

# The viability of Computer-Assisted Classroom Discussion (CACD) as a facilitator of communicative interaction

Basim Alahmadi

Madinah College of Technology, Saudi Arabia

*bassiem@mct.edu.sa*

The JALT CALL Journal

*This study sets out to investigate how the use of Computer-Assisted Classroom Discussion (CACD) might facilitate the introduction of a task-based approach designed to promote greater NNS-NNS interaction in the target language thus improving Second Language Acquisition (SLA). Eight Saudi students (four dyads) were involved in 3 CACDs attempting to jointly complete three tasks: two information-gap and one decision-making. The study attempts to explore: 1) whether CACD can promote communicative interaction; 2) whether CACD can be implemented to generate meaning negotiation; 3) what interactional modifications are employed while using CACD. Participants' chat scripts were analysed using a discourse analysis method. The data suggests that CACD can foster interactive competence among participants, which can in turn create facilitative conditions for a successful SLA. In general, CACD provides the participants with many opportunities to produce modified L2 output and receive comprehensible L2 input as a verified feedback. Participants managed to carry out only a handful of negotiated routines; nevertheless, the results show that participants employed a wide range of interactional moves such as clarification requests and giving feedback. To summarise, the study indicates that there could be a significant role for CACD as a vehicle for communicative interaction.*

## I. Introduction

### I.1 English in Saudi Arabia

The increase in the importance of English as a lingua franca and therefore English as a Foreign Language (EFL) in Saudi Arabia has been accompanied by rapid educational changes in answer to economic needs. Yet, learning through interaction is often neglected although some 'interactionists' (Pica, 1994) claim that it is a vital tool for successful SLA. What we know about interaction is largely based on Long (1996) and Pica et al. (1987), who propose that, in a conversation-focused communication, learners receive comprehensible input from their peers, process and internalise it and then produce feedback in the form of a modified input that they think their interlocutors will be able to comprehend. Such communication-based interaction is a "priming" device for SLA (Gass, 1997) since it involves the negotiation of meaning, giving learners a clear communicative purpose to use the language rather than engaging in general conversation with no clear learning goal (Beatty, 2003).

While negotiation of meaning plays a central role in communicative interaction and the most important type of feedback, it has never been used properly in the Saudi classes for structural and cultural factors. The Saudi community is largely conservative and religious and follows a rigid hierarchical educational system where syllabi are made exclusively for Saudi learners leaving no space for negotiation. Moreover, Saudi students picture the teacher as the only source of knowledge. Dow and Ryan (1987, p. 206) assert: "...in traditional educational systems, the teacher is an authority figure whose role is to tell students the correct answer" therefore, (Saudi) students find it difficult to accept a teacher who does not play a dominant leading role. Although students sometimes contribute to a small portion of the class discussion, this contribution is not, according to this study, a meaningful negotiation because it is pre-memorized and should not necessarily stem from communication breakdown, as in this actual dialogue which the researcher witnessed in his F2F class observation (see section 4.1):

Teacher: *Do you understand?*

Student: *No, I don't.*

Teacher: *Ok, Pay attention I'll repeat.*

In essence, this study perceives meaning negotiation as that reciprocal/on-going contribution of the students that involves better discourse management which may or may not mend the communication breakdown. In this sense, meaning negotiation encompasses a large area of negotiation use, which helps learners modify their interaction and consequently develop their interactional competence. Interactional competence is defined here as the ability of the communicator to maintain the stream of discussion by initiating new topics or providing comprehensible feedback on what has been said. Therefore, this study approaches SLA from an interactionist perspective and examines computer-assisted classroom discussion (CACD) as a facilitator of communicative interaction in Saudi EFL classes.

## ***1.2 Computer-mediated Communications (CMC) and the Saudi Language Classroom***

Networking technologies such as Computer-mediated Communications (CMC) have had an enormous impact on language learning – i.e. synchronous and asynchronous. Asynchronous Computer-Mediated Communications (ACMC) has a time difference between the period of production and reception of messages, (emails) therefore, the reply is not provided immediately as with Synchronous Computer-mediated Communications (SCMC) – i.e. (chatlines). Unless otherwise stated, the term CACD will also be used to refer to SCMC.

Many researchers, including Stevens (2000) and Smith (2003), argue that SCMC has the greater potential to facilitate interactive communication for second language learning and, in the Saudi context, it might be a practical method of introducing interactive elements in the Saudi classroom to optimize interactions between students when a specific interactional task has been set. CACD also appears to be uniquely compatible with Saudi society, bearing in mind the cultural sensitivity issues connected with online communication. Open on-line discussions with other students from other parts of the world could be seen as possibly resulting in students gaining ideas that conflict with their beliefs and cultural backgrounds; however, this does not mean dropping the cultural component altogether since language cannot be detached from its culture (Kelm, 1992).

CACD also seems to offer some linguistic advantages for Saudi students. Chief among them is that students' language production is probably higher than in face-to-face (F2F) traditional classrooms (Warschauer, 1996). Another positive affect is that CACD encourages shy students to participate, become interested in discussions and react more than in traditional F2F classrooms. These two merits of CACD could be highly relevant to Madinah College of Technology (MCT) students who, according to the 1st Saudi TEFL seminar (2001), fail to participate. Some of them tend to adopt negative L2 attitudes. Most significantly, it has also been suggested that CACD increases negotiated meaning and collaborating abilities which are needed to develop interactional competence (Pellettieri, 2000).

In the light of the foregoing, CACD seems to enhance the process of interaction in Saudi EFL classrooms and may offer profitable first-time opportunities for introducing meaning negotiation to Saudi EFL classes. Therefore, my study hypothesis was formulated as follows: "CACD can promote a communicative interaction between Saudi English Language learners which is likely to facilitate second language acquisition", and the following research questions were derived:

- 1) How can CACD enhance SLA in MCT?
- 2) Do MCT learners engage in meaningful negotiations using CACD?
- 3) What kind of interactional devices (communicational strategies) do MCT students apply when they negotiate meaning using CACD?

## **2. Literature Review**

### ***2.1.1 The Interaction Hypothesis***

The concept of interaction originated from Long (1996) who proposed that SLA could be enhanced by conversational interaction enabling learners to receive L2 comprehensible

input and feedback (Gass, 1997; Varonis & Gass, 1985), allowing modification of their output (Swain, 1993). Feedback is the information directed to the learner from his interlocutor about his (the learner's) language production. It is either positive (satisfactory) or negative/corrective for non-target language-like utterances. Schmidt (1990) claims that learners can see the gap between their interlanguage and the output produced. Much of the literature concludes that successful interaction processes should encompass the three following aspects: a) comprehensible input from another conversant; b) notice taken of the gap by means of providing and receiving both kinds of feedback; and c) opportunities for learners to exploit the potential of the previous two aspects by producing a modified/comprehensible output.

Given these three aspects, students should be able to engage in successful/communicative interaction. This study defines "communicative interaction" as: *the reciprocal exchange of information by learners who employ a number of strategies and convey a meaningful message to achieve a shared purpose*". Communicative interaction should include communication, transmission of comprehensible messages and mutual understanding. In this mutual contact or "interactive duo" (Rivers, 1987, p. 6), learners need not only to receive input but also to produce a sufficient amount of L2 comprehensible output. This F2F "verbal interaction" is contextually in the form of textual interaction and, hence the focus of this study.

As for the types of interaction, Kumpulainen and Wray (2002) define four different categories of interaction within the ICT systems: learner-content, learner-interface, learner-instructor and learner-learner interaction. Varonis and Gass (1985, p. 87) investigated three types of F2F interaction: NS/NS, NS/NNS and NNS/NNS. They found the latter had the highest number of meaning negotiations and demonstrated that direct one-to-one (NNS-NNS) interaction is lucrative to SLA as learners share a common background, practice their language in a stress-free atmosphere and engage in meaningful negotiations. Therefore, only learner-learner interaction is relevant to this study. This investigation chose to employ CACD to generate such interaction because it is the students' "day-in-court" (Beauvois, 1997, p. 170) where they are invariably compelled to talk to each other; it also implemented peer interaction, stimulating "...students' interaction with one another, contributing to peer learn(ing) and decreas(ing) students' reliance on the instructor" (Kern, 1995, p. 470). Peer interaction is, on the whole, more manageable than group interaction as the latter is potentially complex in its turn-taking system, engendering sub-topics and abrupt discussion. Until recently there have only been a handful of studies about this type of interaction in connection with CMC (see Pellettieri, 2000; Blake, 2000; Smith, 2001). These researchers found that this type of CMC interaction generates meaning negotiation - which is largely triggered by lexical items - minimal attention was paid to linguistic complexity, e.g., syntax (Smith, 2004; Kitade, 2000; Pellettieri, 2000).

It should be noted that the presence of a teacher will invariably be crucial to the free-flow of this type of interaction. However, the wise teacher should only act as a moderator, who facilitates but does not participate in the interaction. He may play the role of "gatekeeper" (Kramsch, 1987, p. 24) for potential problems such as chaos. Fortunately, as in the results of this study, students tend to ignore teachers as a source of help in online interaction (Pellettieri, 2000). As negotiation of meaning is inseparable from interaction, the next section will concisely discuss this topic further.

### 2.1.2 Meaning negotiation and the output hypothesis

Negotiation is a feature of classroom methodology closely linked to the CLT theory and has been investigated since the early 1980s. Although many definitions have been offered, Nunan's (1993, p. 122) definition has been adopted for this study; i.e. "...the interactional work done by speakers and listeners to ensure that they have a common understanding of the ongoing meaning of the discourse". Interactional work (Ellis, 1994) can lead to more comprehensible input and modified output. This refined/comprehensible input through language modification can take the form of simplification, confirmation (*did you say "the sun?"*) and comprehension checks (*do you see what I mean?*), corrective/explicit feedback, corrective/implicit feedback (*what is the plural of child? Childs! ?????*), repairs i.e. repetitions, framing - initiation of new topics - (*Lovely! what is your next reason?*), and clarification of requests (*what did you mean?*) (*ibid*). These communication strategies (interactional modifications) employed by learners during encounters in meaning negotiation are said to "...occur when some kind of communicational problem arises and participants engage in interactional work to overcome it" (Ellis, 1994, p. 708). During the CACD sessions, MCT students were expected to use some of these devices to repair communication breakdown and maintain the well-formedness of the discourse. Discourse repairs tend to occur when speakers look for a solution to communication breakdown or to repair a learner's error by means of interactional strategies for example, correction.

Negotiation of meaning can best be attained in small NNS-NNS groups, student-centred classes, using two-way tasks that demand information exchange such as Jigsaw and information-gap activities (Pica, 1994; Varonis & Gass, 1985). As the previous section stated, there are three essential aspects of a successful interaction; comprehensible input, notice-gap taking, and modified output. Negotiation of meaning, which is indispensable for interaction, requires two of these aspects which are "attentiveness and involvement", thus creating a fertile learning environment. Fortunately, CACD seems to support these two aspects of meaning negotiation; CACD users are aware of their output since they can scroll the chat screen, demonstrating "attentiveness". This strategy is advantageous to learners' interlanguage as they modify and monitor their own output as they work, showing "involvement". Evidence shows that CACD can promote meaning negotiation in up to one third of negotiation routines labelled 'meaning negotiation' (Blake, 2000; Kern, 1995; Pellettieri, 2000; Smith, 2001; Toyoda & Harrison, 2002). Therefore, negotiated interaction using CACD can be promoted in the Saudi context since it crucially allows MCT learners to notice their output and receive comprehensible input and provides them with increased opportunities to use their interlanguage in the form of modified and comprehensible output.

The hypothesis of negotiation has a tight relationship with the output hypothesis. Swain (1985) argues that comprehensible input is not enough to optimize SLA and learners should also produce comprehensible output. Furthermore, learners' production of output may "...force the learner to move from semantic processing to syntactic processing" (*ibid*). Swain's comprehensible output thesis enables learners to use what they already know fruitfully, leading to L2 productive use; learners are expected to produce "pushed output" to produce reply/feedback which is "conveyed precisely, coherently, and appropriately" (*ibid*); this process goes through three stages: 'initiation' requiring a 'response' and 'feedback' regarding this response (IRF). Having presented a brief review of the SLA theories and contextual

issues underpinning this research, a discussion of CACD is now necessary in order to better address the questions of the research posed in the introductory section.

## 2.2 CACD and Language Learning

### 2.2.1 What is CACD?

There are various definitions of the term "CACD" (first coined by Bump in 1990), but basically it is a system allowing students to communicate with each other without interruption. This study used Murray's (2000) definition: of "...modifying communication to include only text-based modes" which allows for "...the binary division of CMC into synchronous and asynchronous modes". However, Levy (1997, p. 96) presented a seminal CMC taxonomy not dependent on the time axis, (synchronous and asynchronous), but on geographical dimensional aspects, that is, *co-located* (same place) and *remote* (different places). The definition of *co-located* communication is relevant to this research because it is only relevant to the Saudi context where chat discussion is kept to a single class. Therefore, my functional definition of CACD is '*computer mediated communications which occurs in real time and in a single class that allows learners to interact through the use of the keyboard*'.

### 2.2.2 Review of previous CACD studies

Several researchers believe that task-based CACD sessions allow learners to engage in meaning negotiation that can improve their conversational management skills/communicational strategies, the end result being a greater language fluency (Lee, 2002; Blake, 2000; Toyoda & Harrison, 2002). However, there is conflicting data about the differences between the effects of CACD and oral F2F discussion. For example, learners are expected to produce more discourse types expressing different functions of language than when they take part in F2F interaction (Chun, 1998); CACD participants apply a wide range of modificational devices similar to those found in F2F discussion (Lee, 2002). Sotillo (2000) claims that SCMC produces more output than conventional discussion, thus increasing the opportunities for interactional learning.

Some research suggests that CACD provides learners with a less anxiety-inducing atmosphere and more equal opportunities to participate than speech (Warschauer, 1997; Kern, 1995). Kelm (1992, p. 443) comes to the same conclusion and called CACD the "great equalizer" because it especially caters for passive, marginalised or quiet learners. Kelm (*ibid*) conducted weekly sessions for one semester using intermediate learners of Portuguese. The result found increased participation from all students which led to more language output. Likewise, Kern (1995, p. 457) investigated French learners' output using the *Interchange Daedalus* programme, comparing the number of words, turns and T-units and found that "students had twice as many turns, produced two to four times more sentences, and used a much greater variety of discourse functions" than they did in conventional F2F discussion. In 1998, Chun examined the positive effects of CMC on the performance of 23 average learners of German. The study employed three measures: 1) number and length of turn, 2) syntactic complexity of each turn, 3) type and number of different discourse structures. Chun concluded that all learners were participating, showed greater variety of discourse functions and a noticeable development in oral skills.

Using the *Ytalk* interactive chat programme Pellettieri (2000) investigated the effects of five different tasks on students' performances. Findings revealed that the more closed the task and the more goal-oriented, the more negotiations took place. Pellettieri found that negotiations were largely triggered by lexical items and that there was a considerable amount of grammatical accuracy. Blake agreed (2000), having explored the incidental negotiation of fifty novice learners of Spanish from three tasks - information-gap, decision-making, and jigsaw.

### 2.2.3 CACD and the Social Development Theory

CACD supports social interaction by means of constructing a Zone of Proximal Development (ZPD) among communicators (Beauvois, 1997; Dwyer, 2005). ZPD was a term invented by the Russian philosopher Vygotsky, who developed the *Social Development Theory*, which sees learning as a socially mediated process that emphasizes the importance of social interaction such as peer collaboration (Beatty, 2003, p. 95). According to Vygotsky, ZPD is constructed when scaffolding among learners occurs; this can be seen when novice learners are able to gain a success in language learning that they would not have been able to do without the help of their more knowledgeable peers (Kost, 2004). Thus, ZPD can be defined as the gap between what the learner could gain alone and what s/he can gain with the help of more competent peers. Apparently, the potential level is constructed when further assistance or additional help occurs through interaction by means of scaffolding. On the other hand, scaffolding can be differentiated from collaborative learning in the sense that the latter is an unintentional interaction process, where learners work cooperatively to help each other by setting a goal to achieve (Beatty, 2003), such as task completion. The presence of these two concepts in CACD generates a massive circulation of words, phrases, and ideas, which does not only insist on interaction as "priming" for second language acquisition but also argues for the development of sociocultural competence as a central factor in language acquisition.

CACD, according to Chun (1998) and Kern (1995), supports social interaction which in turn stimulates a social and pragmatic competence that helps users imitate the actual F2F environment in CACD by constructing a virtual relationship through greetings (*Hi, Hello there, Salam*), apologies (*Sorry!, Oops*), "soften" requests (*Would you tell me please*) and/or leave-takings (*see you soon*).

The findings of the studies reviewed in section 2.2 are summaries or bold statements about other researchers' work. Needless to say, more detailed and discussion of each study would reveal specific contexts and may uncover limitations in the validity of these findings. However, since this study revolves around interaction and communication, the author preferred to present a critical discussion on the interactional and communicative features of CACD instead.

## 3. CACD and communication: strengths versus problems

The literature of CMC and CACD reveals that the potential advantages of CACD outnumber the putative disadvantages. The affective and linguistic advantages of CACD as a facilitator of communicative interaction could be: simplified input (Kost, 2004) modified output

(Lee, 2002; Pellettieri, 2000) "plentiful and dynamic [corrective and negative] feedback" (Smith; 2004, p. 371); and decentralisation of the teacher's role in the classroom (Chun, 1998, p. 59; Kumpulainen & Wary, 2002). Learners should, thus, become more focused and develop a heightened sense of engagement (Beauvois, 1997, Dwyer, 2005).

CACD, importantly, provides extensive writing and reading practice (Davis & Brewer, 1997; Ortega, 1997) from noticing one's own and other's utterances (Smith, 2001). Some researchers believe that in CACD there is no potential for negative, non-verbal clues of communication - frowning and stuttering (Kitade, 2000; Warschauer, 1996) and that disallowing social minorities (women) to engage in discussions is reduced (Sullivan, 1998; Warschauer, 1996).

While CACD has been claimed to allow learners to learn in their own time and at their own pace (Ortega, 1997; Warschauer *et al.*, 1996) because CMC is time and place independent (Peyton, 1999; Warschauer, 1997), this may not be true since CMC is itself confined by space and time boundaries. Students must come to an assigned computer laboratory at a specific time to join a CACD session and must think and write at substantial speed and in limited time to keep the communication flowing.

On the other side of the coin, the main drawback of CMC is said to be 'lack of turn adjacency (Kitade, 2005; Salaberry, 2000). Although SCMC has been acclaimed as a new means of interaction for its immediacy in transformation of the message, Hutchby (2001, p. 182) calls SCMC a "quasi-synchronous" communication since it does not seem to have a true synchronous nature. In essence, the two main problems are a) risk of servers breaking down from congestion and b) students' overlapping contributions which generally leads to a lack of turn - a temporal gap creates a lapse in the time of message transmission (when the "enter" key is hit and the time of reception when the message is displayed on the recipient's screen). Another reason for this overlapping could be the interactive written nature of CACD. In Salaberry's words (2000, p. 6) "...turn-taking is negotiated at the level of the written language" meaning that learners' contributions cannot be organized because CACD mainly relies on 'text-based interaction' (Blake, 2000) and is a 'lean' medium of interaction (Smith *et al.*, 2003, p. 706) **since it allows only one learner at a time to take a turn. Additionally, two or multi-topics can be addressed at the same time with the utterances not necessarily fitting with what follows or precedes them.** This yields a slow response, affecting the pace and quality of the interaction (Salaberry, 2000). The following excerpt from Hutchby's data (2001, p. 187) clarifies this:

- 1 Balou Gal: how is everyone?
- 2 Timgodden: MICHAEL JOLLIFFE
- 3 EGLV: I want to go to school and major in advertising
- 4 Timgodden: HES COOL 5 EGLV: lol Fan
- 6 EGLV: tim please lower your caps
- 7 Panther: what time is it up there then?
- 8 Timgodden: MICHAEL JOLLIFFE

... ((4 lines omitted)) ...

- 13 DragonRder: Timgodden, UPPERCASE is normally used for adding EMPHASIS! Otherwise it's considered SHOUTING (and is harder to read)!

Kern (1992) and Bump (1990) reported that SCMC using *Daedalus Interchange* software has a 'quicker paced interaction' than oral discussion. In fact, a lack of turn adjacency in SCMC could yield many ignored questions and generate a large amount of information overload, which may distract learners' attention, cause disconnection of communication and result in an intermittent stream of interaction (Smith, 2003; Warschauer, 1997). However, newly invented hi-tech chatrooms such as *Odigo*, *Ytalk*, and "ICQ" have minimised the effect of this drawback (Stevens, 2000); they now have an interactive chat option where a special chatroom displays the utterances being written or erased word by word allowing students to interact better as they are able to prepare a meaningful response, and anticipate what might be sent.

Another disadvantage of CACD is the absence of paralinguistic modes of communication (Kost, 2004; Salaberry, 2000), for instance, stress, muttering and intonation. Arguably, this could also be considered an advantage of CACD, since written speech is clearer than the spoken word as not every word spoken can be understood because of mispronunciation. CACD also lacks non-verbal strategies such as eye contact, body movements and facial expression, which communicators apply naturally to signal acceptance, refusal, and so on. Non-verbal modes of communication play a significant role in the quality of communication since speakers can add meaning by *whispering* or *nodding the head*. CACD's lack of verbal cues (stress, intonation, ...) and para/non-linguistic communication (nodding, shaking the head and so forth) makes it a distinctive medium of interaction but different from speech; speech is an explicit medium enhanced with extra features, both verbal and non-linguistic, which help to convey an exact message. To solve this matter, Crystal (2001) argues that CMC users make use of the available emoticons and kinesics - a combination of keyboard characters designed to indicate a feeling or state - as an alternative to non-verbal communication features. For instance, chatters type >:-I and :0 - denoting anger and amazement respectively (Hutchby, 2001). Nevertheless, lack of non-verbal communication causes interaction quality to decline leaving learners struggling to resume the mainstream of communication or escaping into alternative strategies; for example, code-switching (Beauvois, 1998) used by L2 learners who refer to their L1 by transcribing their L1 words into their L2 when facing difficult communication situations; this helps students to cope with communication breakdown. However, allowing learners to use their L1 rather than L2 is another disadvantage of written CACD.

Additionally, CMC uses a wide range of acronyms or Internet jargon (Crystal, 2001; Smith, 2004), for instance, *asl* - short for age, sex and location. These are ever-changing and constantly being renewed requiring users to keep-up with the jargon or leaving them unable to continue to contribute. Moreover, CACD is also a selective medium of communication requiring computer-oriented learners with at least average typing skills (Toyoda & Harrison, 2002; Warschauer, 1998).

Blake (2000, p. 33) sees a considerable risk that CACD could be the "blind leading the blind", meaning that a learner may receive non target-like input from his peers and accord-

ingly reproduce it. However, Pellettieri's research (2000) shows only a minimal number of cases where learners have reproduced non target-like utterances acquired from their peers. In fact, Ortega (1997) claims that CACD discourse is more accurate than F2F, but students could be more likely to produce less accurate, more ambiguous utterances because of constraints such as immediacy of time and the newness of CACD as a means of interaction. Chun (1998, p. 60) calls this novelty problem "technophobia" or "technostress".

Finally, flaming (unacceptable behaviour) is a significant hazard of CMC because users enjoy a considerable amount of anonymity. Nevertheless, this anonymity also offers users the opportunity to be more honest and more candid in their communication with the ability to express opinions and emotions more explicitly (Beauvois, 1997; Sullivan, 1998). Whilst this section has briefly reviewed the advantages and disadvantages of CACD, the author hopes that this has whetted your appetite and you will take a look at the description of the research design methods and procedures.

## 4. Methodology

### 4.1 Subjects of the study and communication tasks

Four male Saudi dyads and computer literate MCT learners, aged between 18 and 23 and studying in the computer department – being faster typists - participated in this study. The instrument was free, downloadable software called *MSN Messenger 7.5*. When using this, the screen is split into two halves: the top half shows the student's interlocutor's replies; the bottom half shows the student his message as he is typing. The tasks were covered in 12 days, each dyad took one task a day, during three weeks in February, (2007) in one of the English Language laboratories at MCT which comprises a network of twelve *Dell* computers. The lab was chosen for its configuration as a "U-Shaped lab facing outwards". The tasks were chosen in the light of two previous CACD studies: a) Strijbos *et al.* (2004) and b) Blocher (2005). Salient features of both studies are that:

- a) they require a two-way exchange of information;
- b) they should be pre-structured;
- c) they should be object-oriented;
- d) tasks should be closed (only one outcome available).

Three different tasks were prepared for the participants. These were:

- a) an information gap task 'two-way exchange closed task' (Appendix A)
- b) an information gap task 'one-way exchange closed task' (Appendix B)
- c) a decision-making task (Open task)

The first task, adopted from Ur (2005, p. 187), was called "spot the difference" and involved each learner in holding a pertinent amount of the information needed to be exchanged in order to solve the task. The second task, a "picture placement" task, was adopted from Ellis (2001, as cited in, Ross-Feldman, 2005, p. 237-238) and involved two similar pictures of a kitchen where five utensils were unplaced. Picture A showed the place

where B's utensils should be and vice versa. These two tasks were chosen for their "graphic" effect, called "visual focus" (Ur, 2005, p. 20), whereby learners are likely to concentrate more on something tangible than on an abstract theme. Many previous CACD studies using visual tasks have also shown that they can trigger greater lexical negotiation among learners because their "symbolic representations" are believed to compel students to describe the depicted objects (Smith, 2004; Dwyer, 2005).

As CACD is still in its infancy as a relatively new area in the field of SLA or as a 'black box' (Ortega, 1997, p. 92), **the researcher believes that the pushed output can best be demonstrated through techniques of discussion and debate.** For the third (new) task, known as a 'decision-making' task, learners debated on a controversial issue. However, there are two problems with this task; 1) learners must be pre-taught the language and techniques required for debating, and 2) it suffers from a lack of lexical triggers, that is, pictures. Ignoring these two problems, the question asked "R U 4 women driving in Saudi Arabia?" (based on a comparable study carried out by Kern (1995, p. 462) on French learners in the USA "R U 486 pills in the US to prevent abortion?"). Obviously, this is an open task where there is no right or wrong answer. (Table 1 shows the treatment characteristics of each task).

**Table 1. Treatment characteristics of tasks**

Task	Task Type	Description	Flow of information	Exchange of information	Outcome
Picture Differences	Information-Gap	Learners work collaboratively to spot eight differences between their pictures without seeing each other's pictures.	Two-way	Required	Closed
Picture Placement	Information-Gap	Learners work collaboratively to place their missing utensils in their kitchens without seeing each other's pictures.	Combination of one-way and two-way	Required	Closed
Discuss & Debate	Decision-Making	Learners discuss and debate in order to convince each other by their arguments.	Two-way	Optional	Open

The researcher met the students, asked for their consent, and told them that the purpose of their involvement was to help him collect data for this particular study. Thus, the ethics and the validity of the research were maintained because he did not tell them that this study was measuring their interaction. In order to estimate the approximate time needed for the subjects to complete each task, and also to gain experience in overcoming

any possible negative outcomes, a pilot study was conducted. The students successfully completed the three tasks in the set time of 45 minutes.

#### **4.2 Research methods and modes of analysis**

A quasi-experimental research approach was adopted to explore the questions of the research study. However, the use of "intact classes" was not feasible and the researcher conducted classroom observations instead. A serious weakness with this argument, however, is that it fails to establish data from a comparable F2F group that did the same tasks, and this invalidates some conclusions. Having no F2F control group does not undermine this research, however the fact that my CACDs are dyadic is surely going to result in more student-student interaction than in large classes. One could argue that the validity of the research is affected in that it seems to be comparing classroom interaction with pairwork more than F2F with SCMC.

This study was a mix of qualitative and quantitative. Qualitative in that classroom observation was used to compare the findings of the CACD discourse and to investigate the nature of CACD's negotiation routines; quantitative in that CACD's discourse was analysed according to language quantity, number of exchanges and the frequencies of interactional modifications. Discourse analysis, as a major source of data collection, was chosen because it allowed the researcher to analyse the meaningful speech units in CACD discourse and to measure students' communicative interaction. The Varonis and Gass (1985) NNS interaction model was used to analyse online participants' discourse and measure their interaction because the pilot study suggested that students' interaction in CACD followed this model, which identified the four components, trigger, indicator, response, and reaction (reply to response) respectively.

Because learners reported that the level of comfort increased as they progressed in their chat, the researcher selected only six sessions to analyse containing all three tasks of one dyad selected at random; the last task of each of the three other dyads were also analysed. Thus, each task was analysed twice. The researcher was involved in all 12 CACD sessions as facilitator and instructor. Nevertheless, the researcher's presence in the room with the research subjects and close scrutiny of their communication should have had an effect on the data, as would the subjects' knowledge that they were research subjects. However, these are always difficult factors to overcome given the necessity of the ethical research. Because of the aforementioned flaws, the experiment would not yield solid results from which firm conclusions could be drawn (see limitations of the study at section 5).

#### **4.3 Framework for measuring interaction**

The analytical linguistic features of the framework in this study included a number of codes as follows:

- Length and frequency of turns. As overlaps are impossible in CACD, a turn can be defined as the whole uninterrupted stretch of words by one person which is either followed or preceded by another interactant's stretch of words; these two taken turns form one exchange.

- Number and nature/types of negotiation routines - to investigate how meaning negotiation was carried out.
- Interactional moves: these are the repairs of communication breakdown through techniques such as backchannelling (the use of fillers), summoning (defined as those marks that 'call the listeners' attention' such as *Listen!*), or nominating (for example, *Rainbow, are you there?*). According to Stenström (1994, p. 36) interactional moves are what the speaker does in a turn in order to start, carry on, and finish an exchange. A number of interactional moves have been investigated including: feedback, polite/clarification requests; comprehension/confirmation checks, and so on.
- Warschauer (1996) proposes that another way to measure interaction is "many to many". In other words, how much interaction there is between each interactant and the other interactants. This explores whether students prefer to interact with each other or with their teacher. Therefore, statements, questions (addressed to students or teacher are counted separately) and answers are used as further interactional moves.

## 5. Findings of the study

This section will focus on the findings related to the analysis of each data collection set. The findings of the classroom observations were examined and compared with those revealed by the CACD discourse analysis. Observations of CACD are presented as supporting data to students' engagements in the experiment and the framework of the current study was applied to the CACD discourse.

### 5.1 Classrooms and CACD Observation

Three classrooms' observations were incorporated into the research as tools to analyse the classroom interaction and provide further insights into how MCT EFL students are taught. They revealed that teachers dominate the classrooms and students were rarely "given the steering wheel". Additionally, there was little or no group work. Teachers' L1 use tended to take up a relatively large portion of class time, (approximately one-third) leaving two-thirds of class time (45 minutes) for actual L2 use. Moreover, teacher-student/student-student interaction was also largely carried out in L1. It was discovered that even student-teacher interaction was short following the model of IRF interaction (Kumpulainen & Wray, 2002, p. 9). This model starts with an *initiation* by the teacher (in Saudi EFL classes it mainly takes the form of inferential questions to which the answer is almost always known beforehand), followed by a *response* by the student and is completed by *feedback* from the teacher (see dialogue in section 1.1).

In contrast to the above, throughout the 12 CACD sessions, students were absorbed in the chat, they were continuously typing, reading and scrolling the chat screen up and down and their attention to the tasks remained constant throughout the discussion. Previous CACD studies found similar results (see Smith, (2004); Cheon, (2003); Warschauer, (1996); Pellettieri, (2000); Dwyer, (2005)). However, although the students did indeed communicate with each other in L2, the majority were noted to mutter in Arabic as they typed their turns. Moreover, their facial expressions changed, they scowled and raised their eye-brows if they made a mistake, confirming Smith and Gorsuch's (2004) study showing that these non-verbal cues could

illustrate more about CACD's communicative nature than mere words.

In general, participants remained silent although occasional laughter was heard but there was no sign of hesitation or pressure, which contradicts Chun's findings (1998) that the risk of hesitation is always present in CACD. Participants concentrated intently and were enthusiastic about what was being shown on their screens, corroborating Smith's (2004) and Warschauer's (1996) claim that written communications allow for better concentration and closer attention than spoken discussions. These CACD observations indicate that learners were not only reading and responding to everything produced on the screen, but were also processing a comprehensible modified input through discussion. The massive amount of data being circulated among learners allowed them to attend to feedback and take note of the language being produced.

As stated in section 2.1, Schmidt's (1990) study pointed out the importance of awareness, consciousness raising and noticing the gap in L2 language practice, CACD appeared to have these very positive effects on the participants of this study. Not only does CACD provide equal participation for the Saudi EFL students, it maximises their language participation in an unprecedented way in strong contrast to the conventional Saudi EFL classes as described earlier in this study. Previous studies found that this was the first and most important advantage of CACD for language learners (Beauvois, 1992; Kern, 1995; Pyun, 2003).

## ***5.2 Quantity of language, length and frequency of turns***

The quantity of language was determined through a simple count of words elicited by each participant. The average length of each participant's turn was calculated by dividing the whole number of words into the number of turns produced by each participant. See Table 2 for total number of words produced in each of the tasks and language produced, and number and average length of turns between each participant. It reveals that task type has an effect on the amount of discourse.

The second task ("placing kitchen utensils") appeared to generate fewer words (476 and 907) than the other two tasks, perhaps because it was pre-structured; in fact, it was very closed and dotted with the names of kitchen items, which left little room for communication breakdown. Interestingly, the first task ("spot the difference") triggered the learners into producing more L2 than the other two tasks. Another significant finding is that, overall, learners produced far more language than in oral F2F classrooms. While learners have been observed to contribute about 20% of the class discourse in F2F classrooms, CACD enabled them to contribute 95% of the chat discourse. As 35% of the oral class was carried out in students' L1, the CACD exercise seemed to provide them with almost 100% L2; this is an enormous contrast. Table 2 also confirms the equalisation effect of CACD (Warschauer, 1996; Kelm, 1992). Analysis of the chat script showed that the average length of turn, ranging from between 37 to a high of 95, was 6.8 words for each participant. It was particularly interesting that the number of turns for each student was similar except in the first task of the fourth dyad. However, this was not due to lack of turn adjacency which is purported to be one of the main drawbacks of CACD (see section 3). Only a handful of cases of lack of turn adjacency appeared because students were able to look at the small line just above the bottom left hand corner of the chat window where a small message is displayed saying "X is writing a message" when "X"

was making keystrokes (that is, composing a message). In fact, learners split their messages into several turns in an attempt to use short and communicative sentences.

**Table 2. Quantity of language, number and average length of turns**

In this table "D" refers to the dyad number and "T" refers to the task number, for example "D3 T2" means the 2<sup>nd</sup> task of the 3<sup>rd</sup> dyad.

Task	Language output	S1				S2			
		Contribution to the task (number of words)	Percentage of contribution	Number of turns	Average length of turns	Contribution to the task (number of words)	Percentage of contribution	Number of turns	Average length of turns
D1 T3	839	427	51%	59	7.2	412	49%	49	8.4
D2 T1	934	561	60%	95	5.9	373	40%	85	4.3
D3 T2	467	272	58%	37	7.3	195	42%	38	5.1
D4 T1	949	556	58%	75	7.4	393	42%	49	8.0
D4 T2	907	528	58%	72	7.3	379	42%	67	5.6
D4 T3	782	470	60%	54	8.7	312	40%	42	7.4

The next chatscript clarifies this:

RAINBOW7: tell me some reasons

Omar: they

Omar: first of all? criminal will spread in our country?

Omar: and this on;only the first thingthing?

Omar: and at the same time it's very important?

Omar: only

RAINBOW7: could u tell me how???? Plz

Additionally, participants seemed to focus on meaning rather than form. This result was not unexpected because their aim was to successfully finish their tasks through communicative messages. Rivers (1987) and Swain (1985) claimed that through frequent practice L2 learners will undergo a shift from focus on meaning (semantic) to focus on form (syntax) but findings of this study showed that, in general, the more language output and the higher the number of turns to which the students were exposed, the more the facilitative factors of SLA came into force. For example, there were opportunities to produce modified L2 output, receive verified feedback and comprehensible input, employ interactional strategies and negotiate meaning.

### 5.3 *Number and types of negotiated routines*

The second research question, 'Do MCT learners negotiate meaning while they chat using CACD?' was investigated. See Table 3 for the total number of turns, negotiated turns and the percentages of these negotiated turns elicited by each task. It was claimed earlier (in section 1.1) that meaning negotiation is rarely used in Saudi EFL classes, and the findings of this study corroborate this; among the total number of turns initiated by the participants (722), students negotiated meaning in only 10% of all their chat (72 negotiated turns). Table 3 shows only a handful of occurrences (8) where students carried out meaning negotiation successfully. Although participants were only able to successfully produce eight meaning negotiations, there were other serious attempts to negotiate meaning, which were not deemed successful without help from teacher. The excerpt below shows one of these unsuccessful attempts (it should be noted that the name "Bassiem" refers to the instructor in all chatscripts).

- Na: ok then i have one here i think it's for only contributors i mean the people who wanna to pay or give me to the poor
- Na: am i right?
- Bassiem: U r right Na it is where u drop things but it is not for contributions. Can you think of something else?
- Na: i don't know really exactly, u have it or not
- Tu: i dont know this, contributor? so good
- Na: i hope that we have it here in our country? loool but I don't think
- Tu: sorry, u mean what? I don't understand.
- Bassiem: This is called a letter box ..what we call here in saudi arabia post box.. it is red in colour. Don't worry guys you don't know it because you have never seen or used it. I will tell you about it after you finish.
- Tu: what do u think about this certain box? Is it good for us?
- Na: I don't know, anyway i don't have the box anywhere which that's mean we discover the 3rd

This chatscript also reveals that CACD could support the sociocultural theory of mind suggested by Vygotsky (section 2.2.3). This collaboration between the participants and their instructor results in a construction of ZPD because, at the end, the participants were acquainted with new knowledge, that is, the letter box. Similar results were found by Dwyer (2005) and Kitade (2000). Examination of the chatscripts demonstrated that the nature of online negotiated interactions followed Varonis and Gass' model and corroborates many previous CACD studies (Blake, 2000; Lee, 2002; Pellettieri, 2000). It should be noted, however, that according to this study what specifically constitutes a negotiation of meaning is the four components, triggers, indicators, responses and feedback, and so negotiation of meaning should be measured as such.

**Table 3. Negotiated routines**

Task	Total turns	Meaning negotiations	Types of meaning negotiation	Negotiated turns	Percentage of negotiated turns
D1 T3	108	0	-	-	-
D 2 T1	180	2	Content	16 (5+11)	8.8 %
D3 T2	75	2	Lexical / syntax	18 (10+8)	24 %
D4 T1	124	2	Lexical / content	25 (10+15)	20.2 %
D4 T2	139	1	Lexical	5	3.6 %
D4 T3	96	1	Lexical	8	8.3 %

The chatscripts examined in this study also revealed that these negotiations were mostly triggered by lexical utterances, (as indicated by Table 3) with only one syntactic trigger; two content triggers and five lexical triggers. The following unedited chatscript demonstrates only a single syntactic trigger.

Ah: could u tell me where is the pat????????? <T> syntactic  
 Bassiem: what is the "pat"??? <I>

Bassiem: do u mean the pan? <I>  
Ah: it's called i think pan ? right <R>  
Bassiem: yes <RR>

As Saudi Arabia has a different postal system, learners had difficulty in recognising the letter box. The following chatscript shows how students underwent this communication breakdown with the help of the teacher. In fact, negotiations in this study seemed to be longer than normal as it included repeated components and mini subsequent negotiations inside the main negotiated routines.

HM: anohter diffrense there a bar like cylider. <T> Content  
Ag: I don't understand Cylider <I>  
HM: do u know the gas cylinder in the kichen we fill it with gas to cook? <R>  
Ag: yes yes <RR>  
\*\*(end of embedded mini negotiation routine)\*\*  
Bassiem: HM, bear with me pls, can you think of what this "cylinder" may be used for? <I> (indicator for the above content trigger)  
Ag: do u mean there is a cylinder, I have no cylinder in mine <lack of turn adjacency>  
HM: Ok, teacher, it has two boxes and door ..maybe to putthigs <R>  
Bassiem: Right, there u are, what do u think this thing could be, it is used red by the way <I>  
HM: do u c it Ag?  
Ag: no cylinder in mine!  
HM: I don't know teacher <R>  
Bassiem: This is a letter box , don't worry guys you don't know because you never see it..it is alright ☺ <RR>

The majority of negotiation routines were triggered by lexical items and were more organic in nature than those of syntactic and content triggers. The following unedited chatscript shows a complete and ideal negotiation routine based on Varonis and Gass' (1985) model.

#### 5.4 Interactional modifications

Interactional strategies (see Table 4) are primarily used and widely implemented in order to keep up the flow of the discussion and to deal with problems such as communication breakdown. This study combined different interactional strategies taken from multiple

**Table 4. Frequencies of interactional moves**

N	Type	Interactional strategy	Number of occurrences	Examples
1	Feedback	Questions to peer	93	Look, do you want rest or work?
2		Answers to peer	90	I need to rest but if women drive we will have more work.
3		Questions to teacher	27	May you give me more explanation, basim?
4		Answers to teacher	42	I mean u can choose one of 2 things (controller and user).
5		Backchannelling	37	Umm, I C.
6		Greetings	18	Hi there and all.
7		Apology	36	Sorry! U know typing mistakes.
8		Thanks	24	Thanks for knowing me these reasons.
9		Farewell "leavetaking"	24	Nice chat dear Ag,, C U Soon. Bye
10	Previously identified strategies	Students' statements	135	If you have another idea I mean for this wrd that will be different thing
11		Teachers' statements	34	But I am not a native speaker.
12		Polite clarification request	45	My mate Om I have a little q for u
13		Confirmation check	33	Do u understand it now?
14		Comprehension checks	33	Toaster???? Sorry what is that mean?
15		Opening	36	What do u think about women drive in KSA?
16		Initiation	54	Ok then? Rainbow let's move on? Plz
17		Self-correction	21	Sorry! Drive no frive
18		Summoning	84	Listen, HM could I ask you a question?
19	Unique to the present study	Capitalization	24	U said RELIGION !!
20		Onomatopoeia	30	"Hahaha", "wawwww"
21		Code-switching (LI use)	24	"This is <i>rizq</i> " (in English: welfare). "Do u have a <i>daleel?</i> " (in English: prove)
22		Emoticons and kinesics	15	☺ (-)
23		Punctuation	22	When car break down or stop what they do?????. May be! Y not?
24		Hedging	39	"I think it is my turn" "I am not sure". "I am not positive"

sources, including, Cheon (2003), Chun (1998), Ellis (1994, 1997), Lee (2002), Pyun (2003), Rivers (1987), Smith (2001), and Stenström (1994). The term "interactional modifications" in this study, encompasses a large array of communication strategies, discursival moves, modification devices, communication repairs and so forth. The differences between them are by no means clear-cut but they are all utilised to aid the structure and free flow of discussion. However, as meaning negotiation and interactional moves are interrelated, this section only deals with occurrences of interactional moves, regardless to their relationship with the negotiation of meaning, as it is beyond the scope of this particular study to probe such a relationship.

HM:	They can cal cevil dfens or red cresent	<T> lexical
Ag:	What is cresent	<I>
HM:	Red crescent is first aid ..u dial 997	<R>
Ag:	Yes, got it ..but how if civil defense is far?	<RR>

The chat script revealed that CACD stimulates students who seemed to develop a kind of interactive competence as they showed a plethora of interactional strategies in their discourses. Some strategies resembled those of written discourse using abbreviations, formality and capitalisation to indicate feelings (surprise), to enhance meaning and show stress or tone. Others were similar to spoken discourse using fillers (backchannelling) and comprehension checks (confirming Chun's (1998) findings). As with participants in previous studies (Dwyer, 2005; Yates, 1996), MCT learners' online discourse contained both speech-like and written-like discourse utterances of varying degrees to maintain the communicative process. Since the focus of this discussion is to identify the types of interactional modifications MCT learners employ in CACD, only the data regarding the total number of occurrences of each strategy made by all dyads are summarized. Table 4 shows types, number of times and unedited examples of the interactional strategies, both previously identified and unique to the present study, found in the online synchronous discussion, as well as participants use of interactional strategies. Likewise, Appendix C shows an illustration of frequencies of interactional moves.

CACD provides students with many opportunities to interact and negotiate meaning using these interactional strategies. Learners are able to produce consecutive exchanges with more frequent and varied strategies, building up more exchanges. Learners were also able to co-operate successfully to complete their tasks by exchanging comprehensible chunks of information in spite of linguistic errors. The research indicated that students' statements (135), questions to peers (93), answers to peers (90) and summoning (84) were the most used strategies, showing that CACD gives learners more opportunities than the F2F classroom to communicate, interact and express their ideas clearly.

Warschauer's (1996) research showed that students favour communication with their peers, who share similar language levels, than with their instructor; in this study the number of questions to the instructor was 27 and the number of answers 42 supporting this finding. This research shows an almost equal number of questions and answers tending to show that there was effective and communicative interaction between the participants, whereas, the overwhelming majority of studies have shown more questions than answers

(see Smith, 2001; Chun, 1998). This is another positive effect of CACD study which indicates that L2 learners can learn more from each other than “they think they can”.

Table 4 also shows that other feedback strategies, such as “apology”, “thanks” and “farewell”, were employed at similar rates. Students were able to maintain politeness strategies in their requests (45 times) revealing that CACD can be implemented to promote pragmatic competence (Social Development Theory). Other supporting evidence of this is that examination of the participants’ discourse showed a high degree of conservatism, there were no religiously or culturally inappropriate utterances (known as flaming). Confirmation and comprehension checks were both used (33) times, this modest number of occurrences resulting from a smaller number of negotiation routines. Learners produced fewer numbers of openings (36 times) than initiations (54 times), the latter often being used during chats to mark the end of one topic and the start of another; the former, used only at the beginning of the discussion. Learners were not interested in maintaining their L2 grammar, producing self-corrections only 21 times and there was no peer correction at all. These findings could be attributed to CMC learners increasing their L2 production at the expense of grammatical accuracy (Kern, 1995), but other CACD studies have found the opposite (Pellettieri, 2000; Salaberry, 2000; Warschauer, 1996).

Some unique strategies were observed. Hedging, defined by Stenström (1994, p. 46) as the strategy that helps avoid commitment, including terms such as “I think” to avoid decisive talk, was used 39 times. Onomatopoeia, (transcribing words which sound like the state to which they refer), was used 30 times, perhaps because students lacked the necessary paralinguistic and non-paralinguistic features of speech. Learners typed “waww” to indicate surprise or “hahaha” to denote laughter. Punctuation (22 times) and capitalisation (24) were used in similar ranges to convey stress, enhance meaning or describe one’s state of mind. For example, “what?????” or “RELIGION!!” were used to refer to the shock of one conversant who wanted to allow the other conversant to modify his utterance and verify his feedback. Learners utilised emoticons (15 times) as an alternative strategy, probably to compensate for a lack of non-linguistic features of speech. The duplication of the last letter (“byeeee”, “vivvvvvvaa”, and “bingoooo”) in an attempt to convey stress, or intonation is an additional interactional strategy produced by learners.

Referring back to LI (code-switching) was widely used, 24 Arabic words were used when learners were unable to deal with the topic in L2. This has a positive and negative effect; positive because it helped learners overcome their communication breakdown, and negative because the other conversant was found to have re-produced this LI use in his subsequent output. If learners had not shared an LI they would have had to carry out a meaning negotiation routine. This concern confirms the results of two previous CACD studies carried out by Pellettieri (2000) and Blake (2000) who claimed that CACD users produce only a minimal number of non-target-like utterances in their output because of the effect of an earlier use of these utterances by their peers who share the same LI. The following unedited chat transcript illustrates this point:

- HM: woman driving must not cover face and this haram  
Ag: wait ..it is halal to to drive and for ur n4mation not all women now cover their face, is this haram?

\*(Haram means forbidden “opposite of Halal which means permissible”)

## 6. Conclusion

### 6.1 *Research questions and Hypothesis*

CACD participants gradually developed a degree of interactive competence demonstrating that CACD can be used to stimulate online interactive classroom discussion leading to linguistic competence. Using CACD, participants had to communicate and interact; they exchanged a larger number of relatively short, meaningful and communicative utterances as compared with their output in oral EFL classrooms at MCT. This increase in language production can be correlated with the absence of the para-linguistic and non-paralinguistic features of speech. The study found that participants satisfactorily met the conditions of an effective communicative interaction (stated earlier in section 2.1.1) in running reciprocal exchanges of information; a number of strategies were used to reach a shared goal and convey meaningful messages.

CACD has an equalising effect on participation since there was an equal language production from the students. The more learners participate, the more facilitative conditions are made possible for a successful SLA to take place. Throughout this equal participation, MCT students needed to engage in communication, which forced them to exchange relatively short, communicative and meaningful utterances. They produced a modified output as an appropriate feedback to a comprehensible input produced by their peers. Feedback was sometimes used for meaning negotiation when overcoming communication breakdowns and participants were able to monitor their own chat, making them more attentive to the language being produced, although only minimal self-corrections were made, implying that the increase in the language was at the expense of grammatical accuracy (Kern, 1995).

Since the first question is extremely broad and cannot be realistically addressed in this particular study, the treatment was problematic due to its open-ended nature. However, the discussion above confirms the first hypothesis, that SLA is enhanced by generating and fostering communicative interaction in MCT given the cultural and structural issues described earlier in this study. The second question, 'Do students carry out any meaning negotiations?', is still ambiguous, since only a handful of occurrences of meaning negotiations took place (8 negotiations - one tenth of the whole chat). However, although a modest number, it does indicate that CACD can induce more occurrences of meaning negotiation in Saudi EFL classes. Interactional modifications (the third research question), were employed variously and frequently by the participants. The most used strategies were statements and questions and answers to peers, possibly reflecting the effectiveness of the participants' communicative interaction. A number of strategies used were unique to the current research enquiry, such as punctuation, emoticons, hedging, onomatopoeia and code-switching.

### 6.2 *Limitations of the study*

The findings of this study are limited because, a) there were only four dyads of eight Saudi students doing three specific tasks (12 CACD sessions), therefore, generalisations must remain tentative; b) there was no control group of oral classroom students so results and findings may be less reliable and accurate; c) measurements of the subject's levels of English

mastery were based on their classroom teacher's opinion. This study did not investigate the participants' attitudes and reaction toward their CACD experience, and as Chapelle (2004, p. 599) claims, "...any discussion of technology in second language research would not be complete without an inclusion of personal performance data that reveal personal attributes". However, a major concern with this study is that it attributes the improvements in the learners' communication, interaction and negotiation in English to the use of SCMC. Arguably the most prominent factors driving these changes could have been the introduction of CLT, meaning-based activities and task-based activities. At times, the differences between meaning negotiation, communication strategies and interactional moves is a little confused so future study is strongly recommended to consider these three concepts in greater depth, together with how they can be observed and measured in discussion. Speech and writing can now be so varied that they increasingly seem to share characteristics due to the fact that technology facilitates such great variety. If we bear in mind that chat is caught and slowed down speech (Beauvois, 1992), then a useful question to consider is whether CACD discourse is similar to traditional F2F discussion or more conventional to written communication.

Future research should avoid the above limitations; it should also consider the role of CACD in linguistic complexities (syntactic and semantic) and its effect on communicative interaction. It is recommended that future research should use a chat programme that shows the time of each message, such as *Skyp* or *ICQ*, so as to better understand the nature of the interactive CACD discussion. It would also be useful for researchers to further investigate how interactive competence might be transferred to the linguistic competence of students; their oral proficiency and writing skills.

### **6.3 Contribution of the current study to the literature of CACD**

The findings of this study have implications for teachers who aim to use CACD as a new means of interaction in EFL classrooms. They highlight the crucial role of the instructor or teacher as a facilitator but not a participant in the chat; also that tasks should be pictorial, goal-oriented, have a two-way exchange of information, be well pre-structured and have a variety of outcomes so that learners are forced to engage in communicative interaction. As for MCT, CACD should not replace traditional classes but be wisely incorporated into the existing courses. How we might go about this incorporation is an issue that is not discussed in this study. Moreover, no other studies have asked these same research questions and participants of most other studies have been Spanish, Korean or Japanese native students.

Overall, despite all the weaknesses outlined above, the researcher sincerely hopes that this is a relevant contribution to the field of media-assisted second language instruction and further research will be carried out to explore the use of this technology in different contexts, and to disseminate the findings within the international ELT community. Finally, it is axiomatic that this study cannot provide an account of all aspects of CACD as a facilitator of communicative interaction. It should be seen as inductive rather than definitive. Further research of greater depth and from different perspectives is required.

## Acknowledgement

I would like to thank the two anonymous reviewers for their valuable comments on an earlier version of this paper.

## 7. References

- Beatty, K. (2003). *Teaching and Researching Computer-Assisted Language Learning*. London: Longman.
- Beauvois, M. (1992). Computer-assisted classroom discussion in the foreign language classroom: Conversation in slow motion. *Foreign Language Annals*, 25(5), 455-464.
- Beauvois, M., & Eledge, J. (1996). Personality types and megabytes: Student attitudes toward computer-mediated communication (CMC) in the language classroom. *CALICO Journal*, 13, 27-45.
- Beauvois, M. H. (1997). Computer-Mediated Communication (CMC): technology for improving speaking and writing. In Bush, M.D. & Terry, R.M. (Eds.), *Technology-Enhanced Language Learning* (pp. 165-184). Lincolnwood, IL: National Textbook Company.
- Beauvois, M. H. (1998). E-talk: Computer-assisted classroom discussion – Attitudes and motivation. In Swaffar, j., Romano, S., Markley, p., and Arens, k. (Eds.), *Language Learning Online: theory and practice in the ESL and L2 computer classroom* (pp. 99-120). Austin, TX: Labyrinth Publications.
- Blake, R. (2000). Computer mediated communication: A window on L2 Spanish interlanguage. *Language Learning & Technology*, 4(1), 120-136.
- Blocher, M. (2005). Increasing learner interaction: using jigsaw online. *Educational Media International*, 42(3), 269-278.
- Bump, J. (1990). Radical changes in class discussion using networked computers. *Computer and the Humanities*, 2, 49-65.
- Chapelle, C. (2004). Technology and second language learning: expanding methods and agendas. *System*, 32(4), 593-601.
- Cheon, H. (2003). The viability of computer mediated communication in the Korean secondary EFL classroom. *Asian EFL Journal*, 5(1). Retrieved May 31, 2007 from <http://www.asian-efl-journal.com/march03.sub2.php>
- Chun, D. M. (1998). Using computer-assisted class discussions to facilitate the acquisition of interactive competence. In J. Swaffar, S. Romano, P. Markley, & K. Arens (Eds.), *Language learning online: Theory and practice in the ESL and L2 computer classroom* (pp. 57-80). Austin, TX: Labyrinth Publications.
- Crystal, D. (2001). *Language and the Internet*. Cambridge: Cambridge University Press.
- Davis, B., & Brewer, J. (1997). *Electronic discourse: Linguistic individuals in virtual space*. New York: SUNY.
- Dow, A., & Ryan, J. (1987). Preparing the language student for professional interaction. In W.M. Rivers (Ed.), *Interactive language teaching* (pp. 194-210). Cambridge: Cambridge University.

- Dwyer, N. (2005). *Computer-assisted class discussion and second language learning: An investigation into the role of negative feedback*. Unpublished Master's thesis, University of Brighton, 2005.
- Ellis, R. (1994). *The study of second language acquisition*. Oxford: Oxford University Press.
- Ellis, R. (1997). *SLA research and language teaching*. Oxford: Oxford University Press.
- Ellis, R. (2001). Non-reciprocal tasks, comprehension and second language acquisition. In M. Bygate, P. Skehan & M. Swain (Eds.), *Researching pedagogic tasks, second language learning, teaching, testing* (pp. 49-74). Harlow, England: Pearson.
- Gass, S. (1997). *Input, interaction, and the second language learner*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Hutchby, I. (2001). *Conversation and technology*. Cambridge: Polity Press.
- Kelm, R. (1992). The use of synchronous computer networks in second language instruction: a preliminary report. *Foreign Language Annals*, 25(5), 441-454.
- Kern, R. (1995). Restructuring classroom interaction with networked computers: effects on quantity and characteristics of language production. *Modern Language Journal*, 79, 457-476.
- Kitade, K. (2000). L2 learners' discourse and SLA theories in CMC: Collaborative interaction in Internet chat. *Computer Assisted Language Learning*, 13(2), 143-166.
- Kitade, K. (2005). *Interactional features of asynchronous computer-mediated communication for language learning: from cognitive and sociocultural perspectives*. (Doctoral dissertation, University of Hawaii, 2005) ProQuest Digital Dissertation, AAT 3198364.
- Kost, C. (2004). *An investigation of the effects of synchronous computer-mediated communication (CMC) on interlanguage development in beginning language of German: accuracy, proficiency and communication strategies*. Doctoral dissertation, The University of Arizona, 2004, ProQuest Digital Dissertation, AAT 3131612.
- Kramsch, C. (1987). Interactive discourse in small and large group. In W.M. Rivers (Ed.), *Interactive language teaching* (pp. 17-30). Cambridge: Cambridge University Press.
- Kumpulainen, K., & Wray, D. (2002). *Classroom interaction and social learning: From theory to practice*. London: Routledge Falmer.
- Lee, L. (2002). Synchronous online exchanges: a study of modification devices on non-native discourse. *System*, 30, 275-288.
- Levy, M. (1997). *Computer-assisted language learning: Context and conceptualization*. Oxford: Pergamon Press.
- Long, M.H. (1996). The role of linguistic environment in second language acquisition. In W.C. Richie & T.K. Bhatia (Eds.), *Handbook of research on language acquisition* (pp. 413-468). New York: Academic Press.
- Murray, D. (2000). Protean communication: The language of computer-mediated communication. *TESOL Quarterly*, 34(3), 397-421.
- Nunan, D. (1993). *Introducing discourse analysis*. London: Penguin.
- Ortega, L. (1997). Process and outcomes in networked classroom interaction: defining the research agenda for L2 computer assisted classroom discussion. *Language Learning & Technology*, 1(1), 82-93.

- Pellettieri, J. (2000). Negotiation in cyberspace: The role of chatting in the development of grammatical competence. In M. Warschauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice* (pp. 59-86). Cambridge: Cambridge University Press.
- Peyton, J. (1999). Theory and research: interaction via computers. In J. Egbert & E. Hanson-Smith (Eds.), *CALL Environments: Research, Practice, and Critical Issues* (pp. 17-26). Alexandria, Virginia: TESOL.
- Pica, T., Young, R., & Doughty, C. (1987). The impact of interaction on comprehension. *TESOL Quarterly*, 21(4), 737-758.
- Pica, T. (1994). Research on negotiation: What does it reveal about second-language learning conditions, processes, and outcomes? *Language Learning*, 44, 493-527.
- Pyun, O. (2003). *Effects of networked language learning: A comparison between synchronous online discussions and face-to-face discussions*. Doctoral dissertation, Ohio State University, 2003. Retrieved June 06, 2007 from <http://www.ohiolink.edu/etd/send-pdf.cgi?osu1047498590>
- Rivers, W.M. (1987). *Interactive language teaching*. Cambridge: Cambridge University Press.
- Ross-Feldman, L. (2005). *Task-based interaction between second language learners: exploring the role of gender*. Doctoral dissertation, Georgetown University, 2005, ProQuest Digital Dissertation, AAT 3193310.
- Salaberry, M. (2000). L2 morphosyntactic development in text-based computer-mediated communication. *Computer Assisted Language Learning*, 13(1), 5-27.
- Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11, 129-158.
- Smith, B. (2001). *Taking students to task: task-based computer mediated communication and negotiated interaction in the ESL classrooms*. Doctoral dissertation, The University of Arizona, 2001, ProQuest Digital Dissertation, AAT 3031417.
- Smith, B. (2003). Computer-mediated negotiation interaction: An expanded model. *The Modern Language Journal*, 87(1), 38-57.
- Smith, B. (2004). Computer-mediated negotiated interaction and lexical acquisition. *Studies in Second Language Acquisition*, 26, 365-398.
- Smith, B., Alvarez-Torres, M., & Zhao, Y. (2003). Features of CMC technologies and their impact on language learners' online interaction. *System*, 19, 703-729.
- Smith, B., & Gorsuch, G. (2004). Synchronous computer mediated communication captured by usability lab technologies: new interpretations. *System*, 32, 553-575.
- Sotillo, S. (2000). Discourse functions and syntactic complexity in synchronous and asynchronous communication. *Language Learning & Technology*, 4(1), 82-119.
- Stenström, A. (1994). *An introduction to spoken interaction*. New York: Longman.
- Stevens, V. (2000). Developing a community in online language learning. In Z. Syed & D. Heuring (Eds.), *Tools of the trade: Teaching EFL in the Gulf* (pp. 85-101). Abu Dhabi: Military Language Institute.
- Srijbos, J., Martens, R., & Jochems, W. (2004). Designing for interaction: Six steps to designing computer-supported group-based learning. *Computers and Education*, 42(1), 403-424.

- Sullivan, N. (1998). Developing critical reading and writing skills: Empowering minority students in a network computer classroom. In J. Swaffar, S. Romano, P. Markley, & K. Arens (Eds.), *Language learning online: Theory and practice in the ESL and L2 computer classroom* (pp. 41-65). Austin, TX: Labyrinth Publications.
- Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In C. Madden & S. Gass (Eds.), *Input in second language acquisition* (pp. 235-253). Rowley, MA: Newbury House.
- Swain, M. (1993). The output hypothesis: Just speaking and writing aren't enough. *The Canadian Modern Language Review*, 50, 158-164.
- Toyoda, E., & Harrison, R. (2002). Categorization of text chat communication between learners and native speakers of Japanese. *Language Learning & Technology*, 6(1), 82-99.
- Ur, P. (2005). *Grammar practice activities: A practical guide for teachers*. Cambridge: Cambridge University Press.
- Varonis, E., & Gass, S. (1985). Non-native / non-native conversations: A model for negotiation of meaning. *Applied Linguistics*, 6, 71-90.
- Warschauer, M. (1996). Comparing face-to-face and electronic discussion in the second language. *CALICO Journal*, 13, 7-26.
- Warschauer, M., Turbee, L., & Roberts, B. (1996). Computer learning networks and student empowerment. *System*, 24(1), 1-14.
- Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal*, 81(4), 470-481.
- Yates, S. (1996). Computer-mediated English: Sociolinguistic aspects of computer-mediated communication. In J. Maybin & N. Mercer (Eds.), *Using English: From conversation to canon* (pp. 76-83). London: Routledge.

### **Biodata:**

Basim H. Alahmadi obtained his Master of Arts in Media-Assisted Language Teaching (MALT) from The University of Brighton, UK in 2006. He has been working as an EFL teacher in Madinah college of Technology since 1999. Currently, he is a PhD student in Learning Technologies, Faculty of Education, Taibah University, Saudi Arabia.

## Appendix A

### Task 1 (Spot the difference):

Without seeing your friends' picture, can you work collaboratively to spot eight differences between your pictures? You will both need to exchange information about your pictures in order to do the task

Picture 2A



Picture 2B

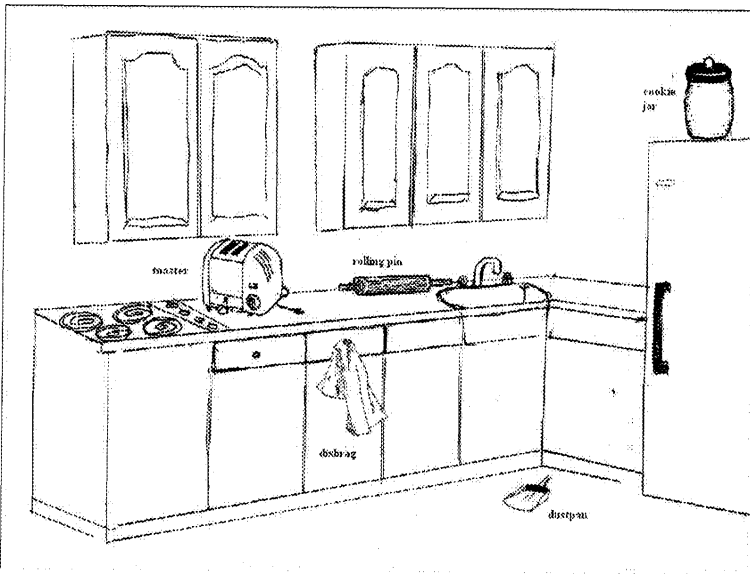


## Appendix B

### Task (2) Picture placement

#### Instructions

You and your partner each have a picture of the same kitchen with some kitchen items in it. The names of half of the items are in your kitchen and the other half of the names are in your partner's kitchen. **DO NOT LOOK AT YOUR PARTNER'S PICTURE!** You want to make your pictures look the same. You need to learn where the items are in your partner's kitchen so that you can put them in the correct place in your kitchen. For example, you do not know where the mixing bowls go. Your partner knows that the mixing bowls go on the counter, between the sink and the refrigerator.



## Appendix C

### An illustration of frequencies of interaction moves

