity to reflect on their learning process which is an important step towards the development of their minds and engagement in the collaborative process of knowledge construction.

- **In the light of what have been discussed earlier, I’d like to invite to reflect upon the effect have these changes had on your own practice?**

“I have to say that it was not easy at all the shift to the CBA, but we all managed to develop new training practices for instance I tried to deliver the CBA courses and traditional courses and invited teachers to find out possible differences between both practices, obviously I encouraged teachers to encourage their learners to reflect upon their practice and we tried to stress the importance of evaluating in an ongoing way their learners’ learning process. The main challenge was with showing to teachers the best ways to make them help their learners develop competencies and assess the process of developing these competencies, there was a great demand on making teachers understand the concept of competence and what counted as enough evidence for a particular competence actually, also the difficulty was to explain to them this concept of engaging learners in reflection on their practices, or evaluation of what they are doing but more, so I’ve increasingly offered up more and more training time on euh how to actually engage



learners in independent learning where they have to work together, learn from each other, rely less on the teacher and so on, I tried to make them to consider concept of focus on the process of learning, make learners develop a competence.”

#### **Extract from Inspectors’ Interviews**

“I feel that the CBA has made a tremendous and substantive change. Yes, it was really a challenge training teachers, to show to them how to encourage the learners to engage in discussions and so on in a genuinely reflective and continuous way that focus should be on content and on the process of learning this content at the same time, so when inviting learners to reflect on their learning practices, activities answers whatever, in reality we are making them not only develop their linguistic knowledge but making them examine the process of learning, the steps they have been through to understand and acquire the new linguistic knowledge, I believe they will be automatically speaking using their high level thinking and this is exactly what we want this is the perfect combination you see to make a learner develop a competence all what you want him to do is to make him acquire new linguistic elements while at the same time being aware of their process of learning.”

#### **Extracts from Inspector’s Interviews**

“At the beginning of the training, we were obliged to have the same group of trainees euh teachers running the same lesson using two different teaching methodologies the new and the old! It was not easy you know you have to move from one way of thinking, one form of practice to another, on the CBA to the traditional approaches and vice versa, euh ok you see there are different competences to cover and develop now within the new program. I mean through the training I tried to make them understand crucial concepts like competence, thinking skills, collaboration, you know, there is euh I may say a plethora of opportunity for teachers to make their learners discuss,

collaborate, reflect, to diversify, we had to run the two courses side by side, it was an interesting experience and quite a difference.

### **Extracts from Inspectors' Interviews**

Inspectors stressed the focal point of the training was the importance of implicating learners in the process of collaborative knowledge construction where they would be encouraged to collaborate, build on each others' ideas by critically discussing and challenging their ideas and views, and reflect on their learning practices rather than simply being receptive to their teachers' information. Having said this, they insisted on the importance for teachers to develop the right skills to involve learners in high order thinking rather than simple exchange of information and compliance with their teachers' instructions. Inspectors attempted to highlight the huge difference between the CBA and the traditional approach which implicated huge efforts on the part of teachers to adapt their teaching skills and be able to implement the CBA. Inspectors' responses paved the way to the following question.

- **I will be more direct, what are the main aspects that the training focused on then?**

“Well the most important thing teachers had to be aware of was the notion of competence. We tried to explain to them the meaning of this concept, the different types of competences and how these have to be developed and evaluated. We tried to give them theoretical explanations but we focused more on more practical hints practices you see.”

### **Extract from Inspectors' Interviews**

“In addition, teachers needed to know that teaching with the CBA is a matter of helping learners to co-construct knowledge. They were not there anymore to transmit knowledge. They had to know that they needed to develop new skills and adopt new roles. The implementation of the CBA was a challenge and is still a challenge. Teachers needed to develop the appropriate skills to

help learners engage in collaboration, construct knowledge together and in a more autonomous way, to develop the different competences they needed, and as described in the program actually.”

#### **Extract from Inspectors’ Interviews**

Hence, inspectors indicated that the training focused on introducing the concepts of competence and knowledge construction processes to teachers. Having said this, trainers introduced teachers to the main concepts of the socio-constructivist theory of learning which underpinned the CBA. I invited then inspectors to reflect more on the way they introduced teachers to these key concepts and the way they attempted to make teachers translate these theoretical principles into teaching strategies and practices.

- **Now I Want to Ask you about your Personal training Experience, Could You talk More About the Difference in Delivering the two Types of Courses?**

“It is very obvious that this experience was a unique one for me very challenging and interesting at the same time I was not satisfied working with the traditional ways of teaching. I personally believe that teacher training should be about helping he develop teaching strategies to help learners get actively involved in the process of reflective on their learning practice and collaborative knowledge construction that opens learners up to different ways of autonomous learning, to engage them in debate and discussion and to make learners develop a more of an enquiring mind.”

#### **Extract from Inspectors’ Interviews**

“traditional methods are very technocratic prescriptive and mechanical and easy to implement, however, the new method is post-technocratic where more focus on is put on the process of learning which makes it very challenging to implement, to be explained. It draws heavily on

socio-constructivist principles of learning. I believe that the CBA method is more difficult to work with hence our teachers need lot of training to be able to successfully implement it.”

#### **Extract from Inspectors’ Interviews**

Again, both inspectors seemed optimistic and expressed their preference for the CBA. CBA is believed to give better learning opportunities to learners than traditional methods. However, they stated that teachers need to make lot of efforts and need more training for a successful implementation of this approach.

- **What do you think of the training offered to teachers?**

“Honestly speaking, not all language teachers could be trained. The most fortunate were those who come from schools in the biggest towns in the country like Algiers, Oran your town Sétif where different seminars were organized. Unfortunately, as far as small towns are concerned, I am sorry to say that teachers were not supported. They were given the programs and were asked to implement the CBA without having a clue about it.”

#### **Extract from Inspectors’ Interviews**

“Yes that is true. In addition, I do not think that the training was that good as teachers were introduced to the main principles of the CBA but they did not have the chance to practice. Because of constraints of money and time, we were not able to organize many workshops to give teachers the opportunity to work together and with us to develop the needed skills to implement this difficult approach. I believe and I am aware of the fact that teachers need lot of training as this approach is interesting but very difficult to work with.

#### **Extract from Inspectors’ Interviews**

Inspectors indicated the lack of training of teachers. Inspectors indicated clearly that only teachers from very few towns around the country were offered this

training. This implies that an important proportion of teachers were not introduced to this important shift in teaching practices. Both insisted on the importance and the urgent need for such a training without which the reform was deemed to failure. I invited them to reflect more on this aspect by inviting them to give their point of views as far as teachers' ability to implement the CBA.

- **Now do you think that all teachers are qualified to implement the competency based approach?**

“I am sorry to say no as I have told you not all teachers were trained. The CBA is not an easy approach and teachers cannot simply learn how to implement it from books.”

#### **Extract from Inspectors' Interviews**

“Unfortunately no, I agree with my colleague for the same reasons, besides, the CBA needs teachers to carry out their own case studies something that they have not been trained to do as well”

#### **Extract from Inspectors' Interviews**

Inspectors' answers to this question indicated that they agreed that not all teachers were well qualified and prepared to implement the competency based approach. The training was more theoretical than practical because of constraints of time and resources. The training offered limited practical training to teachers. Besides, not all teachers were trained. Some Schools only from the biggest towns in the country only were offered training. Unfortunately, teachers from schools in small towns as well as schools in remote areas in the big cities were not trained at all. I concluded thus the interview by inviting inspectors to respond to the following more direct question.

- **Are teachers using the CBA?**

“Again no not all of them, the problem is that some teachers are using the new program, but they are still using their own methods of teaching, which I believe cannot work with the nature of the new programmes and the demands of the CBA.”

**Extract from Inspectors’ Interviews**

“No lot of teachers are not to use the competency based approach, hence they use the programmes as they have to, but use their own traditional methods to implement them.”

**Extract from Inspectors’ Interviews**

Inspectors’ pessimism was clearly expressed through their answers. Inspectors expressed deep concerns about the lack of training and its possible negative impacts on the teaching practices of teachers who were not trained. Inspectors indicated that teachers who were not trained were still using the traditional product-based methods of teaching which were in opposite epistemological direction from the principles of the CBA which was more process-oriented.

### **1.1. Primary Findings of the Analysis of Teachers’ Interviews**

The aim behind interviewing inspectors was to check the ways CBA was understood and introduced to teachers in the Algerian English classrooms by the interviewed inspectors. Results of the analysis of interviews showed that the six inspectors agreed to a large extent about the different issues discussed during the interviews. Inspectors shared the same understanding that CBA drew its learning and epistemological principles from the socio-constructivist perspectives on

learning. Having said this, the competency based approach was viewed by inspectors more a process-oriented than a product-oriented teaching methodology.

Inspectors shared the same belief that the concept of competences was rather defined as a set of social and individual learning skills that learners needed to develop to process input and transform it into knowledge to be competent in the target language.

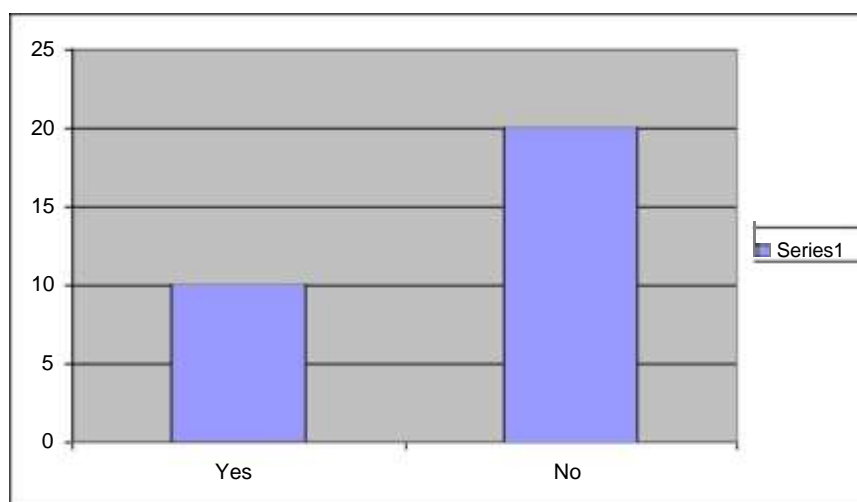
Inspectors agreed that during their training, they attempted to make teachers implement tasks that were based on key socio-constructivist principles of interaction, collaboration and learner-centered learning. Tasks required collaborative interactions like role plays and debates. The activities covered the four language skills. They involved teachers in implementing the same tasks using their traditional ways of teaching which were more product-based, then implementing the same tasks using new teaching strategies which were more process-based. Teachers were then invited to reflect on key differences between the two different types of teaching practices. This strategy was aimed at raising teachers' awareness about the best ways to involve learners in the process of collaborative knowledge construction rather than focus on conveying information to learners and making them rehearse it.

However, as it was expected, inspectors were not satisfied with the training they offered to teachers. First, inspectors stated that the practical aspect of the training was limited because of constraints of time and resources. They had limited time to introduce teachers to the CBA before it was implemented in schools. Second, inspectors expressed their worries as not all teachers all over the country could be trained. They stated that only a minority of teachers from big cities in the country had the opportunity to be trained. It seemed that the educational authorities hoped that trained teacher would pass on their expertise to untrained teachers. Inspectors stated clearly that not all teachers could implement the CBA and were still using their own ways of teaching in their classes. Thence, results show that the majority of teachers were not trained which would affect negatively the implementation and success of CPA in Algerian English classrooms.

## 2. Analysis of Teachers' Interviews

There was a need to interview teachers about the importance of their training, for those who were trained, and the extent to which they could grasp the concepts of the new approach before we could examine their teaching practices in the classroom by examining the way they engaged/or not their learners in the collaborative process of knowledge construction. The present section was organized around the different questions that teachers were invited to answer. I interviewed thirty teachers. I provided them with worksheets with the different concepts that I invited them to reflect in. I could have used questionnaires but I needed to get a better idea about classrooms reality. I did not want them to give me readymade answers collected through a quick tour on the web or the note they were provided with by inspectors and headmasters. However, I used extracts from the transcribed interviews of the observed teachers to support the results of the analysis of teachers' responses. I included some extracts from other teachers' responses when needed.

- **Have you been trained to implement the CBA?**



**Figure 2.1. Proportions of Trained Against Untrained Teachers**



“No, we have been given handouts that explain the theoretical basics of this approach. We were asked by our inspectors to make personal efforts to understand it and try to implement it.”

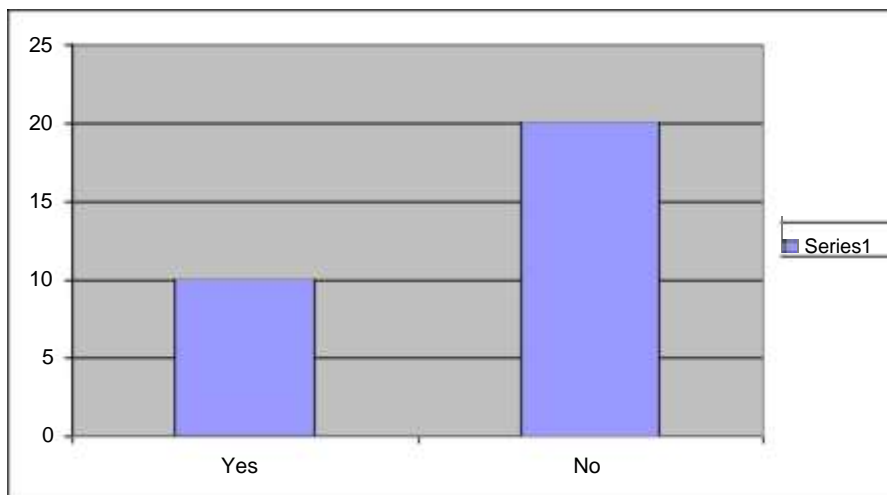
**Extract from Teacher 2 Interview**

“The training was I mean the seminars were too theoretical, they promised to organize practical workshops but they did not.”

**Extract from Teacher 1 Interview**

The diagram showed that twenty out of thirty teachers declared they have not been trained to use the competency based approach which confirmed inspectors’ declarations. This result implied that teachers might not have implemented this approach in their teaching practices. This result drove us to ask them the following question.

- **Are you implementing Competency Based Education in your program? If yes, how?**



**Figure 2.2. Teachers Who Implement CBA Against those Who do not**

“Oh yes I do, I try to involve learners in collaboration as much as I can I also try to teach them grammar and vocabulary implicitly and make them work out together the rules.”

**Extract from Teacher 1 Interview**

“I have not been trained so I do not know how to use the new book and how to implement the new activities, the book and the new program are interesting, they need a lot of work and efforts, but unfortunately I rely on my own experience to teach.”

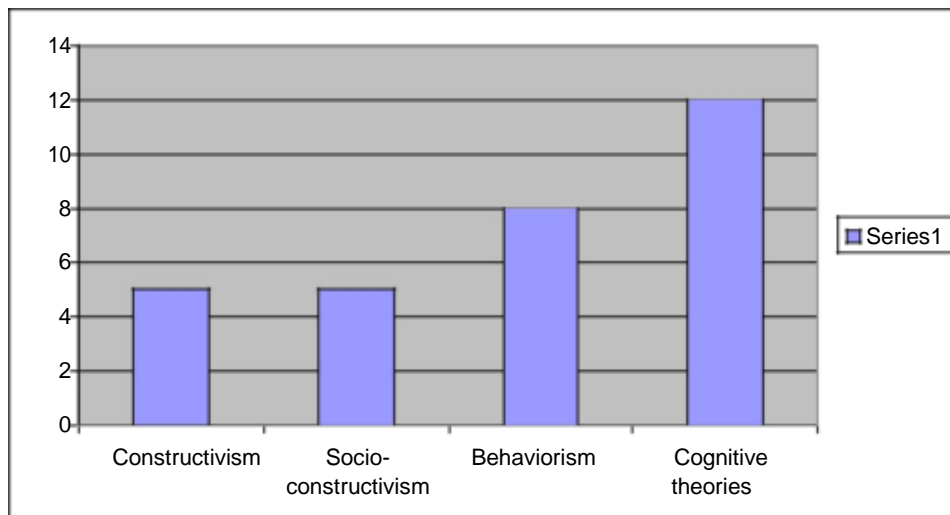
**Extract from Teacher 2 Interview**

“The training I have gone through was not that deep and did not take advantage from it, the seminars were too theoretical, they promised to organize practical workshops but they did not.”

**Extract from Teacher 3 Interview**

The diagram showed that twenty teachers out of thirty stated that they did not know how to implement this approach, which was expected. Teachers stated that they were using the program as administered by the ministry of education as this was a must. However, they stated that they were not trained to use the competency approach. They stated they found it difficult to use and relied on their individual experiences to teach. Hence, I invited them to reflect on the learning theory the CBA drew on. On the other hand, trained teachers stated they could implement the CBA.

- **On which of the following learning theory does the competency based approach draw on: constructivism, socio-constructivism, behaviorism, or cognitive theories?**



**Figure 2.3. Teachers' Reflections on the Learning Theories Underlying the Conception of CBA**

The answers were surprising as only five teachers out of 30 could provide the correct answer. The five correct answers were provided by five teachers from the trained group of teachers. The remaining teachers could not guess the right answer. As it is well explained in the different syllabi of English language teaching (see appendix 3), CBA as implemented by the Algerian Educational system, draws on the socio-constructivist theory of learning which draws of social and cognitive theories of learning where focus is on the process of learning. To dig deeper into their understanding of the different theories of learning, I invited them to reflect on the way they understood the differences between different theories. I invited them to reflect on the key concepts of each learning theory.

- **How do the following concepts relate to the aforementioned theories of learning: Competences, knowledge construction, collaborative learning, individual learning, scaffolding, mechanical learning, habit formation, interaction, individual learning, habit formation, knowledge reception, autonomous learning, thinking skills.**

Teachers who stated that the CBA drew on socio-constructivism classified the different concepts as follows:

- Key concepts of the socio-constructivist theory of learning: competences, knowledge construction, collaborative learning, interaction, individual learning, autonomous learning
- Key concepts of the constructivist theory of learning: competences, knowledge construction, individual learning, interaction, autonomous learning,
- Key concepts of the behaviourism theory of learning: mechanical learning, habit formation, knowledge reception
- Key concepts of the cognitive theories of learning: knowledge construction, thinking skills, autonomous learning

The five teachers who stated that the CBA draws on constructivism replied as follows:

- Key concepts of the socio-constructivism theory of learning: competences, knowledge construction, collaborative learning, interaction, autonomous learning.
- Key concepts of the constructivist theory of learning: competences, knowledge construction, individual learning, interaction, autonomous learning.
- Key concepts of the behaviourist theory of learning: mechanical learning, habit formation, knowledge reception.
- Key concepts of the cognitive theories of learning: knowledge construction, thinking skills, autonomous learning.

Literature informed us that socio-constructivism belonged to the school of constructivism. There were two main and different versions of constructivism but they commonly agreed that learning is an active process of knowledge construction. One of the common threads of cognitive constructivist (known as radicals) and socio-constructivists was the idea that development of understanding required the

learner actively to engage in knowledge construction. Thus, constructivists shifted the focus from knowledge as a product to knowing as a process. Cognitive constructivism and social constructivists believed that learning was the result of social as well as individual processes of learning. However, the role of social interaction and the ways in which it related to second language learning were interpreted differently by the two constructivist theories. Cognitive constructivists believed that learning was individual then social. However, socio-constructivists believed that social learning precedes individual learning.

Hence, the ten teachers believed that knowledge should be constructed by learners rather than transmitted. They believed that learners need to develop the appropriate competences to construct individually and socially their knowledge. Hence, I may say that the ten teachers who attended the training could develop the right theoretical understanding about the learning theories underpinning the conception of the CBA. Their responses might imply that these teachers were better qualified to implement the CBA.

Eight teachers believed that CBA drew on behaviourism and classified the concepts as follows:

- Key concepts of the socio-constructivist theory of learning: knowledge construction.
- Key concepts of the constructivist theory of learning: knowledge construction.
- Key concepts of the behaviourist theory of learning: habit formation, competences, individual learning.
- Key concepts of the cognitive theories of learning: knowledge construction, thinking skills, autonomous learning.

The twelve teachers who stated that the CBA draws on cognitive theories of learning replied as follows:

- Key concepts of the socio-constructivist theory of learning: knowledge construction, collaborative learning, interaction.

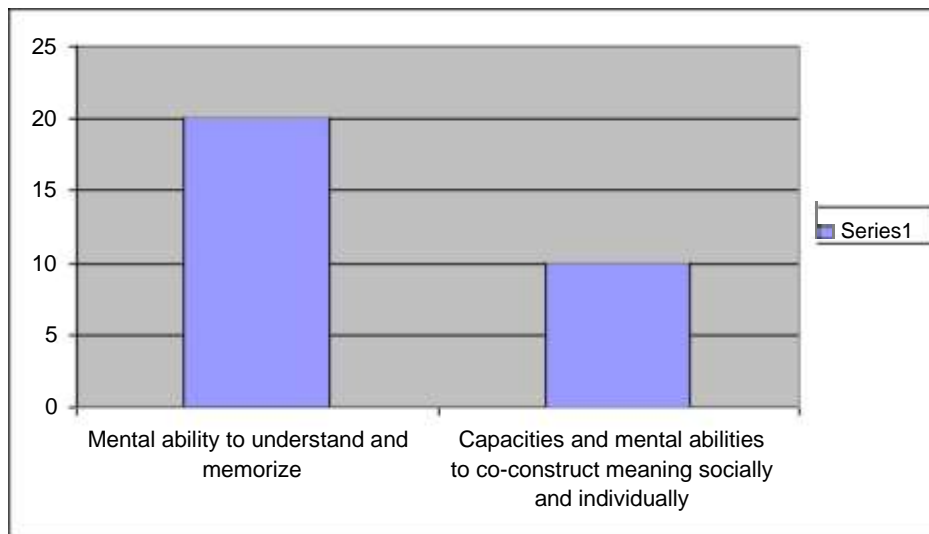
- Key concepts of the constructivist theory of learning: knowledge construction, individual learning, autonomous learning.
- Key concepts of the behaviourist theory of learning: competences, mechanical learning, habit formation, knowledge construction, knowledge reception, collaborative learning.
- Key concepts of the cognitive theories of learning: competences, thinking skills, autonomous learning

This group of teachers seemed to have a wrong understanding of the different theories. The eight teachers believed that the CBA stemmed from cognitive theories of learning. They believed that the development of competences was the product of individual mental processing of information; learners' individual efforts to construct knowledge. They believed that learning was developed thanks to the individual mental capacities of learners and excluded the importance of collaboration and social learning which are key concepts of the collaborative process of knowledge construction, hence to the success of the CBA.

On the other hand, the twelve teachers who believed that the CBA stemmed from behaviourism believed that competences are habits that learners develop through mechanical learning through imitations, reinforcement and punishment.

The results might indicate the urgent need to train teachers. It is obvious that teachers need to understand the theoretical basis and key concepts of the CBA if we expect them to implement it in the right way. Hence, I invited them to reflect more on the key concepts of the CBA. I started by the most important one which is the concept of competence.

- **How do you define the concept of competence?**



**Figure 2.4. Teachers' Definitions of the Concept Competence**

Teachers who were not trained believed that the concept competence referred to the capacity to understand and memorize teachers' explanations which is quiet wrong. On the other hand, teachers who were trained gave more relevant answers. They defined competence as a set of thinking skills, abilities and capacities learners use to construct socially and then individually their own knowledge.

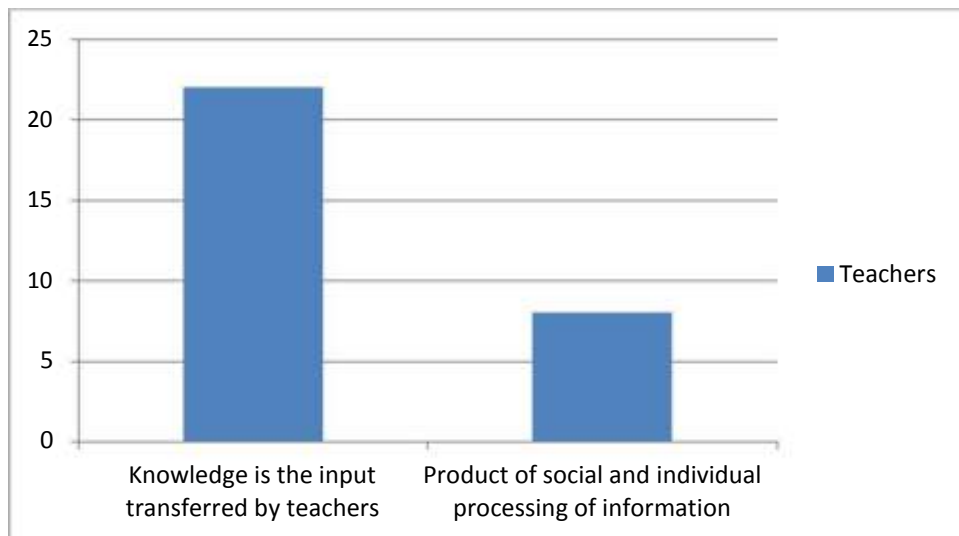
Results then showed that teachers who were not trained were not able at giving the right definition of the key concept of the CBA.

I invited them to try to define the second concept which is knowledge.

- **How do you define the concept of knowledge?**

While from cognitive perspectives knowledge was generally represented in terms of cognitive structures that were acquired and organized in memory, social constructivists generally regard learning as the appropriation of socially derived forms of knowledge that are not simply internalized over time but are also transformed in idiosyncratic ways in the appropriation process (Hicks 1995). This was to say that while cognitive constructivists stress heterogeneity of thoughts as individuals actively interpret social and cultural processes, highlighting the

contributions that individuals make to the development of these processes, social constructivists emphasized the homogeneity of thought among the members of the community engaged in a collaborative work.



**Figure 2.5. Teachers' Definitions of the Concept of Competence**

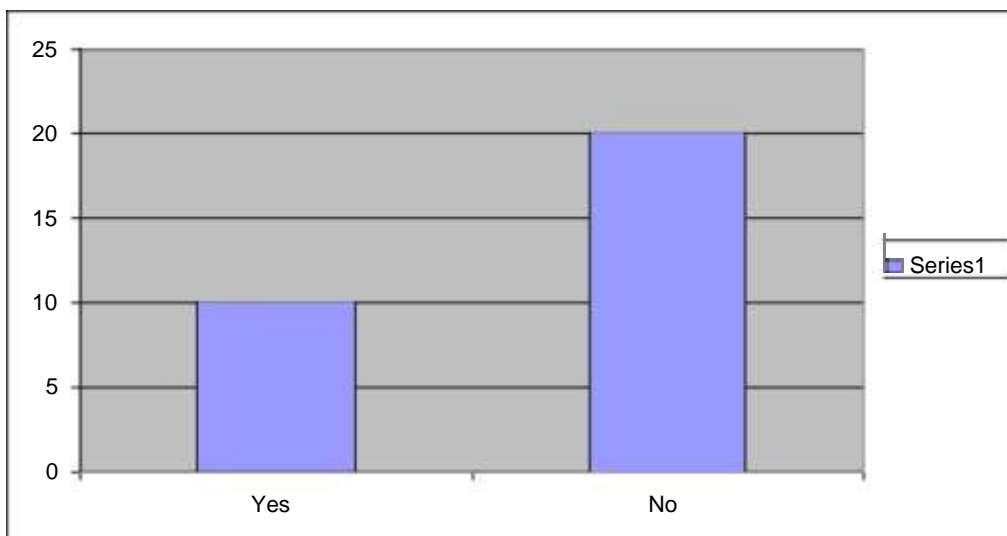
Teachers' responses showed that teachers who did not attend the training believed that knowledge is the information they convey to their learners. However, a small percentage of teachers who were trained believed that knowledge is the information learners themselves construct with their help. The ideas and thoughts identified with the mind of individuals were the products of interactions with the social context.

Teachers' responses might reflect their teaching practices which might be still be at the same phase of information transmission rather than developing learners' thinking skills and competences.

Within the same realm of the thought, I invited teachers to define the process of collaborative knowledge construction which is a key concept in the CBA.



- **Can you define the concept of the collaborative process of knowledge construction?**



**Figure 2.6. Teachers' Definitions of the Concept of Collaborative Knowledge Construction Process**

On one hand, results showed that all untrained teachers failed at defining the concept. I invited them again to make attempts to define it relying on their own experiences and readings. Their responses were as follows:

“Actually we were given some handouts that explained very broadly these concepts. We asked for training but we got no responses from the ministry. We were asked by the inspectors to do research and more readings. Honestly, I do not have time, and we are not used to do research.”

**Extract from teacher 2 interview**

“I agree, as she said, the handouts are not helpful, the concepts are very confusing and difficult to understand, we are not didacticians we are teachers.”

**Extract from Untrained teachers' Interviews**

“I tried to do what the inspectors suggested but I found it really very difficult to understand the different philosophical views and definitions of the concepts of knowledge and competence. I stopped researching because I was very confused.”

#### **Extract from Untrained Teachers’ Interview**

Teachers agreed that the concepts were difficult to understand as the literature provided different definitions of these concepts, which is true. Their responses were convincing as the concepts were effectively differently defined by the different researchers. The competency based approach itself was approached and implemented differently by the different institutions. I might conclude that the competency based approach as conceived to be implemented in the Algerian school needed to be explained by the Algerian educational authorities for this reform to be effective.

On the other hand, results showed that only some of the trained teachers knew the concept and could define the collaborative process of knowledge construction.

“Auh I may say that learners need to work together, figure out the rules of grammar and vocabulary together, I do not give them the rule, they have to find it themselves, I will guide them, scaffold them, they have to construct the rule this is how I understand this process.”

#### **Extract from Teacher 1 Interview**

“Yes when they work together they collaborate when they collaborate the discuss exchange and I believe they construct the rules together as we were told not to give them the rules, and it works I do not give them the rule, make them work together I make them discuss a lot reflect on their practices the way they discussed together and they create to the rule themselves through working together using their minds amazing.”

#### **Extract from Trained Teachers’ Interview**

They attempted to define the knowledge construction process as the collaborative efforts of learners to negotiate and debate ideas in order to achieve a common agreement and a newly constructed knowledge. The notion of knowledge construction underpinned the conception of the CBA in Algeria. Hence it was central to the current research. To create any kind of knowledge learners need to go through different steps, keeping with the fundamental socio-constructivist view which stated that the social, the physical and the cognitive were parts of the same larger processes that also underlined second language (L2) development (Atkinson, 2002). Thusly meaning construction is a comprehensible process made up of different interactive constructs, namely collaboration, mediation, zone of proximal development (ZPD) and internalization. They are potential clues that can be used as an indication of students' engagement in collaborative meaning construction. Hence, I invited teachers to reflect on the importance of collaboration.

- **What do you think of collaboration?**

When collaborating, learners distribute the cognitive load among group members as well as support each other taking advantage of the distributed expertise within the group through collaboration, they discuss and integrate each others' perspectives, synthesize their ideas, and co-construct the meaning of tasks, hence the importance of this concept.

As far as teachers' responses are concerned, teachers who were not trained stated:

“Interaction is important but I cannot see how collaboration can be important.”

**Extracts from Teacher 2 Interview**

“I think it is important but it is a demanding task as we have big classes with more than 40 learners. Also, we do not have time we have a large programme to finish”

**Extract from Untrained Teachers' Interview**

On the other hand, teachers who were trained stated:

“Collaboration is central to the CBA. I try to invite my learners to collaborate by promoting small group work and peer work but I must say that I cannot do this all the time, the number of students and the programme too you know how it is”.

#### **Extract from Teacher 1 Interview**

“I agree that collaboration is important and I do invite my learners to collaborate. However, it is really difficult to make them collaborate all the time as we have a very heavy programme to finish and the number of learners does not help at all.”

#### **Extracts from Trained Teachers**

On one hand, untrained teachers believed that interaction was more important than collaboration. Some teachers could not even make the difference between interaction and collaboration. Consequently they did not encourage their learners to collaborate, which implied that this group of teachers did not implement appropriately the CBA as it is conceived on collaboration.

On the other hand, trained teachers insisted on the importance of collaboration and stated their endeavour to implementing it by promoting peer and small group works. However, they pointed at two important points which made their work difficult and the promotion of collaboration a demanding task. They suffered from constraints of class size and the heavy syllabus that needed to be finished before the end of the year.

- **What do you think of the creation of the zones of proximal developments (ZDP)?**

I invited teachers to reflect on the concept of ZPD.

“I am sorry I do not know what you are talking about.”

**Extract from Teacher 2 Interview**

“My supervisor never talked to me about this concept”

**Extract from Untrained Teachers’ Interview**

“I was taught this concepts when I was students at university, but honestly I forgot.”

**Extract from untrained teachers’ interview**

Untrained teachers were unable to answer this question as they stated they did not know this concept. This result implies that teachers who were not trained might not be well qualified to implement this approach as they were not aware of the main learning concepts this approach was conceived on. Hence, results might imply the urgent need to train teachers.

On the other hand, trained teachers had a different point of view as was shown by the following extract.

“The CBA insisted on inviting learners to work together before teachers’ interventions. For example, when teaching grammar, I need to guide them by giving them examples and inviting them to work the examples together where they are expected to give me the grammatical rule I need to teach them. I traditional approaches, I give them the rule and explain it. But with the CBA, they have to give me the rule as a result of their collaborative work. When working together, they share their understandings and expertise and help each other.”

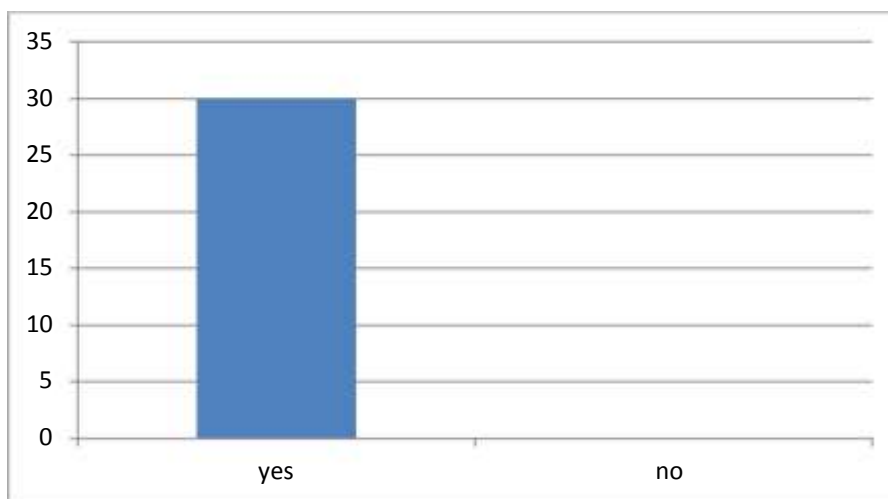
**Extract from Teacher 1 Interview**

The extract showed that trained teachers demonstrated a good understanding of the concept and the way it should be implemented in language classrooms. They

believed that the creation of ZPD was very important for the collaborative process of knowledge construction to take place.

Within the same realm of thought, I tried to get a clearer idea about the extent to which teachers engaged their learners in low level thinking as well as and high level thinking. I invited teachers to answer a set of questions. The questions are organized around the mental skills involved within the different phases of the process of knowledge construction process.

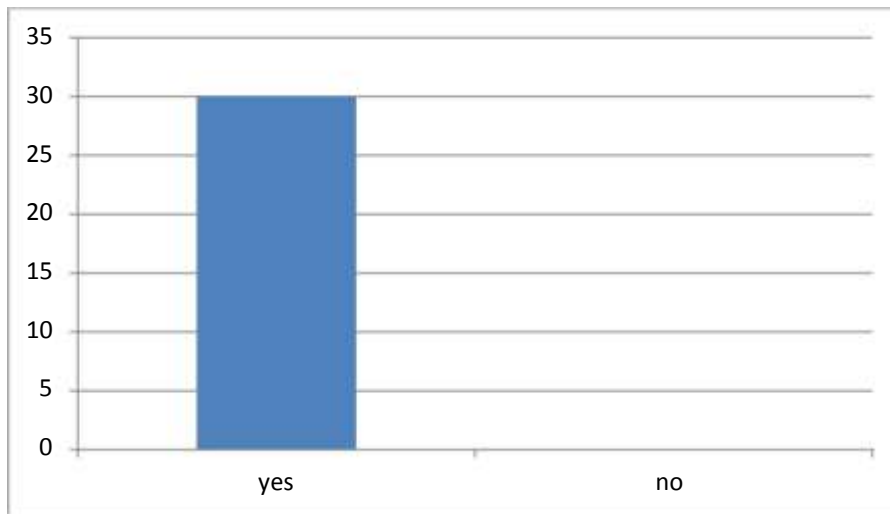
- **Do you encourage you learners to share ideas?**



**Figure 2.7. Teachers Invite Learners to Share Ideas**

This questions aims at checking if teachers engage their learners in the first phase of knowledge construction which corresponds to low level thinking. All teachers stated they did invite their learners to share ideas.

- **Do you encourage your learners to disagree with each others' views and ideas?**



**Figure 2.8. Teachers Invite Learners to Disagree**

This questions aims at checking if teachers engaged their learners in the second phase of knowledge construction which corresponds to low level thinking. All teachers stated they invited students to express their disagreements with their peers' answers.

“I invite learners to answer questions then I do give them feedback and invite students to say if they agree or not with their mates.”

**Extracts from Teacher 2 Interview**

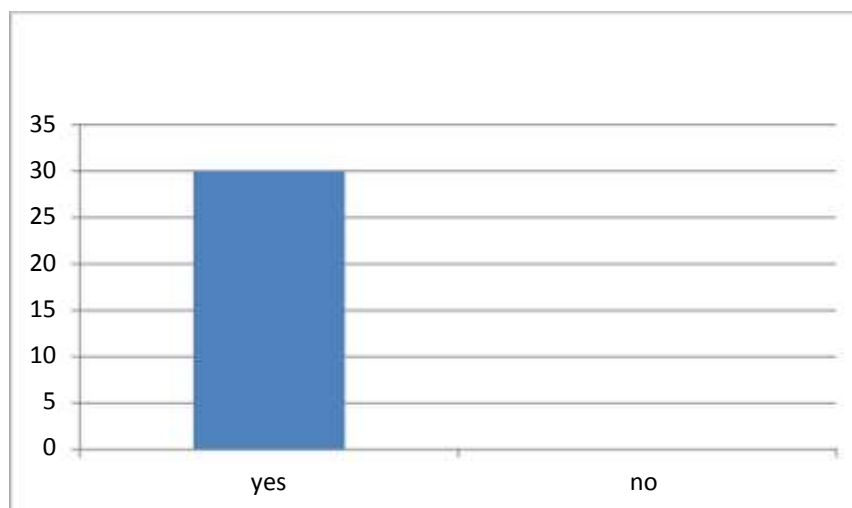
“What I do is I usually invite learners to say if they agree or disagree with my opinion, the ideas of a text if we are reading a text, with mate's answer if any learner provides an answer to my questions or his opinion and then we discuss”

**Extract from Teacher 1 Interview**

The extracts showed that trained and untrained could engage their learners in these low level thinking processes through making them use low level mental

capacities. I checked then whether they involved them in high order thinking using elaborate mental capacities.

- **Do you invite your students to negotiate meaning together?**



**Figure 2.9. Teachers Invite Learners to Negotiate Meaning**

“Yes but you know not all the time I do not have time besides the level of learners it is very difficult to motivate them and make them discuss together.”

**Extract from Teacher 2 Interview**

“Oh yes sure, I try to invite them all the time to explain to each other, discuss their ideas ask each others’ questions it is important but again I am not going to say that I do this all the time.”

**Extract from Teacher 1 Interview**

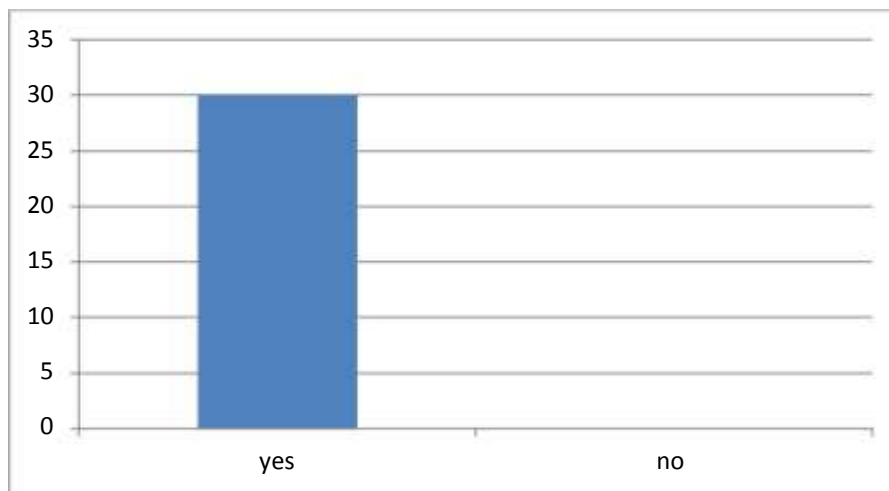
This question aimed at checking if teachers engaged their learners in the second phase of knowledge construction which corresponds to low level thinking.

Again, all teachers stated that they invite their learners to negotiate meaning together at the aim of creating a common understanding. This step is a first step in the third level of meaning construction. However, teachers agreed that they do not



invite them all the time to negotiate because of constraints of time and the large number of learners per class.

- **Do you ask your students exploratory questions? I mean, do you ask your learners explanation and clarification requests?**



**Figure 2.10. Teachers Ask Exploratory Questions**

All teachers stated they invite their students to explain and clarify their views, which is a good step in the collaborative process of knowledge construction.

“Yes I do ask them yes and no questions but I usually give them challenging questions kind of what do we mean by this word? Who can clarify this expression to his mates?”

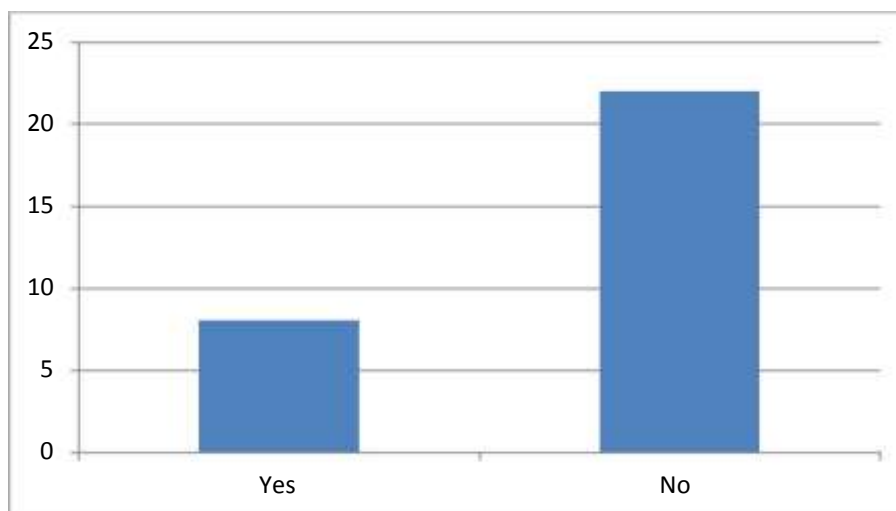
**Extract from Teacher 1 Interview**

“I ask learners to explain grammar rules, vocabulary, if learners still do not understand I invite them to clarify by providing evidence, examples and else to support their answers.”

**Extract from Teacher 2 Interview**

Exploratory questions make learners use high level thinking. The analysis of the extracts demonstrates that trained and untrained teachers were aware of the importance of this type of request to engage learners in this high level thinking.

- **Do you invite your learners to debate and challenge each others' ideas?**



**Figure 2.11. Teachers invite Learners to Use Challenge Negotiation Function**

Only eight teachers out of thirty stated they engaged their students into this high level of thinking where they need to use mental capacities to engage in critical constructive discussions.

“No I do not learners remain silent or just say some words because of lack of language or ideas activities end up to be boring and a waste of time I prefer to use this time to explain grammar and vocabulary than doing these activities that will never help them.”

**Extract from teacher 2 interview**

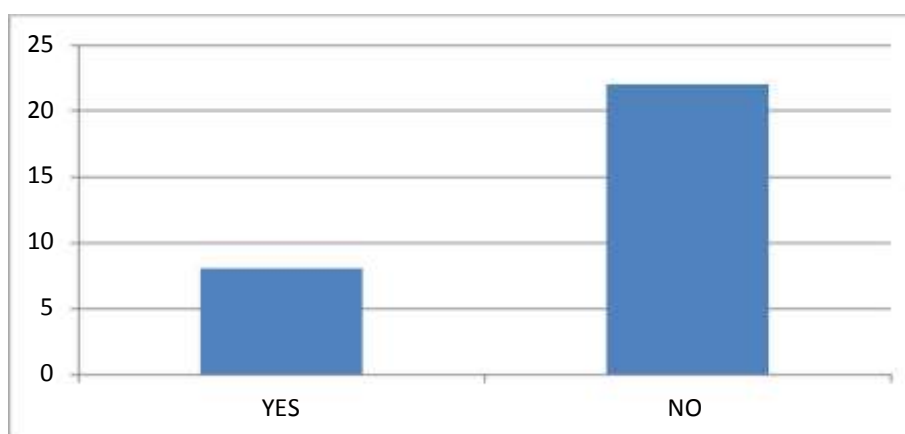
“Sure I do it is very important to make learners discuss each others' ideas and challenge each other's ideas I do not do this very often because of the big number of students and time is too short but yes I do from time to time.”

**Extract from Teacher 1 Interview**

Again, not all teachers stated they invited their learners to challenge each others' ideas particularly when invited to discuss each others' ideas. Untrained teachers stated that these learners did not know how to critically discuss each others' ideas because of time and language constraints.

Hence, results show that all teachers tend to engage their learners in the first three levels of the collaborative process of knowledge construction. However, not all of could engage them in challenging each others' ideas which is a key step towards engagement in constructive discussions.

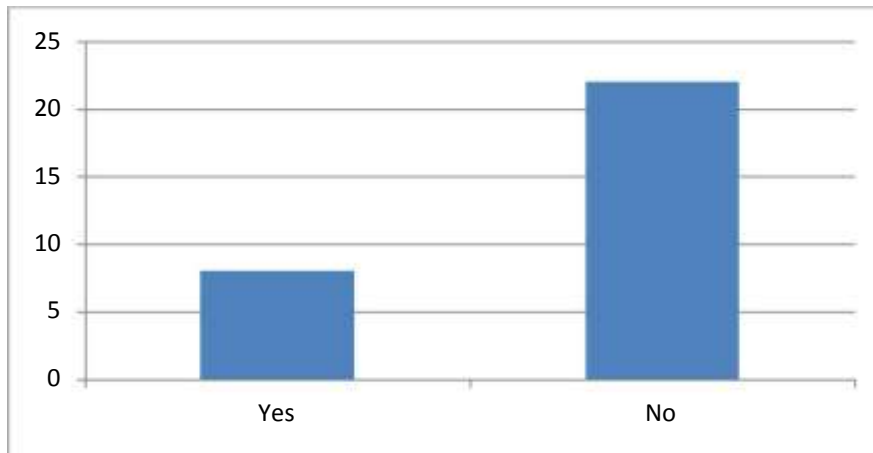
- **Do you invite your learners to reflect on their learning experiences?**



**Figure 2.12. Teachers' Invitation to Learners to Reflect on their Learning Process**

All untrained teachers and two of the trained teachers stated they never invite their learners to reflect on their thinking process and learning experience in general. On the other hand, trained teachers state that this is an important aspect of the collaborative process of knowledge construction. They state they try to invite their learners to reflect on their learning, however, they stated it is impossible to invite each time learners to reflect on their learning because of constraints of time and the big sizes of their groups.

- **Do you invite your learners to interact?**



**Figure 2.13. Teachers Involve Learners in Interaction**

Teachers provided similar answers as shown by the following extracts.

“Yes I do invite them to interact with me by answering my questions or asking me questions if they do not understand something, I invite them to interact with the class like peer-correction”

**Extract from Teacher 1 Interview**

“Yes I do it is very important I believe that interaction motivates all students to learn more, I invite them to interact with me, and with each other too”

**Extract from Teacher 2 Interview**

Socio-constructivism emphasized mediated social interaction as the source for knowledge construction. Mediated social interactions provided opportunities for the social and individual planes of psychological activity of learners to interact.

All teachers agreed on the importance of interaction and all stated they encouraged learners to interact with him and with each other.

- **What do you think of scaffolding, how do you intend to be a scaffolder?**

To function as a scaffolder, teachers need to set up tasks which challenge students' current capacity and provided them with support to enable them to perform at this new level. Teachers need great skill in assessing and then exploiting their students' ZPD. I invited teachers to reflect on this concept and the way they attempt to adopt this role in their classes.

“I am going to be frank I do not what is this role as I have told I am not familiar with the new concepts of this approach I need a training save me euh I think you mean my role to explain and give information to learners, yes this is what I do in class.”

#### **Extract from Teacher 2 Interview**

“Oh it is really difficult to be a scaffolder but very interesting at the same time, you see you have to make learners collaborate while they collaborate you observe and take notes of their strengths and weaknesses once they finish collaborating to do a task together, I invite them to reflect on all what they were discussing i drive them to discuss the task itself and the way they managed to do the task, in this way I am a scaffolder I do not give them what is right what is wrong but through prompting them to reflect on their answers they come to now by themselves what is correct what is wrong.”

#### **Extract from Teacher 1 Interview**

Teachers' responses show that untrained teachers do not understand the role of teachers as scaffolders. They believe that scaffolding is just like their traditional roles were that consisted in transmitting information to learners, controlling and guiding learners' learning process. However, trained teachers believed that scaffolding is more difficult than their traditional roles. They believe that scaffolding is more than controlling and providing information. It has rather to do with making learners collaborate to co-construct a common understanding.

## 2.1 Primary Conclusions of the Analysis of Teachers' Interviews

Section two of the present chapter served to get a better understanding of the extent to which trained and untrained teachers perceived the importance of training and the implementation of the CBA.

Results showed interesting differences between trained and untrained teachers as far as the extent to which they developed a good understanding of the key concepts of the CBA and the way it should be implemented.

On one hand, trained teachers seemed to have a better understanding of the different constructs of the CBA. They could define the concepts of competence, knowledge, knowledge construction and scaffolding and succeeded at giving examples from their teaching practices in their classrooms. They seemed better prepared to implement the competency based approach which confirmed inspectors' expectations.

On the other hand, untrained teachers could not define the basic concept of the CBA. The majority could not define the concept of competence, ZPD and their roles as scaffolders.

These results showed obviously that training was very important where trained teachers could confidently talk about the methodology and their practices. However, untrained teachers failed at defining the concept competence. I concluded then that teachers who were not trained were not prepared to implement the competency based approach as they did not have the appropriate knowledge about the key constructs of the CBA.

In the following chapter, I proceeded to analyze of the data from the video-recordings to assess the way teachers tended to engage learners in the collaborative process of knowledge construction.

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## Introduction

The aim of the present section is to check the extent to which teachers could implement the CBA in their classes. The analysis attempted to check whether teachers and learners could create ZPD for the collaborative construction of knowledge.

One of the popular forms of data collection in the field of research was observation of participants in the context of a natural scene. In the present research, data concerning student-teacher interactions needed to be collected via observation since this approach depicted the verbal and non-verbal behaviors. It could relatively lead to deeper understanding since it provided information about the context where the events took place, and might enable researchers to see learning and teaching issues participants themselves were not aware of. As a matter of fact, there were several techniques in collecting data in observation approach, whether by audio-taping, video-taping or through taking notes.

Thus, to gain rich, in-depth, vivid, and genuine depiction of different aspects of classroom interactions between learners and teachers, I decided to use video-recording technique.

Hence, before moving on to the analysis itself, it was worth giving a short overview of my data collection strategy. As it was explained in the methodology chapter, this research studied data collected in two English language classrooms in Algeria. The two classes were taught by two different teachers. I observed and videotaped the two classes. At the end of the observation period, I interviewed the two teachers. The aim behind interviewing teachers was to give teachers the opportunity to reflect on their teaching experiences and their understandings of their roles as stated by the competency based approach. The results from the analysis of the interviews were then compared with the results obtained through the analysis of classroom interactions.

The sample group of the present inquiry comprised two Algerian first year middle school English classes in Sétif and Algiers in Algeria. Each class comprised thirty four (34) learners. There was a mixture of girls and boys who were thirteen to

fifteen years old. They were intermediate learners of English. They were learning English as a second foreign language since the first foreign language in Algeria was French. As it was explained in the previous chapter, the choice of these particular classes was not random but purposeful. Both classes were implementing the competency based approach. However, teacher one was trained but teacher two was not trained.

### **1. Procedures of Data Transcription and Analysis**

The analysis of the data went through five major steps. After the transcription of the data, it needed to be submitted to coding and analysis.

First, the events of classrooms needed to be coded in order to facilitate the process of calculating their frequency of occurrence as well as the analysis of their quality. As it was explained in the methodology chapter, I tried to use different models of analysis that drew on the socio-constructivist theories of learning. However, I could not find a model that coped with nature of our data. Consequently, I was obliged to work out a model to code and analyze our data. This model drew on Sinclair and Coulthard's model as well Gunawardena et al's model. Sinclair and Coulthard's model was very important in terms of the segmentation of the corpus and the description of the interactive roles of teachers as well as learners. The I-R-F system (initiation-response-feedback) was very important in the description of the pedagogical discourse of teachers and learners. It helped at describing the direction of interactions, which helped at checking whether teachers monopolized interactions or if there was a kind of autonomy given to learners. However, once applied to the data, some interactions did not fit with the three part exchange I-R-F. Some discussions were not strictly controlled but rather extended and constructive. To cope with the nature of my data, I had to add two new interactive roles to cope with the nature of our data which are: IC (initiation continuity) and RC (response continuity). Hence, interactive patterns were first coded using a five part exchange I-IC-R-RC-F this in the coming sections. The I-IC-R-RC-F system served to map out the interactive structure of classroom

discourse by indentifying the different interactive roles teachers and learners adopted.

Second, there was a need to examine the quality of interactions from a socio-constructivist perspective. There as a need to know whether the generated interactions led to socio-constructivist learning and the promotion of collaborative knowledge process. To examine whether teachers could implement the CBA through involving learners in the collaborative process of knowledge construction, I coded data into negotiation functions which served to check whether participants were involved in low and high order thinking. To do so, I adapted Gunawardena's model of analysis to cope with the nature of classroom discourse. Third, checked which patterns of interactive patterns reached high levels of knowledge construction and which ones remained at low levels of knowledge construction. Fourth, using the IICRRCF exchange, I mapped out the different structures of classroom exchanges. Fifth, I checked the extent to which the different exchanges reached high levels of knowledge construction to check finally of classroom discussions were constructive or simply cumulative. I assumed that constructive discussions demonstrated the extent to which participants succeeded at implementing the CBA and vice versa.

Hence, the quantity and patterns of interactions were assessed using the I-IC-R-RC-F system. The negotiation functions of interactions and the quality of knowledge construction process were assessed using the model of analysis that I developed.

To answer the different research questions of the present study, I examined the patterns of classroom interactions and exchanges. The analysis of the interactive dimension of turns revealed the interactive roles adopted by the different participants. In addition, the analysis of the communicative dimension of turns revealed the negotiation function of participants' interactions. The interactive functions of participants' turns displayed sub functions that revealed their communicative functions. Hence, the analysis of interactive roles of participants helped determining the negotiation functions performed by participants that would help in analyzing the way in which meaning was constructed in classroom learning environment.

## 2. Analysis of the Interactive Patterns of Interactions

The present section served at bringing answers to the following research questions:

- What are the patterns of classroom interactions and learners' engagement in collaborative knowledge process?
- Do teachers' scaffolded and mediated interactions support collaborative knowledge construction process, and if so to what extent? What is the effect of the affordances of teachers' patterns of interactions on patterns of learners' engagement in constructive discussions? To what degree do these patterns contribute to Knowledge construction process?

This section presented the results of the analysis of interactive roles of participants defined as the turn types they adopted. The first focus of this analysis was to find patterns of participants' engagement with each others' contributions and interaction through the application of the coding scheme explained in the methodology chapter. The analysis of the patterns of classroom interactions and exchanges permitted the description of the interactive roles of participants which was a preliminary step towards the identification of the communicative functions described as the negotiation functions of participants' classroom interactions.

The concept of turn types was operationalized as the following categories: I, IC, R, RC, and F. The five interaction categories reflected the structural organization of turns and subsequently exchanges. The analysis of the structural functions of interactions allowed the description of the interactive roles of participants. The analysis of the structural functions as frequencies of turn types produced could reveal depth of information exchange and extent of collaboration during classroom discourse. The five categories were defined in the methodology section as: I as an initiation turn (I) anticipates a subsequent turn by another participant which leads to the start of a new exchange; IC as a re-initiation turn (IC)

which was defined as an attempt to extend discussion by launching/reinitiating previous/preceding discussions before moving on to discuss another idea/concept. Participants tend to reinitiate the preceding discussion inviting other participants to contribute to the same discussion before moving on to another discussion; R as A response to a previous initiating turn; RC as a response-continuity (RC) replies and builds on a previous response, conveying attempts towards collaborative discussion and negotiation. Different participants respond to the same initiating turn building on each others' contributions before finishing the discussion; finally F as feedback that closes the exchange.

The first focus of this analysis was to find out patterns of engagement by participants with each others' contributions and interaction. The application of this coding revealed the following points:

- Extent of interaction as frequency/range of interaction turn and act types adopted by participants
- The presence of IC and RC conveyed attempts to extended turns and discussions that could convey substantial information and depth of discussion and negotiation.
- Knowledge construction as sets of turns that indicated the presence of information sharing and topic development phases in exchanges that signal respectively, exchange of information as participants explore issues, and instances whereby the shared information was questioned, checked, or challenged which reflect meaning negotiation that builds new knowledge.

### **2.1. Analysis of Interactive Patterns/Roles**

To check the extent of involvement into constructive discussions, focus was put on examining social interaction. This analysis identified the extent to which learners were given opportunities by teachers to socially interact with other learners and the teachers.



A between group comparison showed that all five type turns were produced by both groups, but in varying proportion of the group's total number of turns. I examined teachers' interactive roles and then learners' interactive roles.

### 2.1.1. Analysis of Interactive Roles/Patterns of Teachers' Interactions

Extent of interaction was viewed as the frequency, direction and patterns/types of interactive turns adopted by participants.

	<b>I</b>	<b>IC</b>	<b>R</b>	<b>RC</b>	<b>F</b>
<b>T 1</b>	23.33%	13.6%	24.02%	20.95%	20%
<b>T 2</b>	31.25%	12.55%	14%	8.02%	35%

**Table 4.1. Teachers' Interactive Roles**

A between teachers' comparison showed distinct differences in proportion of types of interactions produced. Teachers 2 produced higher percentages of I compared to teacher 1. 31.25% of T2 contributions were initiations versus 23.33% for teacher 1. Concerning IC interactions, the rates were slightly different which implied that teachers tended to re-initiate new topics. Both teachers were highly engaged in providing feedback which was quiet expected since this was one of the most important scaffolding roles of teachers. I registered 20% for T1 and 35% for T 2. The results implied that T2 provided more feedback on her learners' responses than teacher 1. The prevalence of I, IC and F interactions was expected given the teachers' role as facilitators with the responsibility of directing and stimulating discussions. Teachers were expected to offer the social support and evaluation that constituted social and teaching presences in educational classrooms/pedagogical environments. However, T1 was more involved in RC and R interactions than did T2. The interactive role RC implied attempts towards extended exchanges in the sense of more attempts towards discussion and negotiation. The marked difference

in percentages of R by T2 (14%) and T1 (24%) suggested that T1 contributed substantially more information to discussions than T2. On the other hand, the percentages of RC (20.95 % for T1 and 8.02 for T2) were interesting which implied that teachers were engaged in the process of interaction with learners building on their contributions. However, T1 was more engaged in building on student's contributions. Furthermore, T1 was more engaged with his learners' contributions than was T2. The results showed high rates of IC and RC for teacher 1 than T2. Nevertheless, there was no indication up to now if this level of engagement with learners' contributions happened to have a positive impact on meaning construction.

### 2.1.2. Analysis of Interactive Roles/Patterns of Learners' Interactions

	<b>I</b>	<b>IC</b>	<b>R</b>	<b>RC</b>	<b>F</b>
<b>Gr1 learners</b>	1.01%	2.51%	55.20%	41.29%	0%
<b>Gr2 learners</b>	0.46%	1.02%	84.37%	14.15	0%

**Table 4.2. Learners' Interactive Roles**

The rate of initiations for both groups was very low (1.01% for Gr1, 0.45% for Gr2). This result implied that students did not tend to initiate new topics. Teachers were almost the exclusive initiators. We could arrive to the same results as far as IC interactive role were concerned. Students did not make attempts to reinitiate previous discussions which implied that this was a teacher's role. This implied that the turn-taking systems were managed, structured and controlled by the teachers. Learners did not make attempts towards extended discussions by reinitiating previous topics.

Response was one of the most important roles performed by learners. They responded to the teachers as well to other students' solicitations. Both groups

displayed high percentages (55.20% for Gr1, 84.37% for Gr2) which implied that learners were actively engaged in classroom participation. However, high proportions of T2' interactions were responses which implied learners' compliances to their teacher's directions.

Response continuity was one of the most important interactive roles. Regarding engagement by participants with each others' contributions as the extent of RC interactions present in classroom discussion, comparative group analysis showed greater engagement in the collaborative process by G1 compared to G2, in terms of contributions of turns and overall tendencies to build on each others' contributions referred to as the frequency of RC. Gr2 displayed 14.15% versus 41.18% for Gr1. The high percentages of RC interactive role for Gr1 implied tendencies towards building on each others' contributions which further implied attempts to move up discussion from low levels to more constructive and elaborate levels of discussion and negotiation which might lead to the creation of ZPD for collaborative construction of knowledge. On the other hand, Gr2 made few attempts to extend discussions to build on each others' contributions which implied they had fewer opportunities to create ZPD to collaborate to negotiate knowledge.

As far as the interactive role which was feedback, learners did not perform this act which implied that this was a teachers' role. It was then deduced that interaction was organized and managed by the teachers.

Generally speaking, the results showed different interactive tendencies in building on each others' contributions. Gr1 showed more attempts to towards extended discussions than did Gr2. The next section checked whether these attempts towards extended discussions moved up classrooms discussions to a more constructive and elaborate level of meaning construction. To do so, there was a need to consider the relationship between the negotiation functions and the interactive roles, hence the purpose of the next section.

### 3. Analysis of the Negotiation Functions of Participants' Turns

While the preceding analysis revealed interactional purposes of turns contributed based on five interactive categories, results of the analysis of negotiation functions underlying the turns were presented below. In the following analysis, turns previously coded as I, IC, R, RC, and F were further categorised according to the interpretation of their pragmatic functions; negotiation functions.

This analysis helped assessing the levels learners' contributions meet socio-constructivists ideas. Analysis of turns as frequencies of communication functions adopted revealed the underlying negotiation functions and strategies of participants which formed the basis for a later examination of the meaning construction phases during the collaborative group learning process. Negotiation functions reflect the rhetorical tactics used by participants to achieve certain communicative purposes.

Hence, this section presents the analysis of meaning construction phases at the finer level of communication functions of interactions for a more informative interpretation of the observed engagement patterns. As it was stated above (see section), the data was coded according to our model of analysis that drew on Gunawardena et al's model and Boom's taxonomy.

Phases	Interactive codes	Comments and examples ( <u>I will provided examples later when I finish the analysis of some extracts from my data</u> )
Level 1 Ph 1	Information request	Ask to repeat or recognize, ask for information, exchange of ideas, experience or an opinion
	Inform	Repeat given information, provide information, experience, ideas, opinions,

		...
	Acceptance	Accept, a statement of agreement from one or more other participants
	Corroboration	Add or give similar examples, experiences, opinions...
	Comprehension check	To check understanding
<b>Level 2</b> <b>Pha2</b>	Explanation request	To ask to specify something, give more details, precisions.
	Explanation	Make clear, specify ...
	Disagreement or agreement	Identifying and stating areas of disagreement
	Agreement	No other proposition and acceptance of the same idea, proposition and apply others' perspectives. Restating the participant's position, and possibly advancing arguments or considerations in its support
	Check	To make clear certain the meaning of previous turn. It is used to check the readiness of participants as well.
<b>Level 3</b> <b>Ph 3</b>	Exploratory/clarification request	Pointing at a problem, misunderstanding or disagreement. Recognition of some confusion/curiosity or perplexity as a result of a problem/issue arising out of

		an experience: posing a problem and enticing others to take a step deeper into it.
	Clarification/exploratory	Give more information, arguing own statements and establishing comparisons.
	Rejection	Express disagreement and refusal of the ideas, opinions, explanations, interpretations...
	Argument	Expressing reasoning, use of examples, analogies to defend ones ideas
	Assertion	Maintaining and defending ideas questioned by other participants by providing explanations and arguments that defend original statements. (Restatements of assumptions and ideas, defending own arguments by further elaboration on the previous ideas.
	Critical challenge/counter-argument	propose/suggest another direction for discussion or thought, and to assert the need for another direction for discussion or thought.
	Conflict	debating other participants' points of view, showing disagreements, presenting

		alternative or opposite positions
	Justify/reason	Include constructed rather than retrieved beliefs and are used to present: goals, problems and solutions. It presents support or contraindication for alternative hypothesis. It is used to respond to a stated position/point of view with supporting or contrary evidence evidence/information. It is used to defend a stated position or challenge/dispute a stated position with information/evidence
	Concession	Recognize the validity of an alternative viewpoint expressed in a previous turn.
	Elaboration request	Ask for suggestions and propositions to attain to a common understanding
	Elaboration/consensus building	Co-construction build on each others' ideas trying to attain a common understanding of the issues in debate
<b>Level 4</b> <b>Ph4</b>	Reflective requests	To invite learners to reflect, test and evaluate the newly constructed meaning

	Testing	Evaluate and test new constructed meaning against previous knowledge or personal opinion
<b>Level 4</b> <b>Ph5</b>	Summarise and make conclusions	To be able to restate and recognize the different points discussed
	Meta-cognitive requests	To invite learners to make statements illustrating their understanding and awareness of the newly constructed meanings
	Meta-cognitive statements	statements by the participants illustrating their understanding that their knowledge or ways of thinking (cognitive schema) have changed as a result of the conference interaction
	Application	To be able to use spontaneously and authentically the newly constructed meanings

**Table 4.3. Model of Knowledge Construction Process Analysis**



### 3.1. Negotiation Functions of Teachers' Turns

The following tables showed the frequency and rates of negotiation skills associated with interaction roles adopted by teacher 1 and teacher 2 for all the observed and videotaped lessons. Hence, the present section presented the analysis of meaning construction phases at the finer level of structural organization and pragmatic intentions for a more informative interpretation of the engagement patterns observed.

	<b>Negotiation functions</b>	<b>T1</b>	<b>T2</b>
<b>Level 1 (Ph1)</b>	<b>Information request (IFR)</b>	6.09	12.52
	<b>Inform (IF)</b>	18.41	29.36
	<b>Acceptance (AC)</b>	8.37	12.98
	<b>Corroboration (CO)</b>	0	0
	<b>Comprehension check (CC)</b>	2.31	3.36
<b>Level Two (Ph2)</b>	<b>Explanation request (EXR)</b>	2.31	5.30
	<b>Explanation (Ex)</b>	7.40	8.61
	<b>Disagreement (DS)</b>	1.73	2.40
	<b>Rapid Agreement (RA)</b>	0	0
<b>Level 3 Ph3</b>	<b>Exploratory requests (EXPR)</b>	17.91	12.98
	<b>Clarification (CL)</b>	12.73	10.09
	<b>Arguments (AG)</b>	3.46	0
	<b>Rejection (RJ)</b>	2.28	0
	<b>Assertion (AS)</b>	5.20	0
	<b>Challenge/counter-argumentation (CH)</b>	3.57	0
	<b>Justification (JU)</b>	1.43	0
	<b>Concession (CS)</b>	1.44	0
	<b>Consensus (CSS)</b>	0.57	0
<b>Level 4</b>	<b>Reflective requests (RFR)</b>	1.28	0

<b>(Ph4+Ph5)</b>	<b>Testing (TS)</b>	0	0
	<b>Summary (SM)</b>	0	0
	<b>Meta-cognitive requests (MCSR)</b>	0	0
	<b>Meta-cognitive statements (MCS)</b>	0	0
	<b>Application requests (APR)</b>	3.75	2.40
	<b>Application (AP)</b>	0	0

**Table 4.4. Negotiation Functions of Teachers' Turns**

The table showed that both teachers performed the different negotiation functions with different frequencies. Results showed some differences and similarities. First, concerning the first level, results show slight differences between teachers. The highest frequency of performance went to the low negotiation function inform which was expected as tutors were supposed to provide students with new information. T2 performed more information requests than T1 which implied that she spent more time inviting students to exchange information and share opinions than T1. Neither tutor corroborated their students' responses which implied that they tended to engage them in more elaborate negotiation functions than simple corroborations. In addition, both teachers performed low frequencies of comprehension checks. Again, this implied that teachers were more concerned with engaging students in more constructive discussions than simply checking comprehension.

Second, concerning the second level, teachers performed high rates of explanations which was also expected as this was one of the most important roles of teachers which was providing and explaining new information and issues. However, tutors performed low rates of the different negotiation functions which might imply that teachers did not tend to point at issues and dissonances rather engaging students in constructive discussion for the critical examination of their ideas and understandings.

As far as the third level is concerned, results showed that both T1 performed more elaborate negotiation functions than did T2. T1 performed more exploratory requests than T2 which indicated T1's efforts towards engaging students in the process of negotiation for the critical discussion of their ideas. Results showed that T1 was more engaged in clarifying, asserting, and providing arguments to defend her ideas and reject critically his students' ideas than T2. Besides, T1 was more implicated in challenging her students. In addition, T1 was even more implicated in the process of negotiation and argumentation where she could help her students reach concessions and construct consensus.

Finally, concerning the fourth level of meaning construction, only T1 invited her students to reflect on their learning process. This indicated again that T1 was more implicated in the negotiation and argumentation process than T2. Results showed that both teachers invited their students to apply new knowledge. However, both teachers did not perform meta-cognitive requests. In addition, results showed that teachers did not perform important highly elaborate negotiation functions like summary, meta-cognitive statements, and application. This indicates that these elaborate negotiation functions were more to be performed by students than tutors.

Hence, in the following sections, each level of negotiation functions is analyzed. This analysis is also multidimensional. The different results showed the proportions of the different negotiation functions performed, with their associated interactive roles adopted by tutors.

For matters of convenience and for better representation of the different results of the analysis of the interactive and negotiation functions of teachers, negotiation functions that were not performed by tutors were not displayed in the following tables.

### **3.1.1. Initiation (I)**

The results substantiated earlier findings that teacher 1 was more involved in her group's discussions, compared to teacher 2, by reinitiating and inviting students to build on each others' ideas as well as contributing more elaborate turns

that shared information related to the course content. A between group comparison of I associated communicative skills showed that both teachers did not perform the following elaborate negotiation and argumentation functions: rejection, assertion, challenge, justify, concede, reach consensus, reflective requests and meta-cognitive requests. The results were expected as I did not expect teachers to engage in this high level of knowledge construction right at the beginning of classroom discussions.

### 3.1.1.1. Initiation-Information Request

	<b>Initiation-Information Request</b>
T1	4.20%
T2	6.02%

**Table 4.5. Initiation-Information Request by T1 and T2**

Teachers initiated to provide information, share their own points of views and experiences with her learners. Results implied that teacher 2 spent more time requesting information than teacher 1. As far as teacher 1 was concerned, the low rate of this contribution was quiet surprising since tutors were expected to invite students to provide information and share their experiences and opinions. This result implied that teachers spent more time on asking exploratory requests rather than simply inviting students to share information.

### 3.1.1.2. Initiation-Inform

	<b>Initiation-Inform</b>
T1	6.83%
T2	13.80%

**Table 4.6. Initiation-Inform by T1 and T2**

Both teachers initiated by providing information and sharing their own ideas and views with their learners. Generally, they used the whiteboard to write some notes. This result implied the importance of the whiteboard in the initiation of new topics. This was true as far as teacher 2 was concerned. In this particular case, the whiteboard was used as a support to the oral act of informing. Teachers used the whiteboard to illustrate, provide examples and a memory support for their explanations. The high rates were expected since one of the teachers' roles was to provide information before moving on to more elaborate pedagogical acts like asking exploratory questions.

### 3.1.1.3. Initiation-Comprehension Check

	Initiation-Comprehension Check
T1	2.31%
T2	2.20%

**Table 4.7. Initiation-Comprehension Check by T1 and T2**

The results were very similar. According to the low rates of this contribution, it seemed that it was not common that teachers finish their initiation by checking the understanding of students.

### 3.1.1.4. Initiation-Explanation Request

	Initiation-Explanation Request
T1	2.20%
T2	3.04%

**Table 4.8. Initiation-Explanation Requests by T1 and T2**

Both teachers invited their learners to explain their answers. Both rates were low which implied that both teachers did not tend to point out to dissonances.

They seemed to avoid inviting learners to express their disagreements, suggest alternative ideas or new directions for discussion right at the beginning of new discussions. This implied that teachers were not willing to disrupt the progression of discussions right at the beginning.

### 3.1.1.5. Initiation-Disagreement

	<b>Initiation-Disagreement</b>
<b>T1</b>	2.20%
<b>T2</b>	3.04%

**Table 4.9. Initiation-Disagreement by T1 and T2**

The rates of this communicative role correlated with the low rate of the preceding one. T2 performed more explanations than did T1. This might imply that teachers did not tend to point out to problems and explain them nor ask students to explain and express their disagreement right at the beginning when initiating a new topic. The rest of the analysis may reveal the reasons behind such behaviour.

### 4.1.1.6. Initiation-Exploratory Request

	<b>Initiation-Exploratory Request</b>
<b>T1</b>	7.52%
<b>T2</b>	7.16%

**Table 4.10. Initiation-Exploratory Request by T1 and T2**

This is one of the most important communicative roles and negotiation skills that teachers would perform. This negotiation skill is highly elaborate and showed that teachers tend to engage students in high levels of negotiation and meaning construction. These requests are invitations to clarify, argue and defend their opinions, challenge and counter-argue others' views and ideas. In the first place,

both teachers performed this communicative role. The table showed similar results. Both teachers initiated by inviting learners to clarify their ideas.

### 3.1.1.7. Initiation-Clarification

	<b>Initiation-Clarification</b>
<b>T1</b>	2.11 %
<b>T2</b>	1.80 %

**Table 4.11. Initiation-Clarification by T1 and T2**

This negotiation function is one of the most important roles which might teachers' attempts to move up communication to high levels of construction. Results showed slight differences between teachers' performances. The rates were low which was expected since teachers were not expected to start clarifying right at the initiation of discussions. Discussions were not supposed to reach advanced levels of construction at the stage of initiations. Both teachers used the whiteboard while clarifying issues and problems. The use of the audio channel was supported by the use of the whiteboard. Teachers seemed to be aware of the pedagogical importance of this negotiation skill and aware of the pedagogical potential offered by the simultaneous use of the audio and writing channels to assert and illustrate their clarifications.

### 3.1.1.8. Initiation-Argument

	<b>Initiation-Argument</b>
<b>T1</b>	0.46%
<b>T2</b>	0%

**Table 4.12. Initiation-Argument by T1 and T2**

T1 performed this elaborate negotiation function. Teacher T2 did not tend to provide arguments while initiation. The low rate was expected since it was not expected for the argumentation process to take place while introducing a new topic.

### 3.1.1.9. Initiation-Application Request

	<b>Initiation-Application request</b>
<b>T1</b>	1.22%
<b>T2</b>	1%

**Table 4.13. Initiation-Application Requests by T1 and T2**

The last important negotiation function was application request where teachers invited learners to apply what they have previously learned/internalized. The results showed small differences between teachers' performances. Results implied that T1 invited her learners to apply their newly constructed knowledge more than T2. The results might imply that this difference in terms of performance might have different effects on the progression of discussion and knowledge construction process for both groups. This was checked in section 6 of the present chapter.

### 3.1.2. Initiation-Continuity (IC)

As we have said previously, this role implies attempts towards reinitiating preceding discussions. More precisely, this communicative role implies attempts towards more extended discussion that may reach high levels of construction.

#### 3.1.2.1. IC-Information Request

	<b>IC-Information Request</b>
<b>T1</b>	1.8%
<b>T2</b>	6.32%

**Table 4.14. IC-Information Requests by T1 and T2**



The rates of performance of this negotiation function were different. As it is the case with initiations, both teachers made the same choice using oral and writing modes to perform this interactive and negotiation skill. T2 reinitiated previous discussions inviting learners to provide more information and share more experiences and opinions more than did T1. Reinitiating to request information may not move up discussion to high levels of communication. Henceforth, positive and/or negative impacts of this negotiation function on the progressions of discussions were checked through the analysis of extracts in section.

### 3.1.2.2. IC-Inform

	<b>IC-Inform</b>
<b>T1</b>	6.90%
<b>T2</b>	10.52%

**Table 4.15. IC-Inform by T1 and T2**

Teachers reinitiated to provide more information and more details about previous topics. Results show slight differences between teachers' performances. Like initiation-inform, both teachers used the oral and the writing modes. The use of the oral mode along with the writing mode implied their attempts to draw the attention of their students and make them focus on the provided information. This may be explained as an attempt to involve students in more constructive discussions about the topics being discussed. The truthfulness of this deduction was checked through the analysis of the structure of classroom exchanges.

### 3.1.2.3. IC-Exploratory request

	<b>IC- exploratory request</b>
<b>T1</b>	10.38%
<b>T2</b>	5.82%

**Table 4.16. IC- Exploratory Request by T1 and T2**

This is one of the most important negotiation functions. Performance of this function implies greater attempts to engage students in constructive interactions and collaborative discussions. The results showed slight differences between the performances of both teachers. They re-initiated previous discussions\topics inviting students to respond to exploratory questions by clarifying, arguing and challenging each other’s ideas. I noticed that both teachers asked orally the questions and then wrote them down on the whiteboard. Teachers used the writing mode to support the oral mode when performing elaborate negotiation skills.

#### 3.1.2.4. IC-clarification

	IC- Clarification
<b>T1</b>	1.10%
<b>T2</b>	1.05%

**Table 4.17. IC- Clarification by T1 and T2**

Teachers extended discussions by inviting students to clarify their ideas and points of disagreements and misunderstandings. This is a very important interactive and communicative role that implied that teachers were engaged in extended discussions with learners. Both teachers tended to write on the whiteboard while clarifying issues and problems of understanding. I reached the same conclusion that the writing mode was used to support the oral mode when performing elaborate negotiation skills like clarifying misunderstandings or differences in points of views.

#### 3.1.2.5. IC-assertion

	IC-Assertion
<b>T1</b>	3.15%
<b>T2</b>	0 %

**Table 4.18. IC-Assertion by T1 and T2**

The table displayed different findings. T1 engaged in extended discussions to assert his views and ideas which implied attempts to negotiate knowledge with her learners instead of imposing his ideas and views on learners. However, T2 did not perform this elaborate negotiation function. Results thus implied that T1 showed greater scaffolding efforts to involve learners in the creation of ZPD for collaborative knowledge construction.

### 3.1.2.6. IC-Challenge

	<b>IC-Challenge</b>
<b>T1</b>	1.15%
<b>T2</b>	0 %

**Table 4.19. IC-Challenge by T1 and T2**

The table displayed different findings again. T1 engaged in extended discussions to challenge his learners' views and ideas which implied attempts to invite them to engage in the argumentation process for the creation of more ZPD through engagement in extended constructive discussions. However, T2 did not perform this elaborate negotiation function. Results thus implied that T1 showed greater scaffolding efforts to involve learners in the creation of ZPD for collaborative knowledge construction.

### 3.1.2.7. IC-Reflective Requests

	<b>IC-Reflective Requests</b>
<b>T1</b>	1.28%
<b>T2</b>	0 %

**Table 4.20. IC-Reflective Requests by T1 and T2**

The table displayed different findings again. T1 engaged in extended discussions to invite learners to reflect on their thoughts and learning experience. Once again, the use of this type of questions was supposed to move up discussions to high levels of knowledge. However, T2 did not perform this elaborate negotiation function. Thence, I reached the same conclusions that T1 showed greater scaffolding efforts to involve learners in the creation of ZPD for collaborative knowledge construction than did T2.

### 3.1.2.8. IC-Application Requests

	IC-Application Requests
<b>T1</b>	2.53%
<b>T2</b>	1.40 %

**Table 4.21. IC-Application Requests by T1 and T2**

T1 reinitiated to invite her students to apply previous knowledge. This was a very important tutorial communicative role which showed the tutor's attempts to activate previous knowledge on which students would build new knowledge, which was a fundamental principle of the socio-constructivist theory of teaching and learning. However, T2 did not perform this negotiation skill while re-initiating. The results confirmed previous primary conclusions that T1 showed greater scaffolding efforts to involve learners in the creation of ZPD for collaborative knowledge construction than did T2.

### 3.1.3. Response (R)

The general percentages of this communicative role were low for both teachers which imply that learners made little attempts to engage their teachers in discussion or they were more engaged discussing together. Both teachers performed few negotiation functions only. They responded to their learners' invitations to provide more information, accept their contributions, and provide more

clarifications which were expected. In addition, Gr1 learners seemed more involved in constructive discussions with their teacher as they invited her to defend her views and ideas by providing more arguments.

### 3.1.3.1. Response-Inform

	<b>R- inform</b>
<b>T1</b>	1.21%
<b>T2</b>	2.70%

**Table 4.22. R-Inform by T1 and T2**

Results showed slight differences between the performances of teachers. The rates of this negotiation function were low for both teachers. The results implied that few attempts were made by learners to initiate were meant to ask teachers to provide more information.

### 3.1.3.2. Response-Accept

	<b>R-Accept</b>
<b>T1</b>	0%
<b>T2</b>	2.45%

**Table 4.23. R-Accept by T1 and T2**

T2 complied with her learners' comments or responses. However, T1 did not perform this low negotiation function which implied that T1 was rather engaged in explaining and arguing her ideas. It would be interesting to check the effect of such different behaviours on the progression of discussions and the promotion of knowledge construction process.

### 3.1.3.3. Response-Explanation

	<b>R-Explanation</b>
<b>T1</b>	0.10%
<b>T2</b>	0.20%

**Table 4.24. R-Explanation by T1 and T2**

Results showed that T1 responded to learners' invitations to provide explanations. However, the rates were very low which implied that only few attempts were meant by learners to invite their teachers to provide more explanations. T2 did not perform this negotiation skill which implied fewer attempts from G2 learners to involve their teacher in discussions.

### 3.1.3.4. Response-clarification

	<b>R-Clarification</b>
<b>T1</b>	4.12%
<b>T2</b>	3.54%

**Table 4.25. R-Clarification by T1 and T2**

Important rates of responses were dedicated to clarify issues pointed at by students. Both teachers used the oral and writing mode to clarify issues. Once again, it seemed that teachers tended to use simultaneously the oral and writing modes to perform elaborate negotiation skills which might be explained as attempts to insist on the importance of the clarified points.

### 3.1.3.5. Response-Argument

	<b>R-Argument</b>
<b>T1</b>	1.22%
<b>T2</b>	0%

**Table 4.26. R-Argument by T1 and T2**

T1 was involved by her learners in providing arguments to defend their ideas and explanations. However, T2 did not perform this negotiation function which implied she was not involved in the process of negotiation of ideas with her learners. T1 used the audio and writing mode to support and assert what is being said, explained, clarified, argued and counter-argued orally. This implied the interplay between the oral and the writing modes to perform elaborate negotiation functions by teachers.

### 3.1.4. Response Continuity (RC)

Both teachers tended to interact with students and build on their answers performing different negotiation functions.

#### 3.1.4.1. RC-Acknowledge/Accept

	<b>RC-Accept</b>
<b>T1</b>	0%
<b>T2</b>	1.33%

**Table 4.27. RC-Accept by T1 and T2**

Low proportions of T2's RC interactions were dedicated to accept her learners' contributions. However, T1 did not engage in constructive discussions by simply accepting her learners' contributions. T2 tended to interact with learners while they were building on each others' contributions using the oral channel,

gestures and writing on the whiteboard. This might imply teachers' attempts to facilitate learners' discussions without interfering and interrupting them.

### 3.1.4.2. RC-Clarification

	<b>RC-Clarification</b>
<b>T1</b>	5.40%
<b>T2</b>	3.06%

**Table 4.28. RC-Clarification by T1 and T2**

Results showed that both teachers performed this highly elaborate negotiation function which implied their attempts to build on learners' contributions clarifying issues and disagreements in views among learners. An initiation or re-initiation by teachers was followed by successive responses by teachers and different learners that were seeking clarification from the teacher on previous turns before the exchanges were completed. This implied that discussions tended to move up to a more elaborate and constructive level. However, T1 performed more RC-clarifications than T2. Within the same line of argument, teachers tended to perform important interactive roles as well as elaborate negotiation functions switching between the writing and the oral mode.

### 3.1.4.3. RC-argument

	<b>RC-Argument</b>
<b>T1</b>	5.24%
<b>T2</b>	0%

**Table 4.29. RC-Argument by T1 and T2**

Results showed that a high proportion of T1's RC interactions were dedicated to defend her ideas building on her learners' ideas which implied that negotiation process took place between T1 and her learners. This might indicate that



discussions were constructive and participants could create ZPD for collaborative negotiation and argumentation processes of knowledge construction to take place. T1 used again the oral and writing modes.

#### 3.1.4.4. RC-rejection

	<b>RC-Rejection</b>
<b>T1</b>	2.28%
<b>T2</b>	0%

**Table 4.30. RC-Rejection by T1 and T2**

Results showed that T2 did not tend to reject her learners views as the rate of performance was very low. However, T2 tended to express her disagreement with her learners' ideas and views justifying their rejections. This might indicate T1 attempts to challenge her learners' ideas in an attempt to provide more scaffolding to create more opportunities for learners to create zones of proximal development.

#### 3.1.4.5. RC-assertion

	<b>RC-Assertion</b>
<b>T1</b>	2.05%
<b>T2</b>	0%

**Table 4.31. RC-Assertion by T1 and T2**

This is one of the most important negotiation functions that might be performed teachers and learners. When performed by teachers, they tend to defend their ideas when rejected by learners or when they reject themselves learners' ideas. The performance of this negotiation function associated with this interactive role showed that T1 was actively involved in the process of negotiation and meaning making with their learners. T2 was less engaged in this process than T2 as she did not perform this elaborate negotiation function. It should be noted too that T1 used

the writing mode along with the oral mode. It was interesting trying to understand possible impacts of the use of both modes on knowledge construction process.

#### 3.1.4.6. RC-challenge-counter argument

	<b>RC-Challenge</b>
<b>T1</b>	2.60%
<b>T2</b>	0%

**Table 4.32. RC-Challenge by T1 and T2**

Results showed that T1 was more engaged in counter-arguing and challenging students' ideas more than T2. T2 did not extend discussions to challenge her learners' ideas and views. Results implied that T1 was that they were actively engaged in elaborate interactions and discussions with her learners.

#### 3.1.4.7. RC-justify

	<b>RC-Justify</b>
<b>T1</b>	1.43 %
<b>T2</b>	0%

**Table 4.33. RC-Justify by T1 and T2**

The table displayed the same behaviours. Again, T1 was more engaged in justifying her positions building on her learners' ideas more than T2. T2 did not extend discussions to justify her ideas and views. Results implied that T1 was that they were actively engaged in elaborate interactions and discussions with her learners.

### 3.1.4.8. RC-Concession/Negotiated Agreement

	RC-Concession
<b>T1</b>	1.44 %
<b>T2</b>	0%

**Table 4.34. RC-Concession by T1 and T2**

Results showed that T1 was more engaged in highly constructive discussion than T2. She was involved in the process of negotiation and accepted students' critical comment. Teacher T1 dedicated 1.44% of her RC interaction to perform this high elaborate negotiation function. However, T2 did not perform this negotiation function throughout the different observed sessions.

### 3.1.4.9. RC-Consensus Building

	RC-Concession
<b>T1</b>	0.57 %
<b>T2</b>	0%

**Table 4.35. RC-Consensus Building by T1 and T2**

Only T1 did perform this elaborate negotiation skills. T1 was hence more involved in constructive discussions with her learners than did T2. Results implied T1's attempts to help them to reach consensus. As it was the case with the concession/negotiated agreement negotiation skill, the rate was low, yet very important.

### 3.1.4.10. RC-Reflective Requests

	<b>RC-Reflective Requests</b>
<b>T1</b>	0.34 %
<b>T2</b>	0%

**Table 4.36. RC-Reflective Requests by T1 and T2**

The results for this negotiation skill confirmed the primary conclusions that T1 was more involved in collaborative discussions with her students than was T2. T1 only did perform this negotiation function. She used the oral as well as the writing mode to invite her learners to reflect on their learning process. The simultaneous use of the writing and the oral mode to perform this negotiation skill confirmed previous primary conclusions about the importance of the simultaneous use of the writing and the oral modes to engage learners in constructive discussions.

### 3.1.4.11. RC-Meta-Cognitive Requests

	<b>RC-Meta-Cognitive Requests</b>
<b>T1</b>	0.42 %
<b>T2</b>	0%

**Table 4.37. RC-Meta-Cognitive Requests by T1 and T2**

The rates of performance were low; nevertheless, only T1 performed this highly elaborate negotiation function. She tended to invite her learners to reflect on their learning experiences hence attempts for active engagement of learners in the learning process. From the socio-constructivist point of view, this negotiation function is very important as it helps learners to better understand their thinking and learning process. Results then showed that T1 was more involved in constructive discussions with her learners than was T2. This might imply too that Gr1 had better opportunities to create ZPD for collaborative knowledge discussions.

### 3.1.5. Feedback

Generally speaking, feedback is one of the most important teachers' roles. This section exemplified the negotiation functions performed by T1 and T2 while providing feedback to their learners.

#### 3.1.5.1. Feedback-Inform

	<b>F-Inform</b>
<b>T1</b>	1.44%
<b>T2</b>	2.44%

**Table 4.38. F-Inform by T1 and T2**

Teachers used the oral and the white board to provide feedback providing more information to the information provided by their learners. This contribution was important in terms of the promotion of knowledge construction process. It might provide more information to learners upon which they might construct knowledge.

#### 3.1.5.2. Feedback-Acknowledge/Accept

	<b>F-accept</b>
<b>T1</b>	8.37%
<b>T2</b>	10.20%

**Table 4.39. F-Accept by T1 and T2**

Teachers simply accepted their learners' responses without commenting on them. This might not promote learners' engagement in constructive interactions. I checked the impact of this type negotiation function on learners' engagement in constructive discussions skills through the analysis of extracts from the corpus.

### 3.1.5.3. Feedback-Disagreement

	<b>F-Disagreement</b>
<b>T1</b>	1.73 %
<b>T2</b>	0 %

**Table 4.40. F-Disagreement by T1 and T2**

T1 provided feedback showing her disagreeing with her learners. The results might imply attempts of T1 to reinitiate the same discussion by inviting learners to reconsider their answers. However, T2 did not perform this negotiation function.

### 3.1.5.4. Feedback-Clarification

	<b>F-Clarification</b>
<b>T1</b>	1.73 %
<b>T2</b>	0 %

**Table 4.41. F-Clarification by T1 and T2**

Results showed that T1 performed this negotiation function. Performance of this negotiation function while providing feedback was important as it translated teacher' attempts to provide more constructive information upon which learners can act up and transform into knowledge through collaborative work. However, T2 did not perform this negotiation function which providing feedback. It was worth mentioning that T1 used the oral and the writing modes to perform these interactive and negotiation functions.

### 3.1.5.4. Feedback-Argument

	<b>F-Argument</b>
<b>T1</b>	0.25 %
<b>T2</b>	0 %

**Table 4.42. F-Argument by T1 and T2**

As it was explained earlier, argument is one of the most constructive skills of knowledge construction. T1 used the oral and the writing modes to perform this negotiation skill which reiterated the same primary conclusions that teachers tend to simultaneously use the writing and the oral modes to insist on important ideas. However, T2 did not use this negotiation skill while providing feedback to her learners.

### 3.1.5.5. Feedback-Assertion

	<b>F-Assertion</b>
<b>T1</b>	0.15 %
<b>T2</b>	0 %

**Table 4.43. F-Assertion by T1 and T2**

T1 asserted her ideas and learners ideas while providing feedback using the oral and writing modes. This result confirmed the same primary conclusions which were the importance of the use of the writing skill to support what was explained orally. Surprisingly, T2 did not perform this negotiation skill while providing feedback on her learners' responses.

### 3.1.5.6. Feedback-Concession/Negotiated Agreement

	<b>F-Concession</b>
<b>T1</b>	0.30 %
<b>T2</b>	0 %

**Table 4.44. F-Concession by T1 and T2**

T1 tended to concede and confirm the concessions of students' discussions using the writing mode but not the oral mode. Results implied that T1 tended to close some exchanges after they reached a high level of construction when learners reached critical agreement. On However, T2 did not perform this negotiation function while providing feedback to her learners which implied that T1 was more engaged in collaborative discussion with her learners than T2.

### 3.1.5.7. Feedback-Consensus Building

	<b>F-Consensus Building</b>
<b>T1</b>	0.17 %
<b>T2</b>	0 %

**Table 4.45. F-Consensus Building by T1 and T2**

Despite the low rates of performance of this elaborate negotiation function, results showed again that T1 was more involved in discussion and meaning building process with her learners than was T2. Performance of this negotiation function showed that T1 pushed learners to discuss which moved discussions to high levels of construction where they could build consensus which was asserted by T1 while providing feedback to close the target exchanges. T1 used to use the whiteboard to write down the consensus learners reached. However, T2 did not perform this negotiation function which implied that her learners did not reach this high level of construction.



Hence, the results showed that T1 was more involved in performing elaborate negotiation functions than was T2. T2 tended to extend discussion to build on learners' ideas, invite them to build on each others' contributions, thus building ZPD for active involvement in the collaborative negotiation and argumentation processes of knowledge construction. These primary conclusions implied that T1 was more devoted to the implementation process of the competency based approach than T2. The truthfulness of these primary conclusions was checked in the upcoming sections of the present chapter.

### 3.2. Negotiation Functions of Learners' Turns

This section presented the results of the analysis of the negotiation functions that learners from both groups performed. Gr1 referred to learners that belonged to the first group taught by T1. Gr2 referred to learners that belonged to the second group taught by T2.

	<b>Negotiation functions</b>	<b>Gr1</b>	<b>Gr2</b>
<b>Level 1 (Ph1)</b>	<b>Information request (IFR)</b>	7.12	11.52
	<b>Inform (IF)</b>	15.31	30.76
	<b>Acceptance (AC)</b>	8.17	12.98
	<b>Corroboration (CO)</b>	5.14	10.77
	<b>Comprehension check (CC)</b>	0	0
<b>Level Two (Ph2)</b>	<b>Explanation request (EXR)</b>	4.20	4.45
	<b>Explanation (Ex)</b>	6.02	9.41
	<b>Disagreement (DS)</b>	1.40	3.40
	<b>Rapid Agreement (RA)</b>	3.40	8.50
<b>Level 3 Ph3</b>	<b>Exploratory requests (EXPR)</b>	8.91	5.16
	<b>Clarification (CL)</b>	11.13	1.09
	<b>Arguments (AG)</b>	4.20	0
	<b>Rejection (RJ)</b>	3.30	0
	<b>Assertion (AS)</b>	5.15	0

	<b>Challenge/counter-argumentation (CH)</b>	3.20	0
	<b>Justification (JU)</b>	3.43	0
	<b>Concession (CS)</b>	2.54	0
	<b>Consensus (CSS)</b>	2.54	0
<b>Level 4 (Ph4+Ph5)</b>	<b>Reflective requests (RFR)</b>	1.28	0
	<b>Testing (TS)</b>	0	0
	<b>Summary (SM)</b>	0	0
	<b>Meta-cognitive requests (MCSR)</b>	0	0
	<b>Meta-cognitive statements (MCS)</b>	0	0
	<b>Application requests (APR)</b>	0	0
	<b>Application (AP)</b>	3.50	1.90

**Table 4.46. Negotiation Functions of Learners' Turns**

The table showed different results between Gr1 and Gr2 performances. On one hand, Gr2 learners were more involved in low levels (level one and level two) of knowledge construction than were Gr1 learners. Gr2 learners tended to exchange information, corroborate each others' ideas, accept without negotiation each others' contribution without critical negotiation, express uncritical disagreement, explain and invite the teacher and other learners to explain more than did Gr1 learners.

On the other hand, Gr1 learners were more engaged in the three high levels of knowledge construction than were Gr2 learners. Gr1 learners used high order thinking which was translated through the use of elaborate negotiation functions. Gr1 learners asked each other as well as their teacher exploratory questions inviting each other to provide arguments to clarify, justify, reject and challenge each others' ideas. Contrary to Gr2 learners, Gr1 learners could arrive at building a common consensus, reflected on their learning processes and thoughts, and applied new knowledge they constructed through collaborative work. Thence, results implied that Gr1 learners were actively engaged in the creation of ZPD through involvement

into negotiation and argumentation processes of collaborative knowledge construction. These primary results matched perfectly with the results of the analysis of the use of teachers of negotiation functions. Results showed that T1 made greater scaffolding efforts by creating more opportunities for her learners to create ZPD through collaborative work. Consequently, Gr1 learners were engaged in low as well as high order thinking. Results showed that T2 did not make many attempts to engage learners in high level thinking. Consequently, learners were engage more in low order thinking than high order thinking and failed at creating ZPD for collaborative knowledge construction.

### 3.2.1. Initiation

As discussed in the previous section, the percentages of the initiations by learners from both groups were very low.

#### 3.2.1.1. Initiation-Information Request

	<b>I-Information Request</b>
<b>Gr1</b>	4.52%
<b>Gr2</b>	7.46%

**Table 4.47. I-Information Request T1 and T2**

The very few occasions they initiated were meant to request information. Hence, the few initiations made by learners were not constructive. Gr2 learners tended to invite the teacher and other learners to share information more than Gr1 which implied that Gr1 learners were more involved in performing more elaborate requests.

### 3.2.2. Initiation Continuity

As discussed in the previous section, learners made very few attempts to reinitiate which implied that it was a teachers' role to reinitiate and invite learners to extend discussions over particular topics.

#### 3.2.2.1. Initiation Continuity-Information Request

	IC-Information Request
Gr1	2.6 %
Gr2	4.06%

**Table 4.48. IC-Information Request by T1 and T2**

Results showed that the very few attempts learners from both groups made to reinitiate were meant to invite the teacher and other learners to share more information. It seemed that Gr2 learners were again more involved in this low level of negotiation than were Gr1 learners. The results might imply learners' reluctance towards extending discussion which might be explained by the teachers' control over the distribution of turns and organisation of classroom interactions.

#### 3.2.3. Response

Learners were expected to respond to their teachers' directions and each other's directions as well. It was interesting examining the negotiation functions performed while responding to check whether learners were involved in high level thinking.

### 3.2.3.1. Response-Inform

	<b>R-Inform</b>
<b>Gr1</b>	10.21%
<b>Gr2</b>	20.46%

**Table 4.49. R-Inform by T1 and T2**

Results showed slight differences between the performances of both groups of learners. The rates of performance of this low level negotiation function were quite high which was expected since in learning contexts participants are supposed to spend a good amount of time on sharing their views, experiences and information.

### 3.2.3.2. Response-Accept

	<b>R-Accept</b>
<b>Gr1</b>	5.55%
<b>Gr2</b>	8.80%

**Table 4.50. R-Accept by T1 and T2**

Learners showed their understanding without commenting their teachers' and peers' explanations. The rates of performance were different. Gr2 learners tended to accept with negotiation others' ideas and views more than Gr1 learners. Through my observations, I noticed that learners mainly used gestures and facial expressions to express their agreement and understanding. This might imply that learners attempted to avoid justifying their positions through the simple use of gestures and facial expressions.

### 3.2.3.3. Response-Corroboation

	<b>R-Corroboation</b>
<b>Gr1</b>	5.14%
<b>Gr2</b>	5.40%

**Table 4.51. R-Corroboation by T1 and T2**

Gr1 and Gr2 learners were invited to use the whiteboard to corroborate their peers' and teachers' information, ideas or views. Results showed that the rates of performance of this low negotiation function were low for both groups. The results implied that learners did not spend lot of time corroborating each others' experiences which might imply that students were more interested in building constructively on each others' ideas rather than simply sharing and corroborating each others' ideas and experiences.

### 3.2.3.4. Response-Explanation Request

	<b>R-Explanation Request</b>
<b>Gr1</b>	2.70%
<b>Gr2</b>	1.85%

**Table 4.52. R-Explanation Request by T1 and T2**

The rate of performance of this low negotiation function was low. Results showed that Gr1 Learners invited their teachers and peers to provide more explanations of the discussed ideas. However, Gr2 learners did not perform this low negotiation function. The results implied that students did not spend much time on expressing their disagreements and asking each other shallow explanation requests. This might mean that students were more engaged in exploratory requests.

### 3.2.3.5. Response-Explanation Request

	<b>R-explanation request</b>
<b>Gr1</b>	4.40%
<b>Gr2</b>	7.35%

**Table 4.53. R-Explanation Request by Gr1 and Gr2**

The results of the analysis of this interactive and negotiation function correlated with the results of the analysis of the response-explanation request interactive and negotiation function. Gr1 performed less explanation request than did Gr2 learners which implied again that Gr2 learners were more involved in low levels of knowledge construction than Gr1 learners.

### 3.2.3.6. Response-Disagreement

	<b>R-Disagreement</b>
<b>Gr1</b>	1.40 %
<b>Gr2</b>	2.30 %

**Table 4.54. R-Disagreement by Gr1 and Gr2**

The rates of performance of this low negotiation function were low for both group of learners. The low rates implied that learners did not tend to express their disagreement without justifying them. This might be a good indication of learners' attempts to justify their disagreements. I checked this primary conclusion in the analysis of rejection and challenge negotiation functions.

### 3.2.3.7 Response-Rapid agreement

	<b>R-Rapid Agreement</b>
<b>Gr1</b>	3.40 %
<b>Gr2</b>	6.40 %

**Table 4.55. R-Rapid Agreement by Gr1 and Gr2**

The rates of the performance of this low negotiation function were low for Gr1 learners but moderate for Gr2 learners. Results implied that Gr1 learners did not tend to agree rapidly which might imply attempts towards negotiation. Both groups either replied by yes or no or simply used gestures. They even used gestures more than the oral mode to express their rapid agreement without justifying their positions. The results correlated with previous primary conclusions about learners' tendency to use gestures to perform low level negotiation skills like acknowledgement, corroboration and rapid agreement.

### 3.2.3.8. Response-Exploratory Requests

	<b>R-Exploratory Requests</b>
<b>Gr1</b>	4.35%
<b>Gr2</b>	3.16%

**Table 4.56. R-Exploratory Requests by Gr1 and Gr2**

Results showed that both groups of learners invited their teacher and learners to clarify and provide arguments to defend their ideas and views. Hence, learners made attempts to extend discussion to move up discussions in more constructive levels.



### 3.2.3.9. Response-Clarification

	<b>R-Clarification</b>
<b>Gr1</b>	5.47%
<b>Gr2</b>	1.09%

**Table 4.57. R-Clarification by Gr1 and Gr2**

Clarification is one of the most important elaborate negotiation skills that help in moving up discussion to high levels of collaborative meaning construction. Results showed that Gr1 learners clarified more than Gr2 learners. This might imply that Gr1 learners were more engaged in constructive discussions than did Gr2 learners.

### 3.2.3.10. Response-Argument

	<b>R-Argument</b>
<b>Gr1</b>	1.85 %
<b>Gr2</b>	0 %

**Table 4.58. R-Argument by Gr1 and Gr2**

This is again one of the most important negotiation skills. The rates are relatively high for Gr1 but no attempts from Gr2 learners to perform this elaborate negotiation function. Results imply that Gr1 learners were more engaged in constructive discussions than were Gr2 learners. In this case, learners are invited to use the oral mode to provide their arguments and the writing mode to write them on the whiteboard. Results confirmed the primary conclusion about the importance of using the oral and the writing modes to perform elaborate negotiation functions.

### 3.2.3.11. Response-Rejection

	<b>R-Rejection</b>
<b>Gr1</b>	1.40 %
<b>Gr2</b>	0 %

**Table 4.59. R-Rejection by Gr1 and Gr2**

Performing this type of negotiation skill implies that learners are engaged in the process of argumentation which is a prerequisite of any type of learning. Gr1 learners tended to challenge each other justifying their views, ideas and positions. They suggested new directions for discussion and made alternative propositions and suggestions. However, Gr2 learners did not challenge each other at this level of interaction. The results thus implied that Gr1 learners were more involved in constructive discussions than were Gr2 learners. The results seemed to correlate perfectly with the results of the analysis of the interactive and negotiation functions of teachers where T1 used more negotiation skills that were meant to engage students in collaborative and constructive discussion than. Results showed that T2 made very few attempts to make her learners use elaborate negotiation functions. Gr2 learners, as a consequence, did not perform elaborate negotiation functions like reject and argument.

### 3.2.3.12. Response-Assertion

	<b>R-Assertion</b>
<b>Gr1</b>	2.45 %
<b>Gr2</b>	0 %

**Table 4.60. R-Assertion by Gr1 and Gr2**

Again, this is a very elaborate negotiation skill where learners tend to insist on their ideas and try to convince other learners and make them accept their ideas by justifying their positions. Results showed that Gr1 performed more assertions

that did Gr2 while responding. Results implied that Gr1 learners were more involved in the process of collaborative knowledge construction than were Gr2 learners. This was a very important skill which showed that Gr1 learners engaged in the process of argumentation challenging, arguing and defending each others' ideas and views. However, both groups were invited to use the oral and writing modes to assert their ideas and views. We arrive at the same conclusions as for the preceding negotiation skill as far as the simultaneous use of the oral and writing modes to perform elaborate negotiation functions.

### 3.2.3.13. Response-Challenge\Counter-Argument

	<b>R-Challenge</b>
<b>Gr1</b>	1.50 %
<b>Gr2</b>	0 %

**Table 4.61. R-Challenge by Gr1 and Gr2**

The rate of performance of this negotiation functions by Gr1 learners was interesting. Gr1 performed this very elaborate negotiation function while trying to challenge each others' views justifying their position. However, Gr2 learners did not perform this elaborate negotiation function which implied that they were not actively engaged in the process of argumentation.

### 3.2.3.14. Response-Justify

	<b>R-Justify</b>
<b>Gr1</b>	1.60 %
<b>Gr2</b>	0 %

**Table 4.62. R-Justify by Gr1 and Gr2**

Results showed low yet important rates of performance of this negotiation function by Gr1 learners. Gr2 learners did not perform this very elaborate

negotiation function which corroborated our primary conclusions that G1 learners succeeded at creating ZPD to collaborate and construct new knowledge.

#### 4.2.3.15. Response-Summarize

	<b>R-Summarize</b>
<b>Gr1</b>	1.20 %
<b>Gr2</b>	0 %

**Table 4.63. R-Summarize by Gr1 and Gr2**

Results showed that Gr1 performed this elaborate negotiation function which implied that some of their discussions reached high levels of knowledge construction. Gr1 learners tended to summarize their ideas and thoughts, hence the newly constructed knowledge. However, Gr2 did not perform this elaborate negotiation function which implied that their discussions did not reach high levels of collaborative construction of knowledge. This result corroborated primary conclusions that T1 involved her learners in constructive discussions more than did T2. I checked the truthfulness of this primary conclusion in the coming sections of the analysis.

#### 3.2.3.16. Response-Meta-Cognitive Statements

	<b>R- meta-cognitive Statements</b>
<b>Gr1</b>	0.54 %
<b>Gr2</b>	0 %

**Table 4.64. R-Meta-Cognitive Statements by Gr1 and Gr2**

Results showed that Gr1 learners performed this very elaborate negotiation function. Despite the low rate of performance, it implied that Gr1 learners arrived at constructing a new shared meaning even at very low rates. However, Gr2 students

did not perform this very elaborate negotiation function which implied that their discussions did not reach high levels of collaborative knowledge construction.

#### 4.2.3.17. Response-Application

	<b>R-Application</b>
<b>Gr1</b>	1.40 %
<b>Gr2</b>	2.10 %

**Table 4.65. R-Application by Gr1 and Gr2**

Performance of this negotiation function shows that discussions reach the highest level of collaborative knowledge construction. At this level, students start applying and putting into use the knowledge/meaning they have been negotiating and creating collaboratively. Contrary to the previous negotiation function, results showed that the rate of performance of this negotiation function by Gr1 learners was high and correlated with the high rates of application requests performed by T1. Gr2 performed also this high negotiation function. Previous results showed that they were not actively engaged in the process of negotiation and argumentation where they could not use the negotiation function they needed to perform before they could construct truly new knowledge and then could apply it. This implied that the T2' application requests were meant to invite learners to rehearse and use the information provided to them by the teacher herself. In addition, learners' applications were more rehearsal and repetition of the information provided by T2 than application of a newly constructed knowledge.

#### 3.2.4. Response Continuity

This interactive role implied that learners worked towards extended discussions by building on each others' contributions either as a response to their teachers' invitations or because the discussions were appealing to them.

### 3.2.4.1. RC-Inform

	<b>RC-Inform</b>
<b>Gr1</b>	5.10%
<b>Gr2</b>	10.30%

**Table 4.66. RC-Inform by Gr1 and Gr2**

Results showed that both groups of learners tended to build on each others' contributions by adding new information which might have positive effects on Knowledge construction process. However, Gr2 learners tended to extend discussions to share new information more than Gr1 learners which might explain the reasons why their interactions remained at low levels of construction.

### 3.2.4.2. RC-Accept

	<b>RC-Accept</b>
<b>Gr1</b>	2.62%
<b>Gr2</b>	4.18%

**Table 4.67. RC-Accept by Gr1 and Gr2**

Results showed that both groups of learners tended to accept each others' contributions without negotiation by saying yes or no. However, the rate of performance of this negotiation function by Gr1 learners was low compared to Gr2 performance rate which implied that Gr1 learners were more interested in critical discussions rather than simple acceptance of each others' ideas and views.

### 3.2.4.3. RC-Corroboration

	<b>RC-Corroboration</b>
<b>Gr1</b>	0 %
<b>Gr2</b>	5.37 %

**Table 4.68. RC-Corroboration by Gr1 and Gr2**

Results showed that Gr2 learners attempted to corroborate each others' ideas and views by providing similar examples. However, Gr1 learners did not perform this negotiation function which implied less collaborative efforts on the part of this group of learners.

### 3.2.4.4. RC-Disagreement

	<b>RC-Disagreement</b>
<b>Gr1</b>	0 %
<b>Gr2</b>	1.10 %

**Table 4.69. RC-Disagreement by Gr1 and Gr2**

Results showed that only Gr2 learners tended to extend discussions by showing their disagreement with the previous responses without justifying their positions. This implied that students engaged in successive responses in attempt to launch the argumentation and negotiation process.

### 3.2.4.5. RC-Rapid Agreement

	<b>RC-Rapid-Agreement</b>
<b>Gr1</b>	0 %
<b>Gr2</b>	2.10 %

**Table 4.70. RC-Rapid-Agreement by Gr1 and Gr2**

Results showed that Gr2 learners reached rapid agreement while they started building on each others' contributions. However, the Gr1 learners did not perform this low level negotiation function which implied their attempts to move up their discussions to a more constructive level.

#### 3.2.4.6. RC-Exploratory Request

	<b>RC-Exploratory Request</b>
<b>Gr1</b>	4.56 %
<b>Gr2</b>	2.00 %

**Table 4.71. RC-Exploratory Request by Gr1 and Gr2**

Results showed that Gr1 learners seemed more engaged in discussion using this elaborate meaning negotiation function. Gr1 Learners invited each other as well their teacher to negotiate by clarifying issues, arguing their views, challenging others' views and defending once ideas. However, Gr2 students did perform this elaborate negotiation function when building on each others' ideas. Gr1 learners were more engaged in constructive discussions performing a wider range of interactive and negotiation functions than were Gr2 learners.

#### 3.2.4.7. RC-Clarification

	<b>RC-Clarification</b>
<b>Gr1</b>	5.66 %
<b>Gr2</b>	0 %

**Table 4.72. RC-Clarification by Gr1 and Gr2**

Results showed that Gr1 performed more clarifications while trying to build on each others' contributions. Gr2 learners did not clarify which extending discussions. Hence, Gr1 seemed more engaged in collaborative knowledge construction than Gr2 learners. Both groups of learners used the oral as well the writing mode to perform this elaborate negotiation skill. This confirmed the primary



conclusions about the importance of the use of the writing and the oral mode to perform elaborate negotiation skills.

#### 3.2.4.8. RC-Argument

	<b>RC-Argument</b>
<b>Gr1</b>	2.35 %
<b>Gr2</b>	0 %

**Table 4.73. RC-Argument by Gr1 and Gr2**

Results showed that only Gr1 learners performed this negotiation function and were engaged in the process of arguing, defending and justifying their views and ideas. The rate of performance was high which implied that learners were interested in extending discussion to defend their views at the attempt of creating new agreed upon meaning/knowledge rather than simply adding new information. Results implied that Gr1 RC interactions were high constructive and collaborative that might facilitate and promote meaning construction process.

#### 3.2.4.9. RC-Rejection

	<b>RC-Rejection</b>
<b>Gr1</b>	1.90 %
<b>Gr2</b>	0 %

**Table 4.74. RC-Rejection by Gr1 and Gr2**

Results showed that Gr1 tended to reject each others' ideas at the aim of extending discussion and arriving at a shared meaning. Contrary to R-rejection, Gr1 learners performed more RC-rejections than R-rejection which implied again that Gr1 RC interactions were highly collaborative and constructive. The results showed that Gr1 learners aimed at negotiating and extending discussion to high levels of construction and collaboration questioning each other, challenging each other, and

inviting each other to argue and defend one's ideas. However, Gr2 learners were less involved in the process of argumentation as they did not perform this negotiation function.

#### 3.2.4.10. RC-Assertion

	<b>RC-Assertion</b>
<b>Gr1</b>	2.70 %
<b>Gr2</b>	0 %

**Table 4.75. RC-Assertion by Gr1 and Gr2**

Results showed that Gr1 Learners carried on their discussion moving them to higher levels of construction by performing this negotiation function; they defended their ideas and tried to assert their views by providing more arguments and more clarifications. In doing so, they join their tutors' behaviours and tendencies toward the simultaneous use of both modes to perform such elaborate skills. However, Gr2 learners did not perform this negotiation function which implied fewer efforts on the part of learners to engage in constructive discussions.

#### 3.2.4.11. RC-Challenge/Counter Argument

	<b>RC-Challenge</b>
<b>Gr1</b>	1.80 %
<b>Gr2</b>	0 %

**Table 4.76. RC-Challenge by Gr1 and Gr2**

This negotiation skill shows that students insist on their views and move up discussion to high levels of construction. This skill reflects the attempts of students and teachers towards negotiation and argumentation before creating a shared and agreed upon meaning. Results showed that only Gr1 learners performed this negotiation function. Results thus implied that Gr2 did not tend to extend

discussions to move them up to high levels of collaborative construction of knowledge. Gr1 Learners performed these highly elaborate skills when engaged in collaborative exchange and construction of meaning switching between the oral and the writing modes as invited by their teachers. It would be interesting to understand why teachers invited them to use the writing mode and possible effects of this behaviour on knowledge construction process.

#### 3.2.4.12. RC-Justify

	<b>RC-Justify</b>
<b>Gr1</b>	1.83 %
<b>Gr2</b>	0 %

**Table 4.77. RC-Justify by Gr1 and Gr2**

The results showed that Gr1 learners performed this negotiation function which implied greater efforts towards debate and argumentation thus moving up discussions to high levels of construction. However, Gr2 learners did not perform this negotiation function which corroborated the primary conclusions of this section of the analysis.

#### 3.2.4.13. RC-Concession/Negotiated Agreement

	<b>RC-Concession</b>
<b>Gr1</b>	2.54 %
<b>Gr2</b>	0 %

**Table 4.78. RC-Concession by Gr1 and Gr2**

At this level, after debating views and ideas, students reach consensus or a common agreed upon meaning. From a socio-constructivist view, reaching consensus/agreement at the end of the process of negotiation and argumentation/debate is one of the crucial features of meaning construction. Results

showed that only Gr1 learners reached this high level of discussion by performing this negotiation function. Gr1 Learners tended to express orally and in the writing mode their consensus which reiterated the importance of the use of both modes in learners' engagement in constructive discussions.

#### 3.2.4.14. Consensus Building

	<b>RC-Consensus Building</b>
<b>Gr1</b>	2.50 %
<b>Gr2</b>	0 %

**Table 4.79. RC-Consensus Building by Gr1 and Gr2**

Results showed that Gr1 learners could reach consensus when involved in extended discussions. This implied that Gr1 learners made efforts to collaborate and negotiate meaning to construct new knowledge.

#### 4.2.4.15. RC-Summarise

	<b>RC-Summarize</b>
<b>Gr1</b>	1.50 %
<b>Gr2</b>	0 %

**Table 4.80. RC-Summarize by Gr1 and Gr2**

Results showed again that only Gr1 learners summarized the newly constructed meaning in an attempt to use/apply it later on. Though the rate of performance of this negotiation function by Gr1 learners was low, but it was very important as it was not expected that learners construct knowledge each time they met and preceded to summarize and apply it.

### 3.2.4.16. RC-Meta-Cognitive Statements

	<b>RC- Meta-Cognitive Statements</b>
<b>Gr1</b>	1.20 %
<b>Gr2</b>	0 %

**Table 4.81. RC- Meta-Cognitive Statements by Gr1 and Gr2**

After summarising and concluding the new meanings, students state clearly that their understanding changed. Gr1 learners used 1.20% of their total contributions to reflect on their learning. However, Gr2 did not make explicit reflections on their learning. Contrary to Gr2 learners, Gr1 learners tended to extend discussions to move them up to higher levels of collaborative knowledge construction by building on each others' contributions.

### 3.2.4.17. RC-Application

	<b>RC-Application</b>
<b>Gr1</b>	2.10 %
<b>Gr2</b>	1.50 %

**Table 4.82. RC-Application by Gr1 and Gr2**

This is the highest level of construction which shows that learners have internalized the newly constructed meaning. Results showed that only Gr1 learners performed this elaborate negotiation functions. They used 2.10% of their RC contributions to apply knowledge. Henceforth, results implied again that Gr1 learners tended to extend discussions to move them up to higher levels of collaborative knowledge construction by building on each others' contributions. However, Gr2 learners tended to extend discussion at the sake of exchanging more information only. The main difference between groups was that Gr1 learners applied new meanings when engaged in RC interactions. This indicated that Gr1 learners applied collaboratively constructed new meanings as a result of

engagement in the collaborative process of debate and negotiation rather than simply complying with their teachers' application requests.

### **3.3. Primary Summary of Findings of the Analysis of Interactive and Negotiation Functions of Participants Turns**

I started by summarizing the results of the analysis of the interactive and negotiation functions of teachers interactions. Generally speaking, results showed that teachers performed the different interactive roles using the different negotiation functions. Results showed that high proportions of elaborate negotiation functions were performed when reinitiating and when engaged in RC interactions building on students' contributions switching between the oral and the written modes of communication.

The results of the different tables substantiated earlier findings that T1 was more involved in her group's discussions, compared to T2, by reinitiating and inviting students to build on each other's ideas by contributing more elaborate negotiation functions.

This analysis revealed that while both teachers mainly initiated to provide information or make observations, T1 displayed a more balanced distribution of I-inform and I-information requests and I-exploratory requests. The results suggested that besides providing information, T1 tended to use questions to start discussions and stimulate debates between students whereas T2 tended to concentrate on giving information than asking exploratory requests at the start of exchanges.

The analysis showed that T1 produced a higher percentage of IC compared to T2. Results indicated that T1 tended to extend discussions more than T2. T1 tended to reinitiate previous discussions performing elaborate negotiation skills more than did T2. This indicated T1's attempts towards engaging her learners in collaborative interactions to enhance and facilitate collaborative meaning construction.

Results showed that both teachers used RC interactions to clarify. However, T2 used RC interactions to argue, elaborate, challenge, counter argue, reject others'

ideas, concede and build consensus. A broader move range found in T1 interactions suggested her greater efforts to support the group learning process by using moves that served to provide information, convey meaning, prompt, probe, and shape the direction of discussions.

As far as the fifth interactive role Feedback was concerned, results showed some similarities and differences between teachers' performances. T1 used more elaborate negotiation functions to provide feedback to her learners than did T2.

A close comparative group analysis at negotiation skills level by teachers showed some differences and similarities. First, concerning the first level, results showed slight differences between teachers. The highest frequency of performance went to the low negotiation function inform which was expected as teachers were supposed to provide students with new information. T2 performed more information requests than T1 which implied that she spent more time inviting students to exchange information and share opinions than T1. Neither tutor corroborated their students' responses which implied that they tended to engage them in more elaborate negotiation functions than simple corroborations. In addition, both tutors performed low frequencies of comprehension checks. Again, this implied that teachers were more concerned with engaging students in more constructive discussions than simply checking comprehension.

Second, concerning the second level, tutors performed high rates of explanations which was expected as this is one of the most important roles of teachers which was providing and explaining new information and issues. However, teachers performed low rates of the different negotiation functions which implied that teachers did not tend to point at issues and dissonances rather engaging students in constructive discussion for the critical examination of their ideas and understandings.

As far as the third level was concerned, results showed that T1 performed more elaborate negotiation functions than did T2. The frequency of exploratory requests was very high which indicates tutors' efforts towards engaging students in the process of negotiation for the critical discussion of their ideas. However, results showed that T1 was more engaged in clarifying, asserting, and providing arguments

to defend her ideas and reject critically her learners' ideas. T1 more implicated in challenging her learners' ideas and views. In addition, T1 was even more implicated in the process of negotiation and argumentation where she could help her learners reach concessions and construct consensus.

Finally, concerning the fourth level of meaning construction, only T1 invited her students to reflect on their learning process. This indicated again that T1 was more implicated in the negotiation and argumentation process than T2. Results showed that both tutors invited their students to apply new knowledge. However, neither tutor performed meta-cognitive requests. In addition, results show that tutors did not perform important highly elaborate negotiation functions like summary, meta-cognitive statements, and application. This indicated that these elaborate negotiation functions were more to be performed by learners than teachers.

Overall, results from teacher comparison substantiated earlier findings on different levels of teacher engagement in facilitating learners' engagement in constructive discussions. Compared to T2, there was stronger effort by T1 to scaffold interactions by contributing greater depth of information and adopting a wider range of negotiation skills. Additionally, the wider negotiation skills used by T1 compared to T2 suggested greater efforts in teacher scaffolding, hence substantiating earlier findings that T1 maintained a more visible teacher presence and was more involved in Gr1 learning processes.

Finally, results showed the importance of the simultaneous use of the oral mode and the writing mode to perform elaborate negotiation skills. Teacher used the writing mode whiteboard simultaneously with the writing mode to perform different negotiation skills particularly the elaborate ones. The use of the writing mode served to illustrate the new topics using texts and picture to help clarifying and explaining new ideas and concepts. I might say that the results confirm Bouchard's (2006) description of educational classes as oralo-graphic events that needed to be analyzed as such.

So far, results showed that learners performed high proportions of minimal as well as elaborate negotiation functions with different frequencies. Results



showed that learners performed the majority of the interactive and negotiation functions. They performed elaborate, moderate and minimal negotiation skills. However, Gr1 learners were more engaged in the collaborative process of knowledge construction than Gr2 learners. The results were very interesting. Both groups performed the different negotiation functions with different frequencies. First, concerning the first level of meaning construction, result showed that Gr2 learners performed more low negotiation functions than Gr1 learners. This indicated that G2 learners spent more time exchanging and corroborating each others' ideas and views than G1. Second, concerning the second level of construction, Gr1 learners engaged more than Gr2 learners in pointing at issues and expressing their disagreements. However, Gr2 learners reached rapid agreement while Gr1 learners did not. This indicated that Gr1 learners raised issues and expressed their disagreements aiming at critical negotiation and discussion rather than reaching rapid and shallow agreement. Third, concerning the third level of negotiation functions, both groups performed the different elaborate negotiation functions with different frequencies; which implied that both groups engaged actively in the process of negotiation and argumentation. Results showed that both groups clarified, asserted, justified and provided arguments to defend their ideas and views. In addition, both groups engaged in the argumentation process by rejecting and challenging each others' views. Furthermore, both groups could reach concession and construct consensus. However, Gr1 learners performed more elaborate negotiation functions than Gr2 learners, which indicated that Gr1 learners were more actively engaged in the collaborative process of meaning construction. Finally, the results of the analysis of the fourth level of negotiation functions confirmed that Gr1 learners were more involved in the process of meaning construction than Gr2 learners. Only Gr1 learners could make reflective statements to reflect on their learning and thinking process. In addition, Gr1 learners applied new knowledge more than Gr2 learners.

Overall, the analysis showed that GR1 learners used RC interactions mainly to clarify, argue, elaborate, challenge, counter argue, reject others' ideas, concede and build consensus, which suggested attempts to offer alternative perspectives for

collaborative negotiation and debate at the aim of creating new shared understanding. Hence, in terms of the learning process in Gr1, the presence of RC (challenge, reject and counter-argument) suggested attempts to offer alternative perspectives and engagement in the process of argumentation. The presence of this type of RC is a necessary element in the social constructivist learning process because they are sources of perturbation (Von Glaserfeld, 1989) that prompt debate and reconsideration of ideas which signals effort at collaboration and meaning construction. The presence of RC (clarify, elaborate, argue) suggested Gr1 awareness of a knowledge gap and attempts towards negotiation building on each others' ideas. So, the prevalence of this type of turns and negotiation functions implied that the interactional patterns of both Gr1 reflected more closely the characteristics of exploratory talk (Wegerif & Mercer, 1997) as learners collaborated to share information yet contribute critical responses that prompted efforts from others to justify or explain their views.

Finally, learners used both the oral and the writing modes to perform the different interactive and negotiation functions. The oral mode was overwhelmingly used to perform all kinds of interactions and negotiation skills. However, the whiteboard is used to perform elaborate ones.

All in all, I might say that there was an interesting difference between the performance of T1 who was trained and the performance of T2 who was not trained. T1 was better prepared to implement the socio-constructivist principles of learning than was T2. Lack of training was one of the reasons behind the failure of T2 to engage her learners in the collaborative process of knowledge construction, hence the implementation of the CBA.

Up to now I have examined the performance of the different negotiation functions skills which were a prerequisite for meaning construction to take place. What about the process itself? What were the possible effects of the performance of the negotiation functions on knowledge construction process?

To synthesize all the information provided in this section, it was important to consider the same contributions but from a broader angle which was the extent to which the different types of exchanges/discussions reached the different phases of knowledge construction.

#### **4. Classification of Participants' Interactions into Phases of Knowledge Construction**

Building on earlier findings on engagement by participants with each others' contributions and interactional+ purposes of turns in exchanges, this section presented the results from a broader analysis of the collaborative learning process in groups defined as the presence of participation, information sharing, and topic development.

I tried to answer the following research question:

- Do teachers' scaffolded and mediated interactions support collaborative knowledge construction process, and if so to what extent? What is the effect of the affordances of teachers' patterns of interactions on patterns of learners' engagement in constructive discussions? To what degree do these patterns contribute to Knowledge construction process?

Before describing the results of the analysis, I reconsidered the definition and the characteristics of each phase of meaning construction.

##### **4.1. Phases of Knowledge Construction**

- **Phase one of knowledge construction (Ph1):** as it was explained in the methodology chapter, participants build on each other's contributions, adding their own information and constructing a body of shared knowledge and understanding, but they do not challenge or criticize each others' views.

- **Phase two of knowledge construction (Ph2):** it is characterized by individuals trying to restate their own points of view while disagreeing or ignoring the views of others contributions, adding their own information and constructing a body of shared knowledge and understanding, but they do not challenge or criticize each other's views. Ph2 is characterised by limited attempts to offer constructive criticism. Differences of opinions are expressed but are not negotiated nor resolved and information is flaunted rather than shared (Mercer, 1999). Participants try to maintain consensus and so points of disagreement are quickly sorted out and solved.

- **Phase three of knowledge construction (Ph3):** It is more a characteristic of an educational discourse because it involves constant negotiation and argumentation. Reasons and explanations, elaborations and argumentations are made explicit where necessary and all participants make critical evaluations in order to reach joint conclusions. Argumentation can be described as a reasoned debate between people, an extended conversation focusing on specific theme which aims to establish the truth about some contentious issue" (Mercer, 2000, P96). Conflicting views are presented but the intention is to reach a resolution and an agreement/consensus. This is a socio-cognitive conflict in which the presentation of challenges and variant perspectives has the potential to move the discussion on. Hence, Ph3 exchanges involve making reasons and explanations explicit where necessary, with all participants contributing critical evaluations in order to reach joint conclusions. It is an important element of the progressive discourse that enables learners to develop a shared understanding, because progressive discourse requires evidence to be brought to bear on propositions and all beliefs to be subject to criticism if necessary.

- **Phase four and phase five of meaning construction (Ph4 and Ph5):** they enable participants to establish what they already know and they have agreed. They are knowledge building tools, used to unite ideas and information from the present and previous discussion. The participants select and combine elements from previous turns in the exchanges and move the

dialogue forward by presenting this synthesis/summary to the group. The technique promotes consensus, presenting new understanding as uncontroversial agreed upon knowledge. These are collective and collaborative contributions to the groups' meaning making.

In sum, the model of analysis applied to code and analyze my data divided interactions into four levels. The first level is qualified as minimal interactions where discussion is at a basic level of simple exchange of information and opinions. This level corresponds to Ph1 of meaning construction. The second level is qualified as moderate interactions where there is a disagreement but no attempts to follow up. Discussion does not move up to high levels of debate. This level corresponds to Ph2 of meaning construction. The third type is elaborate or high level interactions where discussion moves up to high levels of debate and negotiation before participants can reach agreement and build consensus, test the new knowledge, internalize it and finally apply it. This level corresponds to phase 3, phase 4 and phase 5.

Initially, the results showed that Gr1 and Gr2 demonstrated different interactive and negotiation functions. As far as Gr1 was concerned, interactions were balanced where discussions reached high levels of construction. As far as Gr2 was concerned, interactions were at a primarily the lower level of communication: sharing information and discovering dissonance. Higher levels of communication involving negotiation, co-construction and agreement were identified but at very lower levels which were expected as T2 was not introduced to the CBA principles of teaching and learning.

I started by classifying teachers contributions into phases of knowledge construction.

## 4.2. Classification of Teachers' Interactions into Phases of Knowledge Construction

This analysis served to check individual aspects of learning and how this was facilitated by teachers' scaffolding efforts. The purpose of this analysis is to check which individual contributions reached low or high levels of knowledge construction.

### 4.2.1. Classification of T1' Interactions into Phases of Knowledge Construction

	<b>I (%)</b>	<b>IC (%)</b>	<b>R (%)</b>	<b>RC (%)</b>	<b>F (%)</b>
<b>Ph1</b> <b>42.88%</b>	43.67	12.29	4.43	1.26	37.34
<b>Ph2</b> <b>8.80%</b>	25.80	27.03	0	0	45.16
<b>Ph3</b> <b>38.62%</b>	15.38	38.55	15.38	9.09	0
<b>Ph4</b> <b>4.02%</b>	0	100	0	0	0
<b>Ph5</b> <b>5.68%</b>	85	15	0	0	0

**Table 5.1. Classification of T1's Interactions into Phases of Knowledge Construction**

The table showed that discussion reached low levels as well as high levels of knowledge construction.

Concerning Ph1, the table showed that Ph1 had the highest rate with 42.88% of performance. Initiation represented 43.67 % of Ph1. The high rate was expected as at this level teachers were expected to share information with her

learners. 12.29% of IC interactions stopped at Ph1. T1 reinitiated to provide more information and share more experiences and views with her learners. Only 4.43% of R interactions and 1.26% of RC interactions stopped at Ph1. The results were expected as at this level because there was a simple exchange of views and experiences, there was no constructive discussion yet. 37.34% of Feedback interactions were at a low level of construction. It was the kind of feedback where T2 simply accepted learners' contributions without commenting them.

Concerning Ph2, only 8.80% of T1's interaction reached Ph2 of knowledge construction. The interactive roles R and RC were absent which implied that learners did not initiate at this level and that T2 was more interested in moving up discussion to high levels of construction.

Concerning Ph3, an important proportion (38.62%) of T2's interactions reached Ph3 of knowledge construction. Results then implied T1's attempts to scaffold interactions by creating opportunities for constructive discussions and knowledge construction to take place. 38.55% of IC interactions and 9.09% of RC interactions reached Ph3 level of construction. These results implied T1's attempts to extend discussions to engage her learners in the process of negotiation and argumentation. In the second place, 15.38% of I interactions and 15.38% of R interactions reached this high level of construction which implied T1's attempts towards scaffolding interactions inviting learners to discuss and debate each others' ideas instead of simply exchanging them. Finally, an interesting proportion of feedback interactions (18.88%) reached high levels of construction. The results implied once again T2's attempts towards scaffolding interactions by providing constructive feedback. Hence, I might say that the results implied that T2 made greater efforts to engage her learners in the process of discussion and meaning construction.

Concerning Ph4, 4.02% of T1's interactions reached this upper level of knowledge construction. Despite the low rates of the interactions that reached this very important level of knowledge construction, results showed that T2 succeeded at involving her learners in the process of reflection of their own thinking and collaborative learning process. 7.13% of her IC interactions were meant to extend

discussion inviting them to summarize their thoughts which was a prerequisite for knowledge construction to take place.

Concerning Ph5, 5.68% of T1's interaction reached the highest level of construction where he invited learners to apply their newly constructed knowledge. Results showed that T2 initiated and reinitiated to involve learners in the process of application and internalization of new knowledge.

#### 4.2.2. Classification of T2' Interactions into Phases of Knowledge Construction

	<b>I (%)</b>	<b>IC(%)</b>	<b>R(%)</b>	<b>RC(%)</b>	<b>F(%)</b>
<b>Ph1</b> <b>65.69%</b>	59.62	7.17	10.95	17.70	4.78
<b>Ph2</b> <b>17.74%</b>	0	33.33	5.47	20.54	41.66
<b>Ph3</b> <b>15.40%</b>	14.83	12.22	33.34	19.70	20.91
<b>Ph4</b> <b>0%</b>	0	0	0	0	0
<b>Ph5</b> <b>1.17%</b>	64.78	36.22	0	0	0

**Table 5.2. Classification of T2's Interactions into Phases of Knowledge Construction**

The table showed that discussions reached primarily low levels of knowledge construction.

Concerning Ph1, the table showed that 65.69% of T2's interactions remained at a low level of knowledge construction. 59.62% of interactions were initiations. This is expected because at this level the tutor shares information with her students. However, contrary to T1, 17.70% of RC interactions and 7.17% of IC



interactions remained at this low level of knowledge construction which implies that T2 engaged in extended discussions with her learners to provide more information and share her opinions and experiences rather than engaging learners in the process of critical discussions of their own ideas.

Concerning Ph2, results showed that 17.74% of T2's interactions reached the second low level of knowledge construction. Results showed that high proportions of T2's feedback (41.66) were used to express agreement or disagreement with learners' contributions without providing them with comments. Feedback in this case was expressed through yes and no statements which implied that T2 did not intend to invite learners to follow up on her feedback. Contrary to T2, T1 used 33.33% of her IC interactions and 20.54 of RC interactions to express rapid agreement or disagreement which implied that T2 did not always extend discussions to engage learners in critical discussion of ideas and views.

Concerning Ph3, only 15.40% of T2 interactions reached the third level of knowledge construction. The low rate implied fewer attempts from T2 to scaffold interactions and create opportunities for learners' engagement in critical discussion of their ideas and views hence knowledge construction. The few opportunities T2 created for learners' engagement in knowledge construction process were distributed in a more or less balanced way between the different interactive roles. The few attempts she made to reinitiate (12.22%) and build on her learners' ideas (19.70%) served to move up discussions to the third level of knowledge construction. Results also showed that a high proportion of her Responses (33.34) and feedback (20.91) were meant to provide more clarifications to her learners.

Concerning Ph4, results showed that Gr2 discussions did not move up to the fourth level of knowledge construction which implied that T2 did not invite her learners to summarize their thoughts and reflect on their thinking and learning process. Reflection is a very important thinking skill which is found to be related to positive learning. In doing so, students are drawn to test their new knowledge which facilitates knowledge internalization and appropriation. It was obvious then that T2 failed at implementing the main concepts of the CBA.

Concerning Ph5, a very low proportion of T2 interactions (1.17%) were meant to invite learners to apply newly constructed knowledge. This implied that T2 failed at making learners construct and apply new knowledge.

Now, I moved to the classification of learners' interactions into levels of collaborative knowledge construction.

### 4.3. Classification of Learners' Interactions into Phases of Knowledge Construction

As we have seen in the previous section, the main interactive roles of the students were response and response continuity. They barely initiated and they almost never reinitiated. Results showed that Gr1 learners and Gr2 learners engaged differently in the collaborative process of knowledge construction.

#### 4.3.1 Classification of Gr1 learners' interactions into phases of knowledge construction

	I (%)	IC (%)	R (%)	RC (%)	F (%)
<b>Ph1</b> <b>23.10 %</b>	2.65	0	65.55	34.45	0
<b>Ph2</b> <b>14.01 %</b>	6.07	0	60.60	33.33	0
<b>Ph3</b> <b>44.69 %</b>	0	0	55.08	44.92	0
<b>Ph4</b> <b>4.92 %</b>	0	0	100	0	0
<b>Ph5</b> <b>13.25 %</b>	0	0	60.50	39.50	0

**Table 5.3. Classification of Gr1 Learners' Interactions into Phases of Knowledge Construction**

Results showed Gr1 learners engaged actively in low and high level discussions via responding to tutor's requests or building on each others' ideas.

Concerning Ph1, 23.10% of learners' interactions were at a low level of construction where learners were pretty busy sharing information, experiences and opinions. Results showed that learners replied to their teachers' requests by contributing new ideas and sharing their views. In addition, learners extended discussions to share ideas critically discussing them neither with their teacher nor with their peers. The very few attempts made by learners to initiate were meant to exchange information only.

Concerning Ph2, only 14.01 % of learners reached this second low level of knowledge construction which implied that learners did not tend to express rapid agreement or disagreement. Results might imply learners endeavour to engage in more critical agreements and disagreements. Learners perform three different interactive roles to move up discussion to this phase of knowledge construction. On one hand, they responded to the teacher's requests expressing their disagreement or rapid agreement with his views. Learners try to extend discussion trying to point out to further issues and problems. Finally, they initiated discussions immediately by pointing at issues and problems.

Concerning Ph3, results showed high proportions of learners' interactions (44.69%) reached the third high level of knowledge construction. Results showed that 55.08% of these interactions were responses to teachers requests to negotiate knowledge and 44.92% were attempts to extend discussions by challenging and debating each others' ideas and views. The rates were very interesting and showed that Gr1 learners could create opportunities to engage actively in the ZPD for collaborative knowledge construction. Learners made attempts to negotiate and construct meaning in collaboration.

Concerning Ph4, results were interesting. Despite the low rate of learners' interactions that reached this elaborate and very important level of knowledge processing, the analysis showed that learners could be engaged in the process of reflection on their thinking and learning process. Reflection is a high thinking order skill which needs a lot of scaffolding from the teacher before learners could develop

and use this mental skill. Hence, we did not expect learners to reflect on their thinking each time they met as we were aware that this process needed time.

Concerning Phase, results showed that 13.25% of learners' interactions were meant to apply and internalize newly constructed knowledge. Results are very interesting as this process needed learners to engage in high order thinking which needed time and a lot of mental processing. As it was mentioned previously, I did not expect learners to reach this high level of knowledge construction each time they met. Knowledge construction process is a long process that needs time. Learners needed time to construct collaboratively knowledge before they could internalize it and finally apply it at the same or at other learning occasions.

The analysis showed that learners tended to apply the newly constructed while responding and while extending discussions which implied that learners could finally construct knowledge and even attempted to apply it.

#### 4.3.2. Classification of Gr2 Learners' Interactions into Phases of Knowledge Construction

	I (%)	IC (%)	R (%)	RC (%)	F (%)
<b>Ph1</b> <b>49.48%</b>	5.55	1.38	51.38	41.66	0
<b>Ph2</b> <b>43.87</b>		6.97	32.55	60.46	0
<b>Ph3</b> <b>6.63%</b>	0	0	53.84	46.15	0
<b>Ph4</b> <b>0%</b>	0	0	0	0	0
<b>Ph5</b> <b>0%</b>	0	0	0	0	0

**Table 5.4. Classification of Gr2 learners' interactions into phases of knowledge construction**

The second group showed different behaviours. Their interactions were basically at a low level of knowledge construction.

Concerning Ph1, high proportions of Gr2 learners' interactions remained at a very low level of knowledge construction. The results implied that learners spent their time exchanging information and their personal experiences and views without critically discussing and building on each others' contributions. The analysis showed that the very few attempts to initiate discussions served to share information and opinions. In addition, attempts to extend discussions (RC: 41.66%, IC: 1.38%) were not used to engage in critical discussions but rather to share more information while each learner was rather focusing on his personal contributions rather than building on each others' contributions. Results thus suggested fewer attempts to create ZPD for collaborative knowledge construction.

Concerning Ph2, high proportions of Gr2 learners' interactions (43.87 %) remained at a very low level of knowledge construction. The results implied that learners tended to reach rapid agreement and disagreement without justifying their positions, which implied fewer attempts towards the creation of ZPD for critical discussions and building a common agreed upon knowledge through reaching consensus.

Concerning Ph3, the rate of learners interactions that reached high levels of construction was very low (6.63%). The analysis of the negotiation functions of Gr2 learners showed that learners made few attempts to engage in the negotiation process but did not make attempts to engage in the argumentation process. I might conclude then that learners failed at moving up discussions to high levels of discussion and thus failed at creating ZPD for collaborative construction of knowledge.

Concerning Ph4, results showed that learners did not make any attempt to reflect on their thinking and collaborative learning as very few attempts were made to collaborate and create ZPD. Learners did not use high order thinking.

Concerning Ph5, results showed that learners did not apply knowledge which implied that learners did not construct knowledge but were rather rehearsing

information provided by their teacher. Henceforth, Gr2 learners were not engaged in the collaborative process of knowledge construction.

#### **4.4. Summary of the Findings of the Classification of Participants' Interactions into Phases of Knowledge Construction**

The socio-constructivist learning framework adopted in this study assumed that knowledge construction was supported by initial scaffolding by the tutors and gradual withdrawal of learning support as students gained greater control of the discussion. Patterns in the use of extended turn/exchange sequences by participants could therefore indicate the attempts to collaborate or have control over discussion and the extent to which the tutors were involved in providing learning support.

In sum, we could map out three important conclusions:

High proportions of IC and RC interactions were attempts to extend discussions to high levels of negotiation and argumentation that lead to high levels of collaborative meaning construction. This supported our assumption that IC and RC were indicators of engagement in deep and constructive discussions.

Both tutors used the written mode along with the oral mode particularly when using elaborate negotiation skills to invite students to engage in the process of negotiation and debate that lead to high levels of meaning constructions. The use of writing tools (the WB and pictures) indicated withdrawal from direct involvement in interaction and inviting students to manage their interactions. Students shared the same tendency towards the use of writing tools to engage in elaborate negotiation skills building on each other's contributions.

The switch between oral and written mode helped tutors to take on different roles, from controllers providing information and explanations using the oral mode, the whiteboard and presentation sheets to facilitators, guides and scaffolders. In addition, the switch between oral and written modes of communication helped students to function as: respondents sharing information and ideas with their tutors

using the oral mode and active negotiators building on each others' ideas using the oral mode, the whiteboard and presentation sheets.

The socio-constructivist learning framework adopted in this study assumes that knowledge construction is supported by initial scaffolding by the tutors and gradual withdrawal of learning support as students gain greater control of the discussion. Patterns in the use of extended exchange sequences by tutors could therefore indicated the attempts to collaborate or have control over discussion and the extent to which the tutors were involved in providing learning support.

However, the analysis of Ph5 of meaning construction showed that it was not possible to assess the collaborative aspect of R interactions that reach high levels of construction. This stimulated reflections on the necessity of assessing the quality of exchanges instead of focusing on just individual contributions. I needed to know if discussions, not just individual contributions moved up to high levels of knowledge construction as a result of using negotiation as well as argumentation processes. This was an opportunity to consider the possible affordances that might result from participants' interactions. There was a need to check the extent to which participants' interactional choices contribute to moving discussions up to high levels of construction.

## **5. Analysis of the Interactive Patterns of Classroom Exchanges**

Up to now, I looked at individual contributions which have been classified in terms of elaborate, moderate and low levels of meaning construction. I have also looked at the participants' different interactive roles and their associated interventions in terms of negotiation functions. I explored the effects of how these individual contributions in terms of turns of communication interact and build up into exchanges. There was a need to assess the social aspects of learning by checking the extent to which individual contributions of participants were meant to collaborate. There was a need to move beyond the study of the quantity and the quality of turns if we want to understand the way participants engaged in the collaborative knowledge construction. It was necessary to understand how

individual turns relate to each other to build up into constructive discussions. I assumed that it was necessary to examine the structure and the quality of exchanges to evaluate the quality of discussions from a socio-constructivist perspective. The interdependence between turns demonstrated the extent to which they built on each other into constructive discussions. I assumed that the more turns built on each other, the more exchanges move discussions into high levels of construction. It would be interesting thus to check the interactive structures/patterns of classroom exchanges and the extent to which they build up into constructive discussions and reach high levels of knowledge construction.

Gr1	I-R-F	I-R-RC-F	IC-R-F	IC-R-RC-F
	7.43%	42.43%	16.62%	33.51%

**Table 6.1. Interactive Patterns of Classroom Exchanges for Gr1**

Gr2	I-R-F	I-R-RC-F	IC-R-F	IC-R-RC-F
	59.21%	14.47%	13.15%	11.84%

**Table 6.2. Interactive Patterns of Classroom Exchanges for Gr2**

As we have seen in the previous section, I could isolate new types of interactive turns. Consequently, we could isolate new types of interactive exchanges. We could isolate four patterns for both groups:

### **5.1. Traditional Three-Part Structure I-R-F**

Regarding the sequence of turns that formed an exchange, exchange structure theory held that the organization of pedagogical exchanges was distinctive for their three part structure I-R-F.

The results showed interesting differences between the rates of I-R-F exchanges of both groups' discussion. The typical pattern of Gr2 classroom discourse consisted of a three-part exchange evoking the fairly consistent behavior of the teacher asking questions, the learners replying, and the teacher providing



feedback on the learners' responses. The participative functions of learners were exclusively limited to just one interactive role; response. The interactive roles of the teacher were distributed more or less equally between the role of initiator and feedback provider which implied the huge tutor dominance over communication. Exchanges are short and uni-directional under the direct control of the teacher. However, this pattern was not very common in Gr1 discourse which implied that Gr1 classroom discourse was less strictly controlled by the teacher.

### **5.2. I-R-RC-F**

The teacher initiated a new topic making an open request which triggered different responses (R and different RC which are related) from different learners and finally feedback by the tutor. This pattern implied that learners attempt to extend discussion and engage in collaborative meaning construction process. This pattern was very common in Gr1 discourse and less common in Gr2 discourse which implied that Gr2 learners had more opportunities than Gr2 learners to collaborate and create ZPD.

### **5.3. IC-R-F**

Results showed similarities between both groups discourse as far as the existence of this three part exchange. This three part exchange was characterized by re-initiation by the teacher or learners, response, and finally feedback from the teacher. In both groups, despite the teachers' invitation to discuss previous topics, learners did not engage in the process of negotiation and argumentation. Again, this pattern implied attempts of the teachers to extend discussion.

### **5.4. IC-R-RC-F**

The teacher or learners reinitiated previous topics. In this case, learners accepted the teachers' invitation to discuss and negotiate previous ideas. The

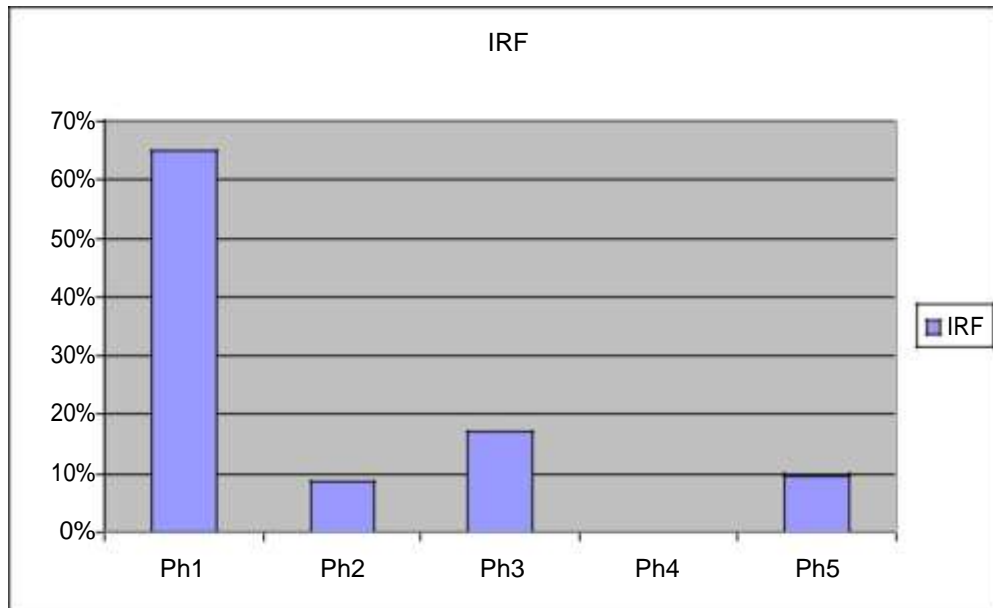
teacher uses open questions inviting all learners to discuss. Consequently, they engage in a process of collaborative meaning negotiation and construction responding and building on each others' responses. Results showed interesting differences between the structures of the discourse of both groups' discussions. Gr1 participants engaged in this type of five part exchanges more than did Gr2 participants. The results implied that Gr1 learners were more engaged in collaboration and had better and more opportunities the creation of ZPD, hence active engagement in the knowledge construction process.

To confirm my primary conclusions, then it was interesting to check which pattern reached high levels of construction. Up to now, I tried to classify individual contributions interns of elaborate and low level contributions. However, it was important examining the collective work of all the group members working together. Socio-constructivist theory of learning is based on the premise that learning is social and then individual. To examine the social or collaborative aspect of learning, I thought it would be interesting to examine the way the individual contributions build up into exchanges and discussions.

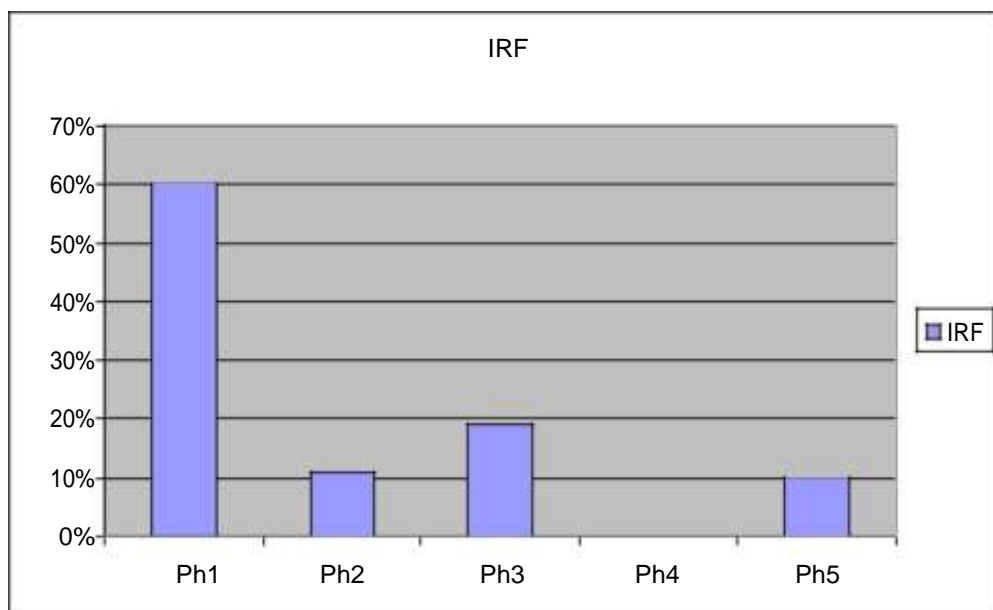
## **6. Distribution of Patterns of Exchanges in Terms of Knowledge Construction Phases**

This served to check the extent to which social learning took place. To do so, I examined the extent to which turns built on each other into exchanges that developed into constructive discussions that reached high levels of knowledge construction. There was s a need thus to classify exchanges into phases of construction.

## 6.1. I-R-F



**Figure 6.1. Classification of G1's Exchanges into Phases of Knowledge Construction**



**Figure 6.2. Classification of G2's Exchanges into Phases of Knowledge Construction**

Results showed that high proportions of Gr1's and Gr2's I-R-F remained at Ph1 low level of meaning construction. On the other hand, moderate proportions of Gr1's and Gr2's moved up to the Ph3 of meaning construction. Finally, very low

proportions of Gr1's exchanges remained at Ph2 of meaning construction. In contrast to Gr1, a high proportion of Gr2's exchange reached Ph2, which was expected since Gr2 participants made more attempts to point out dissonance and issues than Gr1. On the other hand, I-R-F exchanges never moved up to Ph4 and Ph5 of knowledge construction.

Results suggested that I-R-F was mainly devoted to exchanging ideas and information. I-R-F exchange might be elaborate but non-extended in the sense that it was not collaborative. It was worth mentioning that even when I-R-F exchanges reached Ph3 of meaning construction, participants did not engage in collaborative meaning construction. The pattern was initiation, response by a learner and then evaluation by the teacher. The teachers made exploratory requests inviting a particular learner to negotiate, argue or challenge her ideas. Thence, only individual contributions were elaborate since participants performed elaborate negotiation functions but not discussion, as there were no collaborative efforts towards the creation of a common understanding.

Finally, a small rate of Gr1's I-R-F exchanges reached Ph5 of knowledge construction. Hence, it seemed that this type of exchange reached high levels of construction whereas participants did not engage in any kind of collaboration. This was to say that only individual contributions reached high levels of construction because students used elaborate negotiation functions to apply new understandings. Application of new meanings was not the result of engagement in collaborative discussions but results of individual efforts as exemplified by the following extract:

### **Extract**

T2: ok good now L9 have you been to theatre before

#### **Initiation (exploratory request)**

L9: oh yes I have euh have visit visited the theatre with my father

#### **Response (application)**

T2: excellent what about you L22

#### **Feedback (evaluation) + initiation (exploratory request)**

L22: no I have not and you miss you have visited the Majesty's theatre in England?

**Response (application) + initiation (information request)**

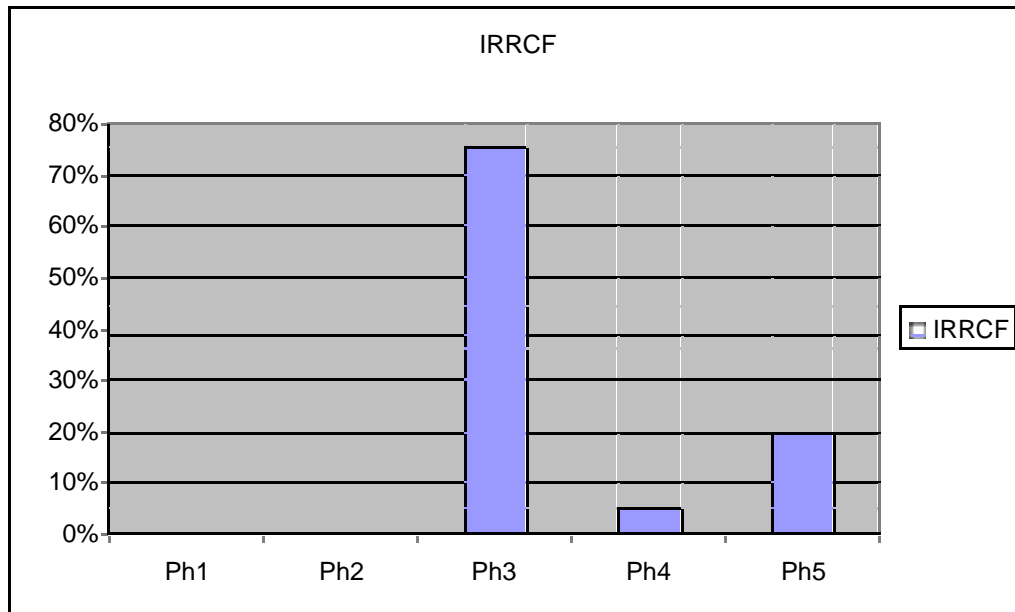
T2: oh good question good use of the present perfect oh yes I did

**Feedback (accept) + response (information provision)**

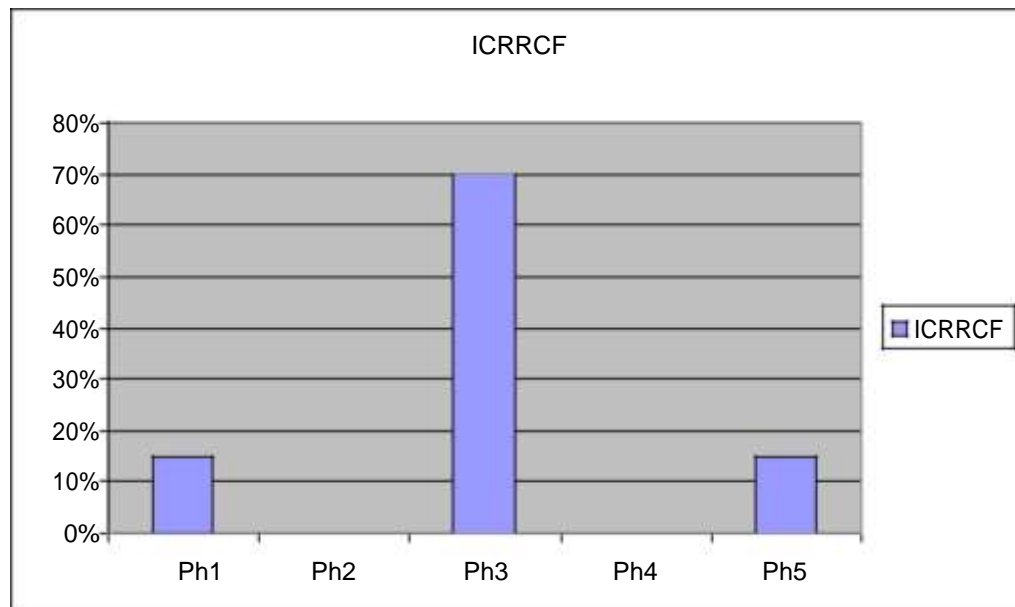
There was a difference between using new knowledge as a result of collaborative negotiation and construction or as a result of teachers' direct invitations. This extract showed that T2 finished her lessons about the meaning of theatre and the use of the present perfect then invited her learners to exchange their experiences with her. However, she used the present perfect which was an implicit invitation to the learner to apply newly constructed grammatical rule (the present perfect). Though learners applied newly constructed meaning, they focused on their individual contributions without interacting or building on each others' using social negotiation functions. Consequently, it may be said that individual contributions reached Ph5 of meaning construction but not discussion itself.

The results then revealed that I-R-F exchanges were non-extended and not collaborative exchanges. Interaction was a simple exchange between teachers and individual learners; collaboration between learners was totally absent. Despite the fact that some I-R-F exchanges reached Ph3 and Ph5 levels of knowledge construction, focus was rather on individual contributions than collaborative construction. Learners were invited by their teachers to focus on their ideas and individual contributions, clarifying and arguing their answers without making any attempts to engage in a collaborative process of knowledge construction.

## 6.2. I-R-RC-F



**Figure 6.3. The Distribution of IRRRCF Exchanges into Phases of Knowledge Construction G1**



**Figure 6.4. The Distribution of IRRRCF Exchanges into Phases of Knowledge Construction G2**

Very high proportions of Gr1's I-R-RC-F exchanges reached Ph3 of meaning construction. I-R-RC-F exchanges were extended discussions where

participants engaged in the collaborative process of knowledge construction negotiating and debating each other's' ideas. In addition, a high proportion of Gr2's exchanges I-R-RC-F reached Ph3 of knowledge construction where participants were engaged in the collaborative process of negotiation performing few elaborate negotiation functions as shown in section 2 of the present chapter. Furthermore, a comparatively small rate of Gr1's I-R-RC-F exchanges reached Ph4 and Ph5 of knowledge construction where learners made attempts to summarize and apply new meanings that resulted from their collaborative constructive discussions as opposed to direct requests from their teachers. Finally, only a small proportion of Gr2's I-R-RC-F exchanges remained at a low level of construction for exchange of ideas and information.

In sum, I-R-RC-F exchanges were characterized by collaborative constructive discussions that reached high levels of meaning construction rather than simple exchange of information and ideas. Results then indicated that engagement in successive responses facilitated the active creation of zones of proximal developments for collaborative meaning construction. This was illustrated in the following examples:

### **Extract**

(35) T1: ok I invite you to discuss the following question (she reads it from the whiteboard) what do you think of the participation of women in the political life in Algeria?

#### **Initiation (exploratory request)**

(36) L3: there are women who work now there

#### **Response (information provision)**

(37) L17: yes this year lot of women work now there

#### **Response complete (information provision)**

(38) L19: yes my aunt is euh deputee she is layer (learners uses a French word)

#### **Response complete (information provision)**

(39) L22: oh really I want to be like her I euh will study politics to be like Louiza Hannoun

**Response complete (information provision + explanation)**

(40) L12: good she is strong she was in prison because euh how say critique government

**Response complete (information provision + explanation)**

(41) T1: ok this is an excellent example do you think it is good for women to participate I the political life can she have a family?

**Feedback (accept) + initiation (exploratory request)**

(42) L22: yes yes I agree we wok all jobs Louiza Hannoun is famous in political and she is married

**Response (clarification)**

(43) L5: no I disagree you cannot it is difficult to work with government your place home with children

**Response complete (rejection + clarification)**

(44) L12: no I disagree we can work political do euh work and have children like Hanoun and Khalida toumi

**Response complete (challenge + assertion)**

(45) L5: no religion against euh our religion you stay at home with children

**Response complete (counter-argument)**

(46) L17: no wrong wrong lot women worked euh with our prophet our prophet in wars and euh opinion say to prophet

**Response complete (challenge + assertion)**

(47) L5: I know but euh government is difficult man work in government

**Response complete (challenge + clarification)**

(48) L9: euh it is difficult but euhh president wants women to participate we know mieux problems family euh problems children hospitals and school

**Response complete (counter-argument + assertion)**

(49) L5: yes I agree yes schools and children yes miss

**Response complete (concessions + consensus building)**

(50) T1: good



### **Feedback (accept)**

In this extract, T1 wrote an exploratory question on the whiteboard and invited her learners to discuss it. She invited students to discuss the questions. T1 initiated by controlling the flow of interaction attributing turns and inviting learners to respond to her exploratory questions. Then, she changed her behaviour withdrawing from direct control of interactions using the whiteboard to monitor learners' interactions. Discussion developed from I-R-F exchanges to more elaborate I-R-RC-F exchanges where learners engaged in successive responses building on each other's ideas. The switch between the different types of exchanges was operated via the withdrawal of the teacher from oral interactions using the whiteboard. The switch created better opportunities for ideas' negotiations to gain a common understanding about the importance and the extent to which women participate in political life in Algeria.

At turn (35), T1 asked an open exploratory question inviting all learners to contribute. From turn (35) to turn (41), learners were engaged in the process of cumulative negotiation which was defined as the process of adding positively to each other's' ideas without challenging them. They were adding positively new information without challenging each other's' views and ideas. However, in turn (41) T1 asked an exploratory question that aimed at challenging her students' views. This reflected teacher's attempts to engage learners in the process of argumentation rather than cumulative negotiation. Her attempt was successful and learners started to challenge each other's' ideas (from 41 to 45), where they reached a negotiated agreement at turn (48) and built consensus at turn (49). Meanwhile, T1 withdrew from oral discussion using the written mode to guide and support her learners' discussions by summarizing the most important points for learners to build on. Students referred to the teachers' written contributions as well as other learners' contributions building on them their own contributions. Furthermore, learners explicitly stated in their contributions that their contributions build on others' contributions.

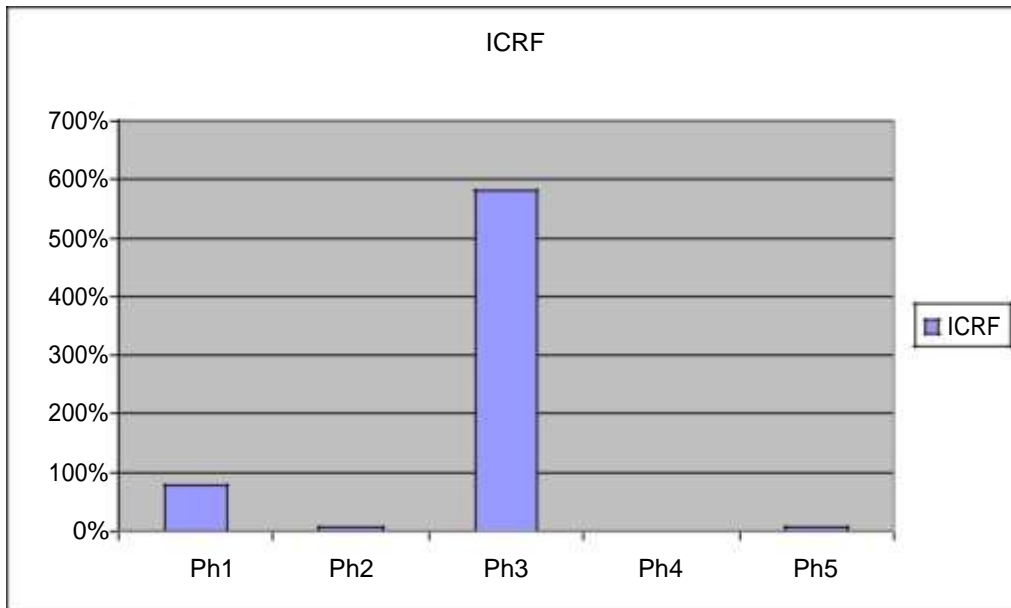
So the teachers' exploratory request and the simultaneous use of the oral and the written modes of communication offered positive affordances for the creation of collaboration opportunities that served to move discussions up from cumulative negotiation to upper levels of collaborative meaning construction where they started negotiating agreement that resulted in the creation of consensus and a common understanding concerning the role of women in political life.

Thus, this example highlighted the important role played by the teacher as well as the affordances of the simultaneous use of the whiteboard and the oral modes of communication to promote learners' engagement in I-R-RC-F exchanges. The switch between the different modes of communication facilitated the smooth transition from a unidirectional cumulative discussion to a collaborative constructive discussion. T1 used the oral mode to launch the negotiation process, and the whiteboard to monitor and support learners' interactions in a less explicit and direct way. This extracts showed that whiteboard contributions provided the needed cognitive support to scaffold and facilitate learners' collaborative efforts. Thus, the withdrawal of T1 from direct interactions using the whiteboard to play the role of facilitator and scaffolder helped learners to focus on each other's' ideas creating new understandings and meaning.

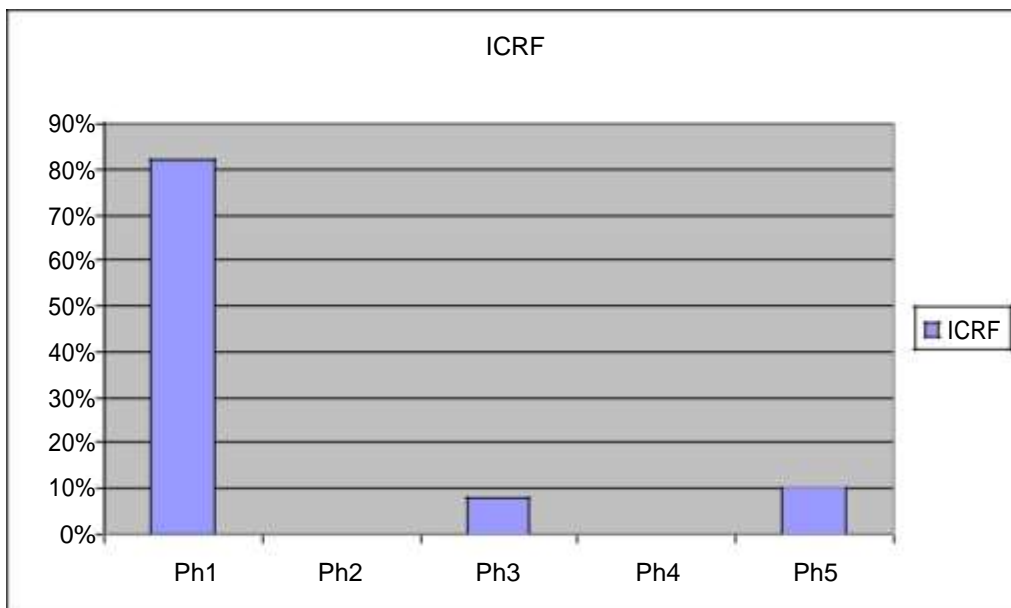
Thence, when engaged I-R-RC-F exchanges, learners could create their zones of proximal development where they supported each other by exchanging their understandings and building new ones. The whiteboard provided teachers with the opportunity to adjust their roles according to the pace of discussions and their learners' needs.

Nevertheless, focus on the importance of the argumentation process did not imply underestimation of the importance of cumulative discussions and negotiations. On the contrary, it paved the way to argumentation. This was demonstrated in extract 5.2 where learners carried on building on each others' ideas till they reached a point of disagreement that triggered a cognitive conflict.

### 6.3. IC-R-F exchanges



**Figure 6.5. The Classification of Gr1's ICRF Exchanges into Phases of Knowledge Construction**



**Figure 6.6. The Classification of Gr2's ICRF Exchanges into Phases of Knowledge Construction**

One of the possible variations in turn sequence took the form of IC-R-F where an IC functions as a reinitiating turn with respect to the preceding element and as an initiation with respect to the following one. I registered higher proportions

of this exchange for Gr1 more than Gr2 which was expected since T1 re-initiated more than T2. High proportions of both groups' exchanges remained at a low level of knowledge construction. Relatively low proportions of both groups' exchanges reached Ph3 phase of negotiation and debate of ideas. Teachers' re-initiations succeeded in moving individual contributions up to high levels of construction and negotiation. Finally only a very low proportion of G1' exchanges remained at Ph2 where participants expressed their disagreement without any negotiation.

However, a low proportion of Gr1 exchanges moved up to Ph5 of meaning construction. The simultaneous use of the oral and written modes helped learners to engage in elaborate interactions. However, their focus was on their individual contributions rather than collaborative meaning construction as the following extracts showed.

### **Extract**

T2: here are some presentation pictures on the picture the lady seems very stressed according to you what should we advise her to do?

### **Initiation (application request)**

L17: I think she should practice some sport

### **Response (application)**

T2: yes good L17 what else L23?

### **Feedback (accept) + re-initiation (application request)**

L23: she would better go on holidays

### **Response (application)**

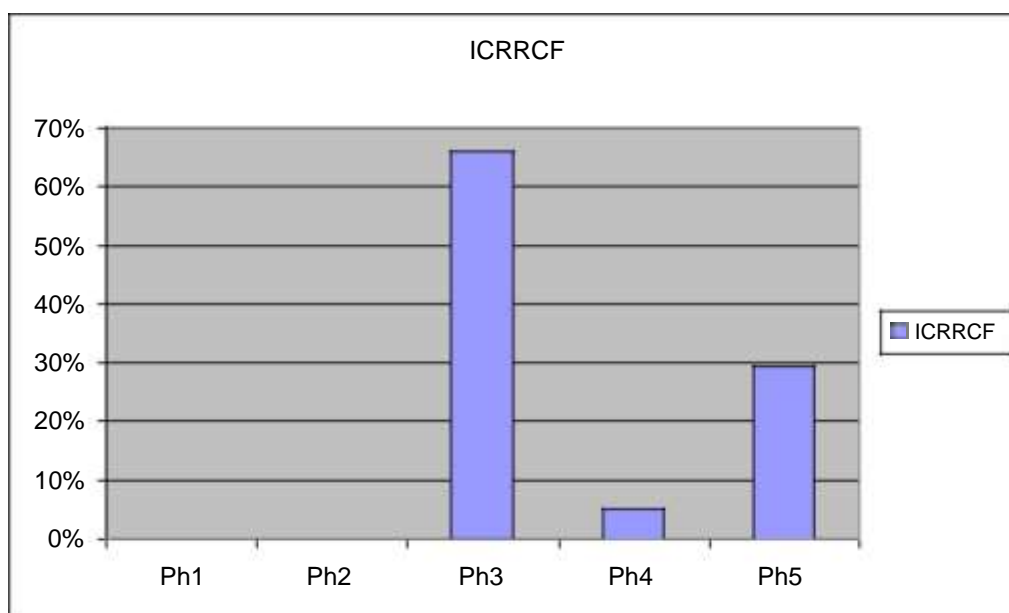
T2: would better yes excellent what would you advise her L5

### **Feedback (accept) + Re-initiation (application request)**

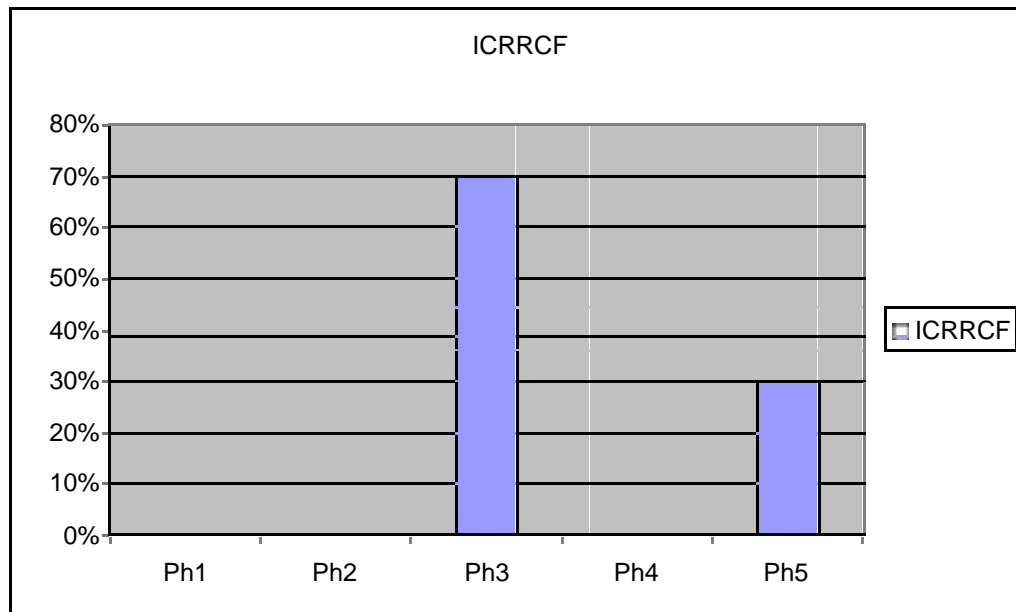
One type of knowledge that learners were invited to construct was the situation of use of different grammatical rules. The teacher invited learners to describe the presentation sheets were they have to provide some suggestion to a woman who seems stressed. Learners were invited to advice the stressed lady. As such, they were implicitly invited by the teacher to apply newly constructed

grammatical rules and forms of advice. This extract showed that T1 had control over the distribution of turns inviting each learner to use the oral mode to reply and then write his reply on the whiteboard. This was an invitation for learners to focus on their own contributions without building on each others' ideas. Their individual contributions were at a high level since they used an elaborate negotiation function which was application. However, exchanges themselves remained at a low level of construction since students did not collaborate to apply a new knowledge. Thence, despite the performance of elaborate negotiation functions, exchanges remained at a low level of construction due to the exclusion of collaboration where discussions were reduced to a simple exchange between the teacher and an individual learner. Results indicated that the excessive control exercised by the teacher on the organization of interaction limited learners' opportunities for collaborative applications of their shared new knowledge. In addition, there was no evidence that learners were building on others' contributions as there were no explicit references to each others' whiteboard contributions. T1 did not explain the aim behind using the written mode. This might explain the fact that learners used it just to write their answers without referring to others' whiteboard contributions.

#### 6.4 C-R-RC-F Exchanges



**Figure 6.7. The Distribution of G1's ICRRCF Exchanges into Phases of Knowledge Construction**



**Figure 6.8. The Distribution of G2’s ICRRCF Exchanges into Phases of Knowledge Construction**

The frequencies of this pattern were high for Gr1 but very low for Gr2. Teachers initiated previous topics by inviting participants to build on already suggested ideas where students engaged in successive RC interactions to build on each other’s’ contributions. Results showed that IC-R-RC-F were collaborative exchanges where learners worked together to construct a shared meaning. These exchanges may be described as exploratory exchanges where learners built on their teachers’ exploratory exchange to explore each other’s ideas and opinions. Some Gr1’s exchanges reached Ph3 of meaning construction while others reached Ph5 where consensus was reached and new knowledge was summarized and applied. These exchanges were highly collaborative and reached this high level of construction as a result of learners’ collaborative efforts of clarifying, arguing and challenging each other’s’ ideas. All Gr2’s exchanges reached Ph3 of meaning construction where learners were engaged in the process of negotiation using some elaborate negotiation functions.

An advantage of the switch between the different modes of communication supported the steady construction of shared knowledge by helping groups to reach agreement gradually. This was the only exchange patterns where knowledge

construction went through the three high phases of meaning construction. Discussions were characterized by collaboration, negotiation, debate, argumentation, and consensus building. At the end of these discussions, students reflected on their learning experience before they summarized and applied the newly constructed agreed upon meaning.

### **Extract**

T2: what are your hobbies?

#### **Initiation (information request)**

L2: I play tennis

#### **Response (inform)**

T2: yes good the others please (she writes on the board): play tennis

#### **Feedback (accept) + Initiation continuity (information request)**

**L7: I listen to music** (T2 writes on the board: listen to music)

#### **Response continuity (inform)**

L3: cooking + (T2 writes on the board: cooking)

#### **Response continuity (inform)**

L4: watch TV + (T2 writes on the board: watch TV)

#### **Response continuity (inform)**

T2: good ok we carry on next time

#### **Feedback (accept + inform)**

In this case, T1 kept asking them the same questions, learners suggested different ideas without building on each others' answers that were written by the teacher on the whiteboard. Learners used the oral mode to contribute whereas T2 used the whiteboard to accept her students' contributions. L3 contribution did not trigger any response from his mates. Despite the use of the different modes of communication, discussion remained at a low level of construction where participants exchanged ideas and suggestions. Discussion was cumulative where learners added to each others' ideas where collaboration was excluded. This task

invited students to debate and negotiate each others' views. However, the types of teachers' requests made learners engage in cumulative rather than exploratory exchanges for collaborative negotiations and debates. She invited them to provide information and share their experiences rather than debating their different views.

### **Extract**

T1: ok we start are you with euh with the use of Nuclear

#### **Initiation (Exploratory question)**

L12: I am against euh it is bad to people it cause wars kills people like in Japan

#### **Response (clarification)**

T1: ah ok good point, but you do not know the meaning of the word nuclear? It is a type of energy now what do you think? Should we used it or should we stop using it?

#### **Feedback (Accept) + Initiation Continuity (Clarification + exploratory request)**

L9: we should stop it yes it killed people in Irak

#### **Response continuity (assert)**

L22: no I am with miss I am with we use for ill ill euh ill persons with cancer + (T1 write on the board: with research medicines cancer)

#### **Response continuity (reject + clarification)**

L19: no it kills a lot animals children towns in sahra in Algeria it destroyed we should stop it and not use it euh with ill people + (T1 write on the board: against dangerous war kills people)

#### **Response continuity (challenge)**

L22: no science euh la recherche yes research is important we use it to euh to euh to create euh medicines cancer is horrible and kills person more now we should use it

#### **Response continuity (counter-argument)**

L17: I am with for research we need medicines cancer is dangerous my uncle died last year he is ill euh was euhh I am against in wars

#### **Response continuity (assert)**

L12: yes it must use in limited euh way



### **Response continuity (concession)**

L9: yes I agree not in wars but with cancer and medicines yes

### **Response continuity (consensus building)**

This extract is an exhaustive example of IC-R-RC-F. Participants started by cumulating ideas to higher levels of construction debating each other's' ideas.

Based on each other's' contributions, T1 made an exploratory request without inviting all learners to negotiate and debate ideas. Discussion started to be more interesting for everybody and learners started defending and asserting

Learner L12 responded by giving her point of view and defending it. T1 reinitiated the same question building on L12's response. Once again, learner L12 responded and her views triggered different reactions: some supporting her ideas and others challenging them. T1 used the whiteboard to write L12's contributions and highlighted it which triggered further reactions where learners started to express their disagreement with L12's views challenging them justifying their challenges.

Learners engaged in the process of negotiation. However, starting from L22 contribution they engaged in the process of argumentation challenging and counter-arguing each other's' ideas till they reached a negotiated agreement at the end of the exchange and built consensus expressing it using the oral as well as the written modes.

In sum, while learners were engaged in this process of collaborative negotiation and argumentation, T1 used the whiteboard to highlight the most important points discussed by students. The analysis of teacher's negotiation functions showed that they used the whiteboard tool to provide feedback. This extract demonstrated the use of the whiteboard to provide feedback where T1 summarized her learners' contributions as an invitation for further discussions. The use of the whiteboard enabled her to adopt different tutorial functions from controller to guide, facilitator and scaffolder of interactive and collaborative discussions. The withdrawal of the teacher from discussion created different opportunities for learners to take responsibility for their learning controlling the flow of interactions. They used the different modes of communication to express

their views without having to interrupt or wait till other learners finish their oral contributions. Learners referred to and built on each other's' contributions made using the different modes which indicated that they paid attention to contributions made in the whiteboard and presentation sheets.

### **6.5 Summary of Findings of the Distribution of Patterns of Exchanges in Terms of Knowledge Construction Phases**

The last section of the analysis showed the existence of different patterns of classroom discussions.

On one hand, I-R-F and IC-R-F exchanges could be described as cumulative dialogues. Engaged in by learners, this type resulted in a steady progress of effective construction of common knowledge, but learners avoided the challenges, counter-challenges and explanations that were important features of exploratory dialogues. Analysis suggested that I-R-F and IC-R-F exchanges encouraged learners to engage in cumulative rather than exploratory constructive exchanges.

On the other hand, I-R-RC-F and IC-R-RC-F exchanges were long and comprised at least five elements: initiate (IC), Response (R), and at least one response complete (RC). I-R-RC-F was an extended exchange where learners and teachers collaboratively worked to build on each other's' contributions moving up classroom discussions to high levels of collaborative knowledge construction. When engaged in the process of debate and negotiation, learners engaged in successive RC interactions simultaneously using the different modes of communication to accommodate and reflect on the perspectives of others; they challenged and refined those perspectives. When areas of disagreement or conflict became explicit, participants were able to restructure their thinking. As their own perspectives were challenged, they worked together to produce shared meanings, switching between oral and written modes of communication thanks to the availability of written and oral modes.

Gr1 discussions were more IRRCF and ICRRCF more than IRF and ICRF which explained the fact that Gr1 learners could create their zone of proximal

development where they supported each other's' efforts towards the creation of new understandings by debating, negotiating, challenging, arguing and finally building a consensus, hence a new agreed upon meaning thanks to the availability of different tools of communication. Thence, I concluded that T1 could involve his in active engagement in the collaborative process of knowledge construction, hence could appropriately the CBA in his teaching.

However, results showed that Gr2 discussions were more I-R-F exchanges more than I-R-RC-F and IC-R-RC-F which explained the fact their discussions did not move to high levels of knowledge construction. I concluded that T2 failed at engaging her learners in the collaborative process of Knowledge construction. Discussions were rather mechanical and over controlled by the teacher. Thence, I concluded that T2 was not using the CBA teaching, she was rather using her own traditional ways of teaching.

In sum, the results showed that:

- T1 could engage her learners in the collaborative process of knowledge construction by involving learners in extended and exploratory exchanges IRRCF and ICRRCF. T1 was prepared to implement the CBA teaching.
- T2 could not engage her learners in the collaborative process of knowledge construction by involving them in IRF and ICRF exchanges which were not collaborative and unconstructive. T2 was not thus prepared to implement CBA teaching.
- The availability of different modes of communication was important whenever there was an appeal for negotiation and particularly debate. The use of the oral and written modes of communication was relevant to launch active participation in collaborative argumentation process.
- Switching between the oral and written modes of communication provided better opportunities for students to build their ZPD to engage in constructive collaborative process of meaning construction. The whiteboard was not simply used to correct mistakes or as a substitute to the oral mode. They were rather used as a visual and a cognitive support to oral contributions.

- Results showed that teachers switched to the written mode using whiteboard and to adopt different teaching roles. On one hand, when engaged in I and IC interaction, they tended to use the oral mode to play the role of controller and knowledge holder. On the other hand, to engage in R and RC interactions, they tended to switch to the written mode to play the role of guides, facilitators and scaffolders. The use of the whiteboard provided positive affordances as cognitive support to learners' contributions. The analysis showed that learners responded positively to the withdrawal of their teachers via the written mode. They built on their teachers' written contributions to co-construct new understandings and meanings.
- Last not least, the analysis showed that teacher' style and the use of the different modes of communication have had different impacts on engagement of students in different types of exchanges. Besides tutors' styles, the analysis showed that the type of tasks have had an important impact on engagement of learners in collaborative processes of negotiation and argumentation. The analysis of extracts showed some instances where learners used the different modes of communication and where the teacher was playing the role of facilitator, but discussion did not move to elaborate levels of construction. This had to do with the type of task and topics learners were invited to discuss.

In the following chapter, the questionnaires submitted to students were analyzed. There was a need to understand the way students view their learning experience at the aim of validating the results of the present chapter, with particular focus on the way students viewed the affordances of the new programmes and their teachers' scaffolding.

## CHAPTER FIVE: DISCUSSION OF FINDINGS AND CONCLUSIONS

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## **Introduction**

Guided by the literature, to understand how English language teachers tended to implement this thesis brought together two lines of research. The first was concerned with developing a methodological framework for the presentation and analysis of structural patterns of classroom interactions. The second was concerned with developing a methodological framework for the analysis of the impact of the affordances of teachers' efforts to engage learners in the collaborative knowledge construction process.

The primary aim of this thesis was to increase understanding of the way and extent to which teachers attempted to enhance the creation of zones of proximal development for collaborative knowledge construction. This research drew on the socio-constructivist understanding that the process of creation of new knowledge is individual and social, and knowledge is developed, carried forward and constructed through collaboration.

In this chapter, conclusions were examined in the light of the different research questions and assumptions described in the preceding chapters.

### **1. Results of the Analysis of Patterns of Classroom Interactions**

The data analysis provided answers to the following first research question

- What are the patterns of classroom interactions and learners' engagement in collaborative knowledge process?

This question aimed to find out patterns of engagement by participants with each other's contributions and interaction. The coding scheme adopted by this research addressed the types of interaction between participants by analyzing the different interactive and communicative roles adopted by them.

Reflecting on this study's conceptualization of the hierarchical educational exchanges system, turns in exchanges were first coded according to five interactive categories: Initiate (I), Initiate continuity (IC), Response (R), Response continuity (RC) and Feedback (F). This analysis revealed the structural organization of classroom exchanges. The interactive categories were further classified according to their associated communicative functions which were reflected in the negotiation functions of their associated moves. The application of this coding revealed different points:

First it should be noted that results showed evidence of different opportunities for interaction and collaboration for both groups of learners.

### **1.1. Patterns of Teachers' Interactions**

The first main finding was that T1 provided the appropriate scaffolding and support for autonomous collaborative learning by performing more IC interactions associated with elaborate negotiation functions than did T2.

Results showed that different teachers adopted different teaching styles which led to different patterns of interactions. The two teachers produced high percentages of I turns that were relatively balanced between initiating to give information, provide explanations, ask questions to elicit more information, as well as invite students to build on each other's ideas during discussions.

T1 tended to extend topics more than T2 by producing more IC interactions. T1 made more attempts to ascertain the meaning of previous turns through closed questions that specified the information to be confirmed. Besides the big difference in the percentage of both teachers' IC interactions, the analysis showed that they reinitiated to perform different negotiation functions, hence attributing different communicative functions to their IC interactions. The greater proportion of IC associated negotiation functions comprised exploratory requests, application requests, clarifications, arguments, and assertions as well as low rates of challenges. Both teachers reinitiated by asking open ended questions which were primarily meant to seek more clarifications on previous turns. T1 performed a wider range of

elaborate negotiation functions which translated her attempts towards engaging her students in constructive discussions that facilitated collaborative meaning construction. Her attempts resulted in the creation of better opportunities for her learners to collaborate and create ZPD.

Both teachers produced low percentages of responses which were mainly replies that stated information rather than responses that defended or disputed stated positions or presented constructed beliefs and reasoning. Both teachers produced low percentages of RC. RC interactions associated with assertions, clarifications and challenges were mainly replies that defended stated positions and presented constructed beliefs and reasoning building on their learners' ideas.

Thus, I, IC and RC interactions suggested great efforts by teachers to support the meaning construction process by using negotiation functions that served to provide information, convey meaning, prompt, probe, and guide and facilitate learning. Hence, the first conclusion was that the particular presence of IC and RC interactions conveyed attempts to extend previous topics engaging learners in constructive discussions that conveyed substantial information and depth of negotiation and debate. T1 maintained a more visible teacher presence by engaging in IC and RC interactions. Thence, the presence of IC interactions indicated a deeper involvement in both the provision and exchange of information for scaffolding and supporting the learning process.

To engage in I and IC interactions, both teachers used primarily the audio mode. In addition, they used the whiteboard to post pictures or comments and highlight new words, concepts and ideas while explaining them using the audio tool. Concerning R and RC interactions, results showed that teachers withdrew from direct oral interactions using the whiteboard. The analysis of extracts showed that the switch to the written mode using the WB created opportunities for students to build on each other's ideas while at the same time being supported by tutors' written contributions. Engagement in RC interactions was facilitated by the switch between the different the writing and the oral modes of communication. This interplay offered different affordances that enhanced learners' engagement in the learning process. This confirmed other researchers' findings that the simultaneous



use of the oral and writing modes offered better opportunities for scaffolded interactions and the creation of ZPD (Hampel & Hauck, 2010; Mirza & Lamy, 2010; Guichon, 2010; Fergusson, 2009).

## 1.2. Patterns of Learners' Interactions

The examination of patterns and quantity of learners' interactions showed instances where interaction was at high levels.

The very low rates of Gr1 and Gr2 learners' I and IC interactions were meant to invite teachers to provide more information and explanations. However, Gr1 learners and Gr2 learners demonstrated different R and RC behaviors. Gr2 learners were more engaged in R interactions than in RC interactions. Their behaviors correlated with the results of the analysis of their teacher's interviews and interactive roles. Results showed that T2 did not tend to invite her learners to perform elaborate negotiation functions like clarifying, debating ideas, challenging each others' opinions, and reflecting on their thoughts and learning processes. Gr2 learners produced high percentages of R interactions which confirmed my conclusion that

Failure of T2 to engage learners in more constructive IC and RC interactions prevented her learners from opportunities to create ZPD for collaborative knowledge construction. T2 failed at engaging learners' in the collaborative knowledge construction process as advised by the competency based approach.

However, Gr1 learners' contributions were balanced between R and RC interactions. Gr1 responded and engaged in successive responses to defend and/or dispute challenges with information and evidence before they finally reached agreement and built consensus. These negotiation functions reflected the rhetorical tactics used by participants to achieve certain communicative purposes. For the present collaborative learning context, the use of a wide range of IC and RC indicated more efforts by students to extend discussions building on each other's ideas and suggested attempts to offer alternative perspectives and engagement in the

process of argumentation. The presence of RC clarification and RC exploratory requests indicated attempts to progress further in the understanding of the topic by questioning rather than merely accepting the shared information. The presence of RC challenge/counter-argument suggested efforts at critical appraisal of what was said in previous turns, resulting in the proposal of alternatives for further discussion.

R and RC interactions associated with elaborate negotiation functions were hence a necessary element in the social constructivist learning process because such interactions are sources of cognitive conflict (von Glaserfeld, 1989) that prompt debate and reconsideration of ideas, which signals effort at collaborative meaning construction. In addition, this type of R and RC interactions suggests an awareness of knowledge gaps and attempts towards collaborative negotiation and argumentation. Thus, the prevalence of R and RC interactions associated with elaborate negotiation functions indicated that the interactional patterns of both groups reflect more closely the characteristics of constructive discussions as participants collaborate to share information yet contribute critical responses that prompt efforts from others to justify or explain their views. Students tended to explain and elaborate at greater length in RC interactions more than in R interactions, hence providing more depth of negotiations and debates. The same conclusion was reached that RC interactions indicated students' efforts to support the meaning construction process by building on each other's ideas. Hence, we concluded that such efforts reflected the extent of learning support available from peers and tutors in the collaborative group learning process.

The knowledge construction process was thus described as sets of I and IC interactions followed by successive RC interactions that indicated the presence of exchanges where the shared information was questioned, checked, or challenged, which reflected meaning negotiation that built new understandings. Thus, the extent of participation was shown by the frequency of types of interactional roles adopted by participants. The more students engaged in RC interactions, the more they were actively involved in the process of collaborative meaning construction.

Gr1 learners engaged more than Gr2 learners in collaborative negotiations and debates with the aim of reaching consensus and collaboratively building a new agreed upon meaning.

Therefore, I conclude that classroom interactions were tailored to the requirements of learning in the context of English language classrooms. Learners, who engaged in IC and RC interactions as attempts to extend discussions, could create zones of proximal development for collaborative negotiations and debates.

It was hence concluded that the extent to which learners' got involved in constructive discussion was indicated by the frequencies of engagement in RC interactions.

## **2. Results of the Analysis of Patterns of Classroom Exchanges**

The previous section explained the conclusions reached from the analysis of individual turns. To examine the social process of meaning construction, we need to examine the way turns build on each other to govern how the different patterns of classroom exchanges shaped out. Hence the following question was raised:

- Do teachers' scaffolded and mediated interactions support collaborative knowledge construction process, and if so to what extent? What is the effect of the affordances of teachers' patterns of interactions on patterns of learners' engagement in constructive discussions? To what degree do these patterns contribute to Knowledge construction process?

Learners participated in different types of exchanges that displayed different patterns as well as different levels of modal density. Patterns of exchanges were shaped out by the different associations between I, IC, R, RC and F interactions as well as the mediational multimodal choices of participants. The analysis identified four types of exchanges: I-R-F, IC-R-F, I-R-RC-F and IC-R-RC-F exchanges. This research further classified them into cumulative and exploratory

exchanges according to the extent to which they reached high levels of meaning construction and extent of participation of the different participants.

Teachers provided structured support in involving learners in different types of exchanges to construct meaning together. I and IC interactions associated with close ended information, exploratory and application requests involved students in I-R-F and IC-R-F that were described as cumulative but not collaborative exchanges; where there was one way flow of information between a particular student and his/her tutor. Participants focused on their individual contributions using elaborate negotiation functions without engaging in collaborative meaning construction. These were immediate and not extended exchanges. Results showed that I-R-F and IC-R-F reached high levels of meaning construction (Ph3). However, students performed elaborate negotiation functions but failed to launch collaboration due to the high level of control exercised by tutors over the distribution of turns. The control exercised by the tutor on the organization of interaction and distribution of turns limited students' opportunities towards collaboration and collaborative construction of meaning. Consequently, despite the fact these exchanges reached Ph3 of meaning construction, they were described as low level cumulative non collaborative exchanges. As such, in I-R-F and IC-R-F students were recipients of a transmissive pedagogy. The focus of students on their own contributions had a potential problem of missing the benefits of socio-cognitive conflicts, in which ideas were challenged, defended or defeated (Golay Schilter et al., 1999; Hinde, et al., 1985; Mercer & Littleton, 2007). The exchanges were predominantly cumulative. Evidence from tutorials showed students adding to each other's ideas without criticizing or challenging them. Collaboration between students involved the use of meaning making tools which included engagement in forms of collaborative exchanges that support social meaning construction. Collaboration requires negotiation with other group members. In other words, collaboration involves partners carrying out work together (Dillenbourg, 1999; Mangenot & Nissen, 2006; Fergusson, 2009). It is the result of a continued attempt to construct and maintain a shared conception of a problem (Lipponen, 2002); an interaction in which participants are focused on co-ordinating shared meaning

(Crook, 1999). Participants must negotiate mutually shared or common knowledge in order to work together or to perform a task together (Littleton & Hakkinen, 1999). Collaborative negotiation is held to trigger collaborative construction of meaning and hence learning.

I-R-F and IC-RF exchanges engaged in by students resulted in an accumulation of information and exchange of ideas, but avoided the challenges, counter-challenges and explanations that are important features of collaborative meaning construction.

On the other hand, I and IC interactions associated to open ended information requests and exploratory requests involved students in I-R-RC-F and IC-R-RC-F exchanges. I and IC interactions were used to begin subsequent successive responses (RC) to extend discussions which took the form of IC-R-RC-F or I-R-RC-F exchanges. Contributions built on each other and the process was extended rather than immediate. This added weight to ideas from previous discussions. These types of exchanges functioned as sites for the extensive consideration of questions and propositions. I and IC turns associated with open exploratory requests involved students in R followed by successive RC interactions that were dedicated to perform elaborate negotiation functions. Successive responses engaged students in active collaborations for negotiation and debate of ideas.

The analysis showed that the higher frequencies of RC interactions that formed I-R-RC-F and IC-R-RC-F were associated with elaborate negotiation functions, which indicated participants' tendencies to extend speaking time for the purpose of negotiating and debating ideas.

Some exchanges did not progress beyond the negotiation level. I-R-RC-F and IC-R-RC-F exchanges that were characterized by active engagement in the negotiation process were described as cumulative but collaborative exchanges. Students were able to create their ZPD where they built positively but uncritically on each other's ideas. However they did not attempt to sort out conflicts, such as those that might be necessary to create new meanings and a change in

understandings. Hence, these exchanges were described as moderate cumulative collaborative exchanges.

Some exchanges progressed beyond the negotiation level where students engaged in an argumentation process, challenging each other's ideas. Exchanges that reached the argumentation level were exchanges where students succeeded in reaching consensus, creating new understandings and meanings, and finally applying them. Hence, these exchanges were described as exploratory exchanges where students pointed to conflicts and tried to resolve them by challenging each other's ideas till they reached negotiated agreement, changing their understanding and creating new agreed meanings. Conflicting views were presented but the intention was to reach a resolution and a consensus. RC interactions then helped students to extend their understanding. They were implicated in the shared construction of meaning, not only to understanding related to the task in hand, but also to the construction of shared understandings and contexts that allowed learners to work effectively as a group. Exploratory exchanges were thus characterized by active participation of different students, justifications, alternative views, visible reasoning and the joint consideration of opinions, challenges, statements and suggestions to be interwoven in I-R-RC-F and IC-R-RC-F exchanges.

These patterns allowed teachers to present options to the group and then to step back, leaving ideas to be reworked and combined with related ideas by students which then triggered negotiation and discussion. This is a well-established method of constructing meaning together successfully (Rojas-Drummond, Mazon, Vega & Velez, 2007). These exchanges allowed students to pool their experience and build positively and critically on previous contributions in the discussion, constructing shared meaning by a process of negotiation and argumentation rather than simple accumulation. There was a socio-cognitive conflict in which the presentation of challenges and variant perspectives had the potential to move the discussion on (Hinde, Perret-Clermont & Stevenson-Hinde, 1985). Argumentation and negotiation are prerequisites for collaborative knowledge construction.

Thus, I-R-RC-F and IC-R-RC-F were extended discussions that were elaborate and constructive. They were elaborate because participants performed

elaborate negotiation functions. They were constructive because they reached high phases of meaning construction (Ph3, Ph4 and Ph5). These may be compared to exploratory dialogues proposed by Littleton and Whitelock (2005) who defined exploratory dialogue as “The social form of thinking that is essential for successful participation in educated communities of discourse (Littleton & Whitelock, 2005, p 152).

I conclude then that language classroom discussions offered learners the possibilities to engage in exploratory exchanges (I-R-RC-F and IC-R-RC-F) that supported extensive negotiations and debates. Thus, I reached the conclusion that results suggested different extents of engagement in the learning process for both groups. The high frequencies of I-R-F and IC-R-F suggested a greater tendency to start competing new exchanges rather than the follow up on previous turns. I-R-RC-F and IC-R-RC-F suggested collaborative efforts to actively attend to the meaning and implications of others’ contributions and further develop the topic of discussion through reinitiating turns as opposed to only focusing on own contributions.

Results showed that classroom discussions reached high levels of meaning construction where new understandings and meanings were collaboratively created and applied. Learners engaged in related short as well as long exchanges. Both information sharing and topic development phases in exchanges were found. They indicated participants’ involvement in the comparison of individual understandings of concepts, meaning negotiation, and debate of shared information which are characteristics of the collaborative constructivist learning process.

Classroom exchanges of the different classes were different where they displayed different levels of collaboration and opportunities for collaborative meaning construction.

For I-R-F and IC-R-F discussions, there was a unidirectional exchange of ideas and attempts to limited negotiations between tutors and individual students.

Groups of students were prompted to share knowledge, challenge ideas, justify opinions, evaluate evidence and consider options in a reasoned way. The affordances of T1’ scaffolding could be described as supporting collaborative efforts.



Gradual withdrawal of teachers' control over time was characterized with the use of fewer I-R-F and IC-R-F exchanges. Tutors exercised minimal control over discussions through IC and RC extended turn sequences. Tutors retreated from oral participation leaving the floor to students to build on each other's ideas. Compton (2009) stated that teachers should ensure that there are ample interaction opportunities and provided sufficient guidance and support for learners in the selection of learning options. In the current study, tutors provided more learning support and scaffolding when using the written mode via the use of the whiteboard. Learners engaged in IC-R-RC-F and I-R-RC-F exchanges where control moved from tutors to students providing thus both the means and the opportunity for learners to engage in exploratory exchanges. The shift from a tutor-led discussion to a more student-led discussion via the simultaneous use of the written mode by tutors corresponded with heightened levels of interactions for the co-construction of meaning. This was very important for the development of autonomous learning. In this regard, White (2003) stated that the learner autonomy approach emphasized negotiation of meaning and "Includes the capacity to negotiate and develop control of learning experiences while interacting with others in the learning community" (p. 161). Furthermore, Hampel (2009) carried out a study to identify a range of skills that tutors require for collaborative learning to be successful. She stated that tutors were faced with the challenge of finding a balance between encouraging learner autonomy and learner control. This analysis showed that the shift between modes using the oral and writing modes helped teachers and in particular T1 to create this balance.

Results showed that the more intense the collaboration was, the more the teachers withdrew from interaction to give more opportunities to learners to refer and build on each other's contributions.. Writing tools provided participation opportunities for active students to engage in exploratory exchanges that reached Ph5 of meaning construction. In this case, the WB tool was not used to post pictures or pre-prepared texts by tutors; whiteboard the chat tool was used as a substitute to the oral mode by teachers to constructively contribute to constructive discussions.



Engagement in I-R-RC-F and IC-R-RC-F exchanges offered positive affordances providing a cognitive support to collaborative meaning construction. Learners shifted to collaborative work taking responsibility for their learning by shifting responsibility from the teacher to the group. Gr1 learners managed interactions and engaged in the collaborative process of meaning construction where they referred to each other's contributions.

It was concluded then that the gradual reduction of teachers' control from interactions was made possible thanks to modal complexity through the availability of writing tools like the whiteboard. The use of different tools facilitated students' engagement in productive interactions that built into exploratory exchanges where students collaborated to negotiate and debate ideas before they reached agreement, built consensus and created new understandings. The shift of responsibility from the individual to the group promoted constructive discussions that enhanced collaborative meaning construction. Different researchers (Littleton, Whitelock, 2005; Littleton, 2007; Mercer, Littleton, 2007; Ferguson, 2009; Littleton and Mercer, 2009) found that students worked avoiding cumulative exchanges in order to collaboratively construct new knowledge. Similarly, results showed that Gr1 learners engaged in exploratory exchanges to progress beyond simple accumulation of information to engage in negotiation and argumentation processes using the affordances of the scaffolding of their teacher.

Learners managed to create ZPD when engaged in multimodal I-R-RC-F and IC-R-RC-F exchanges using all tools of communication.

Modal complexity of teachers' interactions, in particular T1 interactions, thus offered opportunities for the creation of ZPD for collaborative negotiations and argumentation. Moreover, modal complexity through the switch between the oral and writing modes of communication supported the move from low phases towards high phases of meaning construction. IC-R-RC-F and I-R-RC-F exchanges where teachers used the different available modes of communication reached the highest levels of meaning construction (Ph3, Ph4 and Ph5). In other words, the interplay between the oral and written modes provided by classroom communication offered different ways of collaborative meaning construction, where classroom discussions

were not linear but rather circular; information was refined before a new understanding was co-created.

The patterns found in the tutors' use of extended turn sequences using the writing and the oral modes over time presented certain implications for availability of learning support as teaching and cognitive presences. Therefore, the affordances of use of oral and writing modes and teachers' scaffolding were key features of classroom communication.

As a conclusion, I may say that using the written mode alongside the oral mode to adopt different teaching roles. Teachers used the oral mode to adopt a controlling role. They used the writing tools to adopt a more facilitative role by withdrawing from direct oral interactions. The whiteboard was used as a visual support on which to write ideas and stick pictures that helped engaging learners in intensive interactions and collaboration.

### **3. Results of the Analysis of Interviews**

This section deals with the results with regard to the last research question:

- How do inspectors and teachers perceive training opportunities and adequacy of training support?

Results showed that inspectors were not satisfied with the training they offered to teachers. First, inspectors stated that the practical aspect of the training was limited because of constraints of time and resources. They had limited time to introduce teachers to the CBA before it was implemented in schools. Second, inspectors expressed their worries as not all teachers all over the country could be trained. They stated that only a minority of teachers from big cities in the country had the opportunity to be trained. It seemed that the educational authorities hoped that trained teacher would pass on their expertise to untrained teachers. Inspectors stated clearly that not all teachers could implement the CBA and were still using

their own ways of teaching in their classes. Thence, results show that the majority of teachers were not trained which would affect negatively the implementation and success of the CPA in Algerian English classrooms.

Results of the analysis of inspectors' interviews matched to a great extent with the results of the analysis of teachers' interviews. Results showed interesting differences between trained and untrained teachers as far as the extent to which they developed a good understanding of the key concepts of the CBA and the way it should be implemented.

On one hand, trained teachers have a better understanding of the different constructs of the CBA. They could define the concepts of competence, knowledge, knowledge construction and scaffolding and succeeded at giving examples from their teaching practices in their classrooms. They seemed better prepared to implement the competency based approach which confirmed inspectors' expectations.

On the other hand, untrained teachers could not define the basic concept of the CBA. The majority could not define the concept of competence, ZPD and their roles as scaffolders.

These results showed obviously that training was very important where trained teachers could confidently talk about the methodology and their practices. However, untrained teachers failed at defining the concept competence. I concluded then that teachers who were not trained were not prepared to implement the competency based approach as they did not have the appropriate knowledge about the key constructs of the CBA.

I may say then that learners' interactions were oriented and affected by the complete ecology in which it was situated, as shown by Ferguson (2009) and Örnberg Berglund (2009). It could not therefore be assumed that the learning process was supported or failed by the scaffolding efforts of teachers.

Thenceforth, results of the present study showed there were several possible reasons that accounted for the results obtained in this study.

## **4. Main Affordances that Impact the Knowledge Construction Process**

Garrison and Cleverland-Innes (2005) argued that task design, tutor's facilitation and training were believed to promote a deeper approach to knowledge building and learning. In corroboration, results of the present study showed that there was a range of factors that impacted upon collaborative meaning construction: type of task, lack of teacher training, large classes, and heavy programs.

### **4.1. Affordances of Types of Tasks**

In this particular research context, the typical tasks were debates that focused explicitly on interaction and collaborative negotiations and argumentation. The analysis showed that instances of sharing and comparing of information were concentrated in the first activity (debriefing) where students were invited to reflect on their answers. Discussions reached high levels of meaning construction (Ph3, Ph4, Ph5) during the main activities where teachers introduced topics of discussion inviting learners to discuss and negotiate with them and/or together in small groups. The shift of topic and task engaged learners in different patterns of interaction where they focused either on information sharing or negotiation debate of ideas using the different tools.

The results of the analysis of the two sources of data (video-recordings and interviews) showed that the more the topics were appealing, the more learners tended to participate in constructive discussions. In addition, the type of task and the way it was implemented by teachers oriented learners' attempts towards collaboration. The more the tasks were appealing the more learners engaged in I-R-RC-F and IC-R-RC-F exchanges for collaborative meaning construction.

## **4.2. Tutors' Styles and Scaffolding**

Tutors' styles and roles were other important factors affecting students' involvement in I-R-RC-F and IC-R-RC-F exchanges and the way they experienced and perceived the affordances of use of the different tools. Tutors engaged in IC and RC interactions switching between the written and oral modes using the different tools to adopt different teaching roles which created different opportunities for learners to assume their responsibility for their own learning creating their ZPD for collaborative meaning construction. Vygotsky explained that teaching "is good only when it awakens and rouses to life those functions which are in a stage of maturing, which lie in the ZPD" (Vygotsky, 1956, p. 278). The types of interactions identified indicated that tutors' styles did indeed have an influence on the quality of interaction. Although teachers monopolized speech turns, IC and RC interactive tutors' roles promoted students' interactions by involving them in the process of negotiation inviting them to explain, clarify, elaborate and challenge rather than simply sharing information. Tharp and Galimore (1988) suggested that teaching occurs when assistance was offered at points in the ZPD at which performance required assistance. The results of the analysis suggested efforts in teacher scaffolding which resulted in students testing evidence against experience and statement of the relevance as well as the application of new understandings.

## **4.3. Teacher Training**

The results of the present study showed that the context of competency-based teaching has prompted the need for new teaching skills that are different from those used in teaching using traditional communicative methods. In this line of thought, Coleman et al. (2013) and Griffith (2015) noted that teachers needed different skills from those of traditional teaching roles using traditional methods of teaching. They further argued that teachers needed training in "the distinctive pedagogy" of competency based approach.

Hence, despite the fact that some teachers were trained, the analysis of participants' classroom interactions and interviews showed an urgent need to train teachers. Results showed that teachers need to understand the affordances of the reform and the CBA. Teachers need to be trained about how to manage interactions when learners engage in constructive I-R-RC-F and IC-R-RC-F exchanges. There is a need to raise teachers' awareness to the particular hybrid nature of classroom discourse. Results of this study indicated that there is a need to raise tutors' awareness about the different structures of exchanges and the way to deal with their different levels of collaboration in terms of intensity and complexity for a better implementation of the CBA.

Teachers need to be aware of the different patterns of classrooms exchanges in relation to the opportunities of the creation of ZPD and the affordances they offer for the implementation of the different tasks, which highlight socio-constructivist principles of learning.

## **Conclusion**

The present chapter served to discuss the main findings of the present study. The following section presents the main conclusions and recommendations I could reach.

## CONCLUSION

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## Introduction

The analysis of interviews showed that inspectors were aware of the lack of training. They admitted that only a minority of teachers were trained. They further expressed their dissatisfaction with the quality of training offered to learners. Moreover, they expressed explicitly their skepticism towards the inability of the majority of teachers to succeed at implementing the CBA, in particular untrained teachers who were the majority.

In the same realm of thought, the analysis of teachers' interviews showed that untrained teachers could not show a good understanding of the underlying principles of the implementation of the CBA in classrooms. Untrained teachers failed at defining basic concepts of the CBA. Furthermore, they stated they did not invite learners to use elaborate negotiation skills and did not involve them in argumentation process because they did not have the appropriate teaching skills to do so. Furthermore, they high expressed explicitly their incapacity to implement competency based teaching. Their claimed were examined through the assessment of their teaching practices.

Involvement of learners in the negotiation and argumentation processes needs a lot scaffolding efforts from the teacher. Teachers, trained and untrained, agreed that lack of training, large classrooms and huge syllabi constrained teachers' efforts in implementing the CBA. They stated that it was impossible for them to involve learners in constructive collaboration because of big number of learners per class. On one hand, they ended up with chaotic classes. On the other hand, they could not scaffold interactions because they did not have the new teaching skills needed to implement this very particular teaching approach because of lack training.

The application of the proposed coding categories and model of analysis showed the existence of different patterns of classroom discussions that were characterized by different levels of collaboration intensity and complexity.

Two cumulative exchanges I-R-F and IC-R-F were identified. They offered cumulative but not collaborative discussions that did not reach high levels of meaning construction. They characterized the common interactive structure of Gr2



discussions. I concluded then that T2 failed at involving her learners in constructive discussions, hence failed at implementing the CBA.

Two exploratory exchanges I-R-RC-F and IC-R-RC-F were identified. They offered collaborative discussions that reached high levels of meaning construction. They characterized the common interactive structures of GR1 exchanges and discussion. The conclusion was then that Gr1 succeeded at involving her learner in the process of collaborative knowledge construction, hence succeeded at implementing the pedagogical principles of the CBA.

Modal complexity was important whenever there was an appeal for collaborative negotiation and argumentation. Teachers switched between the writing and the oral modes of communication to engage learners in collaborative argumentation process. The switch between the oral and written modes of communication using speech and the whiteboard provided better opportunities for students to build their ZPD to engage in collaborative process of negotiation and argumentation that reached high levels of meaning construction.

It can be concluded that classrooms environment is a comprehensive system where all its elements (teacher training, types of tasks, teacher's teaching styles and strategies, number of students, size of the syllabus) influence each other and the success or failure of the implementation of the CBA.

The results made me draw some pedagogical, epistemological as well methodological implications and recommendations. In the following sections, I started by making some methodological recommendations where I had to refine my suggested model of analysis of the process of collaborative knowledge construction. Second, I moved to make some pedagogical implications.

## **1. Methodological Framework and Implications**

This research was concerned with the examination of the way learners co-construct meaning taking advantage of the different affordances of teachers'

scaffolding. To analyze interactions, a model of analysis was developed. First and foremost, it was necessary for the method of analysis to be aligned with the socio-constructivist focus of the study, which views learning as a social as well as individual process.

The coding scheme for the transcription and representation of multimodal data proposed and adopted by the present study was original and helped to determine the way the multimodal choices of participants governed the way interactions and exchanges shape out.

Second, the implementation of the proposed model for the description of the meaning construction process was successful and offered an original model that would help future classroom research in the analysis of data with particular reference to the knowledge making process. Hence, the present work showed the value of adopting complementary theoretical and analytical approaches which drew on cognitive and socio-constructivist theories of learning.

Results showed the existence of all phases with different proportions. Despite the fact that most discussions were for sharing and comparing information, there was also evidence of collaborative meaning construction. The socio-constructivist learning perspective assumed that meaning construction occurred during interaction which involved the sharing of multiple perspectives on experiences and concepts, and negotiation of individual interpretations (Vygotsky, 1978; Wertsch, 1985). The application of this model of analysis provided evidence that learners shared information and critically analyzed their own views and revised concepts in the light of conflicting ideas, as such creating ZPD where the process of meaning construction was supported by the availability of oral and writing tools, tutors' scaffolding and a variety of tasks.

Hence, there were instances of interaction that involve inconsistencies or contradictions in ideas and opinions. Students tried to build an understanding of the contradictory information and engaged in the process of negotiation where they followed a pattern that included exploratory requests, clarifications, assertions, challenges and concessions of the inconsistent information. These elaborate negotiation functions formed the larger part of the set of negotiation functions

performed by the different participants to assert or propose other views for consideration question and challenge the proposed information and justify through extended reasoning.

The model of analysis adopted by this research drew on Gunawardena et al.'s model (1997) which described the process of knowledge construction as a linear process. Hopkins et al. (2008) pointed out that the three upper phases of knowledge construction correspond to the use of higher forms of thinking which corresponded to the performance by participants of elaborate negotiation functions. However, the analysis showed that the process was rather cyclical and that communication moved from Ph1 up through higher phases as well as from higher phases down to lower phases performing elaborate negotiation functions. The use of elaborate negotiation functions engaged learners in a deep processing of information where they analyzed, re-analyzed, synthesized, re-synthesized, evaluated and re-evaluated information before internalization took place. Learners engaged in a process of revising and refining information, requiring a switch of communication between the different phases of meaning construction with the aim of validating or rejecting new information. According to the socio-constructivist view, meaning construction involves learners in negotiation of meaning, reasoning and reflection on authentic tasks and engagement in conversation where knowledge is revised (Laurillard, 1995). This process of continual revision and refinements of new understandings and meaning was facilitated by the availability of the different tools of communication where students switched between the written and oral modes to engage in constructive discussions as exemplified above.

It is hence concluded that the more learners performed elaborate negotiation skills using the different tools of communication, the more they engaged in a cyclical process of knowledge construction at a deep level of processing. Communication moved up and down between the different phases of meaning construction before new knowledge was co-constructed and finally validated. This confirmed the results obtained in another research study (Mirza, 2010). In sum, there seemed to be a relationship between the nonlinearity in the progression of meaning construction, the type of negotiation functions performed by students and

the affordances of teachers' scaffolding. The more students performed elaborate negotiation skills mediated by teachers' scaffolding shifting between the oral and writing modes of communication, the more the process of meaning construction moved to upper levels in a cyclical/spiral way and vice versa.

However, the application of this model showed the necessity of further refinements to cope with the nature of data generated in the context of foreign language classrooms. Negotiation in communication took on different forms, depending on both the level of negotiation and the strategies employed. Hence, the analysis identified three types of classroom exchanges: cumulative non-collaborative, cumulative collaborative and exploratory collaborative exchanges. When engaged in cumulative non collaborative exchanges, the focus was on individual contributions where high negotiation functions were used. However, there was no follow up on these elaborate contributions; individual contributions were elaborate but the exchange as a whole barely reached the negotiation level. Exchanges never progressed beyond Ph3 of meaning construction. When engaged in cumulative collaborative exchanges, focus was on negotiation where learners built positively and critically on each other's ideas. However, there was neither a change in understanding nor a creation of new meanings. Communication did not progress beyond negotiation and did not reach upper levels of meaning construction (Ph4 and Ph5). Finally, exploratory exchanges were characterized by active engagement of learners in collaborative negotiation as well as argumentation processes challenging each other's ideas that resulted in a change of understanding and the creation of new meanings. Exploratory exchanges reached the highest phase of meaning construction where new meanings were tested and applied.

Based on these three levels of collaboration and creation of ZPD for meaning negotiation and construction, refinement of the third phase of my model of analysis was necessary. Hence, Ph3 was divided into three sub-phases as negotiation was launched at this level.

### **1.1. Phase 1: Sharing and Comparing Information**

The first phase did not need refinement because discussion was at a very basic level, i.e. one where participants perform the following low level negotiation functions: information requests provide information, acceptance, corroboration and comprehension checks.

### **1.2. Phase 2: Inconsistency and Dissonance (Quick Consensus Building)**

The second phase also did not need refinement because students performed the same low level negotiation functions: explanation requests, explanations, quick disagreement, and quick agreement.

### **1.3. Phase 3: Negotiation and Co-Construction of Meaning (Deep Conflict and Consensus Building)**

Refinement concerns this level of meaning construction. Results showed that this phase needed to be split into three levels depending on the level of collaboration and engagement in conflict and consensus building:

#### **1.3.1.Low Level of Negotiation (Cumulative not Collaborative Exchanges)**

Students use the following negotiation skill: exploratory requests, rejections, and arguments. However, students did not collaborate and tended to focus on their own contributions. Negotiation remains at a low level.

### **1.3.2 High Level of Negotiation (Cumulative Collaborative Exchanges)**

Meaning was made more publicly accountable and reasoning was more visible in talk. Students performed the following negotiation functions: exploratory requests, clarifications and reasoning. However, students did not challenge each other's ideas. They rather built collaboratively and positively on each other's contributions using the following negotiation skills: exploratory requests, clarifications, rejections, arguments, and assertions. Students engaged in the process of negotiation and did not engage in the process of argumentation.

### **1.3.3. High Level of Argumentation (Exploratory Collaborative Exchanges)**

Students tried to build a deep consensus by elaborate meanings, clarifying views, and modifying or adjusting their degrees of commitment towards their assertions, when they were faced with the requirement to defend their assertions and to critically evaluate those of their peers. According to Galloti (1989) and Shaw (1996), there were close connections between the concept of argumentation and the concepts of high forms of thinking. Learners had to consider each other's assertions and evidences for those assertions during argumentation and consensus building process, and in this way they engaged in high forms of thinking. At this point, students engaged in an argumentation process, which resulted in achievement of deep consensus and the creation of new understandings and meaning. Participants used negotiation and argumentation functions that were: assertions, challenges and counter-argumentation, justifications, concessions (negotiated agreements) and consensus building. From a socio-constructivist viewpoint, this sub-phase was necessary because it prompted debate and reconsideration of ideas presented which signaled efforts at meaning construction and cognitive development (Pena-Shaff & Nicholls, 2004).

### **1.3. Phase 4: Testing Tentative Constructions (Judgment of the Relevance of the Newly Constructed Knowledge**

This phase did not change. In this phase, students reflected on their newly constructed meaning by testing it against their previous knowledge, their existing cognitive schema, and their personal experience and interpretations.

### **1.4. Phase 5: Agreement Statement/Applications of Newly Constructed Meaning**

This final phase did not change. It was devoted to meta-cognitive statements where learners restate all the points discussed, make conclusions and illustrating their understanding that their knowledge or ways of thinking have changed as a result of discussions. They end up using the agreed upon new meanings.

## **2. Pedagogical Implications**

Based on these conclusions, the following recommendations were suggested.

This research showed that language classrooms are a good venue for the implementation of socio-constructivism as a learning theory for successful language teaching. Good training provided teachers with the right teaching skills where they could create excellent opportunities for their learners to collaborate and create zones of proximal development where they could share and create new understandings, hence the need for training. Training needs to focus on highlighting the importance of collaboration and the ways to promote the creation of ZPD for collaborative knowledge discussion. In what followed, I isolated the aspects teacher training needs to take into account.

Collaborative knowledge construction requires sustained negotiation and argumentation. Negotiation and argumentation processes are held to trigger

collaborative construction of meaning and hence learning. Results showed that successful collaboration is a complex process that depended to a large extent on the ecology of the learning environment. In the present context of classroom learning, teacher training, the size of classes, task types and teachers' scaffolding were important factors that needed to be managed for successful collaboration and the way learners engaged in classroom exchanges, in particular exploratory exchanges. They influenced the way teachers and learners jointly engaged in the different classroom discussions.

Collaboration between learners involved involvement in I-R-RC-F and IC-R-RC-F that support the meaning construction process. Thus, it is important for teachers and learners to understand the conditions for collaboration (Hakkinen, 2004) and involvement in exploratory exchanges using the different classroom resources. If learners are to collaborate, they need to be able to use classroom interactions as sources for collaborative meaning construction negotiation. Hence, teacher training should focus on showing to teachers how to engage learners in these types of classroom exchanges.

Teachers need to be able to make sense of their learning environment with its associated affordances: affordances of classroom exchanges, pedagogical affordances of the use of the different modes of communication as well as the affordances of their scaffolding.

Teachers need to be trained in the implementation of the elaborate negotiation functions and involvement of learners in high level thinking and low level thinking for collaborative knowledge construction. As results showed that awareness of the learning environment is essential and important, tutors need to be trained to increase the learners' social and individual learning skills by developing their awareness of the ways they can fulfill different interactive and communicative roles.

Teachers need new types of developed and elaborate multimodal competencies in order to take advantage of the different affordances of use of classroom exchanges. Lack of training was a handicap for the effective use of classroom interaction to engage learners in constructive collaborative discussions.



Results showed that training did not provide high level support for understanding the inter-relations of different types of exchanges.

There is a need to raise teachers' awareness and understanding that the whiteboard can be used as a cognitive support rather than simply as social or technical supports. Teachers and learners need to understand the intricate relationship between the different learning skills. The written mode serves to develop the oral as well as the aural skills and vice versa. There is a need to raise tutors' awareness that they are not totally different and independent skills. Use of writing tools does not necessarily mean focus on the writing skill. Results of the present study show how writing tools like the whiteboard endorsed and enriched oral constructive discussions. Participants should be trained on how to get the greatest advantage from the hybrid nature of classroom discussions.

Results showed that the type of tasks and the way they are implemented by teachers offered different pedagogical affordances that affect learners' engagement in constructive discussions. The design of tasks where students are versed in collaboration offer learners good learning opportunities. Thence, course designers should adapt the task design taking into account the unique features of collaboration and the knowledge construction process.

Large classes remain a critical issue in Algerian classrooms. We cannot expect teachers to scaffold interactions of forty to fifty learners and involve them in collaborative work! I make an appeal to the educational authorities to take into account this aspect.

The syllabus contains very long chapters that teachers are required to cover by the end of the schooling year, which is in practical terms, very difficult and creates a kind of paradoxical situation. On one hand, we put pressure on teachers to scaffold interactions to create ZPD for learners to collaborate and create knowledge, which need and take time. However, on the other hand, we put pressure on teachers to cover the syllabus. As teachers stated, teachers tend to finish the program using their traditional ways of teaching where knowledge is rather information conveyed to and memorized by learners rather than information processed and jointly transformed into personalized understanding. Because focus should be on quality

not quantity, we make an appeal to the educational authorities to revise the current English language syllabi and shorten them.

### **3. Limitations and Future Perspectives**

One of the limitations of this thesis is that the sample was only a small subset of learning language classroom by two teachers, and as such cannot be considered representative of English language teaching management by the teacher cohort. Hence, there is a need to widen the scope of research to include more sessions with different teachers.

This research suffered from a serious technical limitation. One of the initial aims of the present research was to observe how learners engage in ZPD when they working in small groups or pairs. However, I could not videotape all the small group work, I needed more than ten cameras in each class, an approach which raised ethical issues and was therefore not adopted. Additionally, even the use of voice recorders offered a limited data with only a limited number of learners, which could not be considered representative. Consequently, I decided to not include them in the analysis. Hence, learner-learner exchanges that are very important were not analyzed.

The present work showed the value of adopting complementary theoretical and analytical approaches and urged the need to develop models of classroom data analysis in the context of foreign language teaching which draw on cognitive and socio-constructivist theories of learning. However, the model of analysis implemented in this study was again applied to a limited set of learning sessions. Ideally, the model of presentation and analysis would have been applied to other levels on language courses. Hence, the reliability of the extrapolation of these results to other educational contexts needs to be carefully considered. Hence, the findings highlight the need for workable methods, tools and models of analysis to research and analyse classroom communication.

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# APPENDIX 1

## CONSENT FORM

Name of Project: The implementation of Competency-based approach in Algerian Foreign Language Classroom: the Impact of Social Interaction on Knowledge Construction Process and the Development of Learning Competencies

You are invited to participate in a study of the implementation of the competency approach in Education in Algeria. I aim at checking the extent to which these contexts create constructive opportunities for collaboration, interaction and participation among learners. I do not aim at criticizing the currently used programs. In addition, the present study does not aim at judging the participant's (the learners and the teachers) performances. Rather, we aim at ameliorating the design and implementation of such contexts.

The study is being conducted by:

- Mirza Chahrazed (PhD student)
- Professor Said Keskes (my supervisors)

If you agree to take part in this research, you will not be asked to do anything other than participate in your classroom lessons in the normal way, but I will video-record your lessons. I will use this data for research purposes only, and I will not share it with anyone other than my supervisor and the examiner of my thesis.

Information or personal details gathered in the course of the study are confidential. If my dissertation contains extracts from classroom discourse for illustration, I will blank out your name. If I reproduce examples of text chat, I will anonymise the contributions so that your name does not appear. I may use some quotations in my future publications. Again, I will anonymise the quotations.

I undertake to keep the data securely to avoid any accidental disclosure. I will use my personal laptop to store, process and analyze the data. I am the only one who uses the laptop. Also, my laptop is password protected which means that we have to log on to have access to my data. No one knows my password. So in case of theft or loss of the laptop, no one can have access to the collected data. Also, I will use short time out password controlled screen saver, and I will log off correctly at the end of a session. Furthermore, any CD-ROMs or driver, used to back up the collected data, will be locked away in a drawer and will not be left on a desk.

If you decide to participate, you are free to withdraw from further participation in the research at any time without having to give a reason and without consequence.

In case you need to talk with someone else about my research project, you can contact my lead supervisor:

Professor Said Keskes: keskaid@yahoo.fr

Faculty of Arts and Sciences

Department of Foreign Languages

English Section

Ferhat Abes University

Thank you for completing this form.

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I, (participant's name) have read and understand the information above and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.



Participant's Signature: \_\_\_\_\_ Date:

Investigator's Name: Chahrazed Mirza

(block letters)

Investigator's Signature: M.C Date: 20-04-2012

The ethical aspects of this study have been approved by Ferhat Abess University. If you have any complaints or reservations about any ethical aspect of your participation in this research, please contact me initially ([horizonbeau@yahoo.fr](mailto:horizonbeau@yahoo.fr)) and my lead supervisor ([keskaid@yahoo.fr](mailto:keskaid@yahoo.fr)). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.



## APPENDIX 2

### INFORMATION SHEET FOR INTERVIEWS

Prof. Said Keskes

Faculty of Arts and Sciences

Department of Foreign Languages

English Section

Ferhat Abess University, Setif

Dear Teachers,

I am supervisor for PhD student Chahrazed Mirza. Her PhD research aims at checking the extent to which competency based language teaching contexts create opportunities for interaction and collaboration among learners. A few weeks ago you kindly agreed to allow Chahrazed to observe some of your classrooms. To arrive at a better understanding of the learning-teaching phenomena, these perceptions are very important in her research. Your contribution will help us to improve the design and implementation of such learning contexts.

We would be very grateful if you could agree to participate in a brief interview about your perceptions of your training as well as your teaching experience using the competency based approach.

There is no reward for taking part, but any resulting publication will be made available.

Thank you in advance for taking part in this study, which will help us understand the impact of classroom interactions generated in CBLT contexts on learners' engagement in the process of knowledge construction. Your contributions will be

anonymous so that your names do not appear. Some quotations may be used in future publications. Again, they will be anonymous.

If you decide to participate, you retain the right to withdraw from further participation in the research at any time without having to give a reason and without consequence. In this case, your responses will be destroyed.

No personal data is to be collected which means that there is no risk of revealing personal data. We undertake to keep the data securely to avoid any accidental disclosure. No data will be passed to a third party. All the data collected will be destroyed once the study is complete.

In case you need to talk with someone about the research project, you can contact me by email: [keskaid@yahoo.fr](mailto:keskaid@yahoo.fr)

The ethical aspects of this study have been approved by Ferhat Abess University. If you have any queries about any ethical aspect of your participation in this research, please contact me. Any query you make will be treated in confidence and investigated, and you will be informed of the outcome.

Thank you very much indeed for your help!

## APPENDIX 3

### INSPECTORS' INTERVIEWS QUESTIONS

- How do you perceive as the important changes in the CBA?
- Can I ask you to just elaborate on that a bit, the distinction between product-based and process-based?
- You mentioned that CBA implied a change in the assessment system; could you please tell me please in what sense exactly?
- This leads us nicely into the next question I'd like to ask you which is: what effect have these changes had on your own practice?
- Can I ask you about your subjective experience of the different, the difference in delivering the two courses?
- What do you think of the training offered to teachers?
- What are the aspects that the training focused on?
- Are teachers using the competency based approach?

## APPENDIX 4

### TEACHERS' INTERVIEWS QUESTIONS

- Have you been trained to implement the competency based approach?
- Are you implementing Competency Based Education in your program? If yes, how?
- On which of the following learning theory does the competency based approach draw on: constructivism, socio-constructivism, behaviorism, or cognitive theories?
- How do the following concepts relate to the aforementioned theories of learning: Competences, knowledge construction, collaborative learning, individual learning, scaffolding, mechanical learning, habit formation, interaction, individual learning, habit formation, knowledge reception, autonomous learning, thinking skills.
- How do you define the concept of competence?
- How do you define the concept of knowledge?
- Can you define the concept of the collaborative process of knowledge construction?
- What do you think of scaffolding, how do you intend to be a scaffolder?
- What do you think of collaboration?
- What do you think of the creation of the zones of proximal developments (ZDP)?
- Do you invite your learners to interact?
- Do you encourage you learners to share ideas?
- Do you encourage your learners to disagree with each others' views and ideas?
- Do you invite your students to negotiate meaning together?
- Do you ask your students exploratory questions? I mean, do you ask your learners explanation and clarification requests?
- Do you invite your learners to debate and challenge each others' ideas?
- Do you invite your learners to reflect on their learning experiences?

## **APPENDIX 5**

### **TRANSCRIPTION OF THE DATA**

SEE CD

## RESUME

La refonte de la pédagogie et des programmes représente une nouvelle vision de l'éducation en Algérie qui se réclame socioconstructiviste et se définit par une approche par les compétences (APC) plaçant l'apprenant au centre de l'apprentissage. L'individu est donc le protagoniste actif du processus de construction des connaissances et les constructions mentales qui en résultent sont le produit de son activité. C'est ainsi que la connaissance est appelée à devenir compétence, au travers de pédagogies centrées sur l'activité. Cependant, la recherche didactique montre que même si le discours socioconstructiviste est à la mode, les études actuelles manquent d'examiner la mise en œuvre de l'APC d'un point de vue socioconstructiviste. Ainsi, j'envisage d'examiner ce que peut apporter une perspective socioconstructiviste à l'enseignement des langues étrangères en milieu scolaire en Algérie. Pour ce faire, cette étude vise à examiner l'effet que peuvent avoir les différentes mises en œuvre de l'APC par les enseignants sur la mise en œuvre du processus de la construction collaborative des connaissances par les apprenants. Les données proviennent de différentes sources: (1) des enregistrements vidéo de leçons d'anglais dans deux classes d'anglais, (2) des interviews conduites avec différents enseignants et inspecteurs. L'emploi des interviews s'ancre dans le but de savoir si les enseignants comprennent les fondements de l'APC. Je stipule qu'appliquer la réforme sans connaître ses fondements risque de fausser les résultats, et mener tous le programme à l'échec. Les résultats montrent que les enseignants ayant suivi des formations réussissent la mise en œuvre de l'APC. Grâce à l'échafaudage de ces enseignants, les apprenants arrivent à construire conjointement des connaissances nouvelles. Cependant, les enseignants n'ayant pas suivi des formations échouent à mettre en œuvre l'APC d'où la nécessité d'une formation des enseignants.

متثل كل من الإصلاحات البيداغوجية و البرامج التعليمية رؤى جديدة للتعليم باجزائر ، و اليت تعتمد على منظور سوسيوبنائي يتجسد يف املنهج التعليمي بالكفاءات ، و الذي ينظر ابل الفرد كنحصر فعال يقوم ببناء املعارف، إذ أن البناء العقلي للمعارف ما هو إل حصوله النشاط الفكري للفرد ، هذه املعارف اليت تتحول بدورها ابل كفاءات. إل أن الأبحاث ااحالية سجلت نقصا يف تطبيق منهج التعليم بالكفاءات من املنظور السوسيو بنائي.

لذا تسعى الدراسة اليت بني أيدنا ابل تسليط الضوء على ما يقدمه املنظور السوسيوبنائي للتعليم اخاص باللغات يف الوسط الدراسي باجزائر . حيث هدف الدراسة ابل معاينة تأثير تطبيق املنهج من بيل الأستاذة على عملية بناء املعارف لدى التالميذ . و جمع املعطيات الالزمة لفهم وابع تطبيق هذه املناهج فقد مت تسجيل فيديوهات جملوعتني ختلفتني من التالميذ املتلقني للغة الاجنلزية، ابل جانب ذلك القيام حوارات مع الأستاذة و مفتشي الرتبية و التعليم ، و بد هدفنا حوارات ابل اختبار مدى فهمهم الأساسية هذا املنهج ، فتطبيق مثل هذه الإصلاحات يف ظل غياب فهم الأستاذة الأساسية هذا املنهج يهدد ال حالة حسب رأيي بفشل هذه البرامج.

و بد أظهرت النتائج جناح الأستاذة املستفيدين من التكوين يف تطبيق املنهج على عكس ممن مل يستفيدوا منه، فطلبة الأستاذة ذوي التكوين بد

استفادوا من صفل الأستاذة لعملية بنائهم اجماعية للمعارف.