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Communication strategies in problem-free synchronous and asynchronous computer-mediated communication (CMC): an Egyptian EFL university context

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The American University in Cairo

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Communication Strategies in Problem-free Synchronous and Asynchronous Computer-mediated Communication (CMC): An Egyptian EFL University Context

A Thesis Submitted to

The Teaching of English as a Foreign Language Department

The English Language Institute

In partial fulfillment of the requirements for

the degree of Master of Arts

by

Hanaa Mohamed Khamis Mohamed Abdel Rahman

September 2008

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To those who believed I could do it at times when I myself didn't.

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ABSTRACT

This study investigated four communication strategies in problem-free synchronous and asynchronous CMC interactions among 15 advanced Egyptian students in an EFL university context. The data yielded a statistically significant difference in the use of topic continuation and off-task discussion at higher levels than forward inferencing and hypothesis testing in synchronous CMC. Differences among some groups were also observed showing variation in communication strategy use. The results failed to support similar findings in asynchronous CMC. However, the data implied several considerations closely related to low interactivity in asynchronous CMC. The findings suggest that some communication strategies may lend themselves to a certain mode of interaction more than others, considering intra/interpersonal factors. The study concludes that it is necessary to conduct further research on how interactivity relates to other factors. Most significantly, emphasis is placed on exploring nonnative interactions with a focus on communicative successes, despite the learners' linguistic and communicative limitations.

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LIST OF ABBREVIATIONS

ACMC	Asynchronous computer-mediated communication
AUC	American University in Cairo
CALL	Computer-assisted language learning
CMC	Computer-mediated communication
EFL	English as a foreign language
ELI	English Language Institute
ESL	English as a second language
FTF	Face-to-face
L1	Native language
L2	Second/foreign language
MOO	Multi-User Domain, Object Oriented (*also known as MUD*)
MS Excel	Microsoft Excel
MS Word	Microsoft Word
NBLT	Network-based language teaching
NNS	Nonnative speaker
NS	Native speaker
SCMC	Synchronous computer-mediated communication
SLA	Second Language Acquisition
SPSS	Statistical Package for Social Sciences
TEFL	Teaching English as a Foreign Language
TESOL	Teaching English to Speakers of Other Languages
WebCT	Web Course Tool

LIST OF ABBREVIATIONS

ACMC	Asynchronous computer-mediated communication
ACTFL	American Council on the Teaching of Foreign Languages
AUC	American University in Cairo
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CHAPTER 1: INTRODUCTION

Recent Second Language Acquisition (SLA) research trends reflect a sociocultural interactionist paradigm shift. For example, many studies on second language use investigate higher levels of communicative competence: discourse, functional, sociolinguistic, and strategic competence (Brown, 1994). Task-based learning is used to enhance communicative effectiveness, rather than just language acquisition (Ellis, 2000). The promotion of agency, or the ability to take meaningful and powerful actions and test the results, is replacing focus on just fluency and accuracy (Kern, Ware, & Warschauer, 2004). Bringing authentic language and culture to the classroom has become a necessity. Creating contexts in which learners receive comprehensible input so that they can produce comprehensible output is now seen as indispensable (Kern & Warschauer, 2000). Constructs are perceived in interactionist terms that define the constructs under study, contexts, and relationships among interlocutors (Chapelle, 1998). Among these paradigm shifts in SLA, one of the most significant innovations in language learning and teaching has emerged: Computer-assisted language learning (CALL) (Kern & Warschauer, 2000, p. 13). Recently, CALL research has taken a sociocultural interactionist turn toward enhancing communicative effectiveness in learner interactions.

1.1 Background

In parallel with the evolution of second language learning theories, CALL has undergone three main stages of development across which the computer has played various roles (Kern & Warschauer, 2000, p. 13). Early CALL applications reflect behaviorist structural perspectives in which learners interact with computers and learn individually through drilling and repetition. A more cognitive constructivist view of learning is seen in later CALL applications that involve learners in higher-order problem-solving interactions with computers, such as games and simulations. The most recent stage of evolution, network-based CALL, reflects a sociocultural interactionist shift where learners interact with each other through computers (Kern & Warschauer, 2000). Unlike pre-network CALL, network-based CALL provides richer learner interactions (Chapelle, 2000).

Network-based language teaching (NBLT) facilitates access to hyperlinked texts and other people through local or global computer networks. NBLT is a complex process of increasing participation in new discourse communities, rather than just a particular technique, method, or approach (Kern & Warschauer, 2000). In NBLT, computers mediate human-human communication, promoting interactive communicative language use through task-based learning. Thus, computer-mediated communication (CMC) has become the core of recent network-based CALL research (Abrams, 2003; Chun, 1994; Kitade, 2006; Savignon & Roithmeier, 2004; Schwienhorst, 2004; Smith, 2003b; Sotillo, 2000; Vandergriff, 2006).

The term CMC emphasizes the role of computers in mediating interaction in NBLT. It was first introduced by Hilz and Turoff in 1978 to denote computer conferencing (Lengel, 2004). It is now used to refer to all synchronous (real-time) and asynchronous (delayed time) electronic communication modes in which

interlocutors can type and send texts to each other (Fotos & Browne, 2004). Primitive forms of CMC first appeared in the 1960s, and its use became widespread in the late 1980s (Kern & Warschauer, 2000). According to Lengel (2004), early attempts to identify main topics of investigation in the 1980s are actually considered the classic foundation of CMC research (Daft & Lengel, 1986; Hesse, Werner & Altman, 1988; Hiltz & Turoff, 1986). The mid-1990s witnessed the growing popularity of the internet as a medium for communication, along with an increase in scholarly attention to CMC (Lengel, 2004).

Synchronous and asynchronous modes are the two basic types of CMC. Synchronous CMC (SCMC) is instantaneous, where people send and receive immediate messages in real-time. Asynchronous CMC (ACMC) refers to electronic communications that are read some time after they have been written, in delayed time (Fotos & Browne, 2004). Examples of synchronous CMC are written and oral Internet Relay Chat (IRC), videoconferencing, instant messaging, and Multi-User Domain, Object Oriented (MOOs)—also known as object-oriented Multi-User Domain (MUDs). Email, web-based discussion boards, and mailing lists are examples of asynchronous CMC (Fotos & Browne, 2004).

1.2 Trends in Network-based Language Teaching (NBLT) Research

Early studies in the mid-1990s, the first decade of NBLT research, essentially explored online learner interactions. Many studies aimed at counting and categorizing easily identifiable and quantifiable linguistic features, such as grammar and vocabulary (Kern et al., 2004). Accounting for how learners negotiate meaning in online vs. spoken interactions was not commonly considered at the time. Later studies attempted to investigate complex interrelationships among specific language outcomes, synchronous and asynchronous online tools, and underlying purposes of communication in various task types (Kern et al., 2004).

There seem to be several characteristic features in recent NBLT research. Generally, there is a shift away from sheer quantitative studies of CMC discourse toward more sophisticated analyses involving both quantitative and qualitative measures (Kern et al., 2004). Many recent NBLT studies adopt mixed experimental designs and discourse analysis techniques including heavy qualitative accounts at times (Kitade, 2006; Sykes, 2005; Vandergriff, 2006).

Additionally, many NBLT researchers advocate already existing models employed in analyzing face-to-face interactions. For example, the meaning negotiation model suggested by Varonis and Gass (1985) is one of the most widely used in NBLT literature. Adapting this framework, Smith (2003a) introduced a model for meaning negotiation in synchronous CMC. A more recent model, which is not yet commonly recognized, is the listening comprehension model put forward by Clark and Brennan as part of their common grounding theory (1991). It should be noted though that as a recent field of investigation, NBLT research still lacks consistency in discourse analysis approaches, in terms of methodologies, typologies, categories, and units of analysis.

Synchronous CMC is receiving more attention in current NBLT research (Kern et al., 2004). There is an increasing number of recent studies exploring synchronous CMC modes of interaction (Blake, 2000; Fernandez-Garcia & Martinez-Arbelaiz, 2002; Fiori, 2005; Kitade, 2000; Pellettieri, 2000; Schwienhorst, 2002; Schwienhorst, 2004; Smith, 2003a; Smith, 2003b; Smith, 2005; Smith & Gorsuch, 2004; Sotillo, 2005; Sykes, 2005; Vandergriff, 2006). This shift can be ascribed to the strong resemblance of synchronous CMC to face-to-face interaction. In addition, findings provide evidence on the potential transferability of linguistic and communicative competence between both modes (Chun, 1994).

Still, there are a number of recent studies examining the discourse of asynchronous CMC (Biesenbach-Lucas, 2005; Biesenbach-Lucas & Weasenforth, 2001; Davis & Thiede, 2000; Kitade, 2006; Savignon & Roithmeier, 2004; Schulz, 2000; Ware, 2005). There are studies that compare and contrast various modalities, e.g. face-to-face vs. CMC interactions (Vandergriff, 2006), and written vs. oral chat (Jepson, 2005). However, research comparing the discourse of synchronous vs. asynchronous CMC is scarce (Abrams, 2003; Sotillo, 2000).

Reflecting recent sociocultural interactionist NBLT research trends, the present study explored four communication strategies (hypothesis testing, forward inferencing, topic continuation, and off-task discussion) in written chat (a synchronous CMC mode) and threaded discussion (an asynchronous CMC mode). These two modes are among the most commonly recognized CMC medium types. The study aimed at describing the effective use of communication strategies in CMC task-based interactions in an Egyptian EFL university setting. It specifically identified the most frequent communication strategies under study, in addition to some of the potential reasons for variation in communication strategy use.

1.3   Statement of the Problem

In recent SLA studies, the investigation of discrete linguistic items is giving way to more complex levels of communicative competence. SLA research on second language use is concerned with the study of interaction, speech acts, and communication strategies (Gass & Selinker, 2001, p. 240). Notions such as collaboration, task-based interaction, creative problem-solving and experiential learning are common in NBLT literature probing the same grounds. Adopting task-based pedagogy (Ellis, 2000), NBLT studies explore metalinguistic features that enhance language acquisition as well as communicative effectiveness. Special emphasis has been recently placed on communicative effectiveness in online

interaction where a focus on accuracy is oftentimes superfluous. CMC output can be erroneous due to factors such as typing errors, fatigue, and unmonitored production, among others. It should be noted that problematic interactions have been heavily investigated in SLA and NBLT studies. Thus, much of NBLT research is dedicated to the study of nonnative negotiated interaction in which there are instances of communication breakdown. In contrast, nonnative problem-free interactions have not been given the same attention (Firth & Wagner, 1997, p. 295; Smith, 2003b, p. 31). Among the under-investigated areas in the literature is the study of communication strategies in problem-free CMC interactions.

Since it is a new field, a well-established NBLT approach is still lacking. This lack of a principled approach has resulted in non-standardized classroom practices. CMC is haphazardly used in L2 contexts, especially in Egyptian EFL classrooms where network-based CALL was only introduced in the late 1990s. Unlike the impoverished interactions of pre-network CALL, NBLT has contributed to the evolution of CALL with its focus on interactive communicative language use (Chapelle, 2000), comprehensible input/output (Long, 1983), meaning negotiation (Varonis & Gass, 1985), and task-based interaction (Ellis, 2000). However, studies provide conflicting findings on the effectiveness of NBLT techniques in enhancing communicative competence.

Research on higher levels of communicative competence, such as communication strategies in learner interactions, is insufficient. Being ill-defined, these metalinguistic features are hard to quantify and qualify (Smith, 2003b). Adopting the interactionist definitions of these constructs involves defining their contexts and interrelationships among interlocutors (Chapelle, 1998). However, the overlap and subjectivity in defining such metalinguistic features across studies has hindered reaching generalizable results (Smith, 2003b).

With the under-investigation of problem-free interaction, the study of communication strategies has been confined to the analysis of nonnative problematic output. This lack of attention goes back to a deep-rooted interest in the field of SLA to investigate nonnative errors, highlighting L2 learners' linguistic and communicative inadequacies (Firth & Wagner, 1997). With the evolution of SLA approaches, problematicity, as a principle, has been found to be inadequate when defining metalinguistic features such as communication strategies, since erroneous and non-erroneous interactions are alike in many respects (Gass & Selinker, 2001, 242). Some communication strategies researchers have discredited problematicity against the mainstream supporting it as a main defining element (Kasper & Kellerman, 1997; Raupach, 1983). At the same time, the study of communication strategies in the problem-free sense has been given little attention in SLA and NBLT research (Smith, 2003b). Thus, a great deal of communication strategy use in nonnative problem-free interactions remains unaccounted for.

In sum, there is a gap in NBLT research illustrated by non-standardized NBLT practices, the difficulty in identifying higher levels of communicative competence and the under-investigation of nonnative problem-free interactions. NBLT studies provide promising findings on the benefits of CMC in providing a rich environment for learner interaction. However, due to a number of confounding variables, it is unclear how various CMC modes can be beneficial in enhancing communicative effectiveness in L2 contexts. Thus, the study of communication strategy use in problem-free CMC interactions is seen as an essential step toward best practices in NBLT, from an Egyptian EFL perspective.

1.4 Purpose of the Study

Recent research supports the benefits of various modalities in enhancing communicative effectiveness. However, a few studies have investigated communication strategies in online task-based interaction, in addition to studies examining their use in traditional spoken interaction. Few investigators have approached communication strategies in problem-free interactions, before the occurrence of communication breakdown. To help learners maintain understanding and cope with variations across different modes of communication, more research on efficient communication strategies in problem-free interactions is needed.

The purpose of the present study was to examine the frequency of four communication strategies and some of the possible reasons for variation in their use during problem-free task-based interactions in synchronous written chat and asynchronous threaded discussion. The strategies under study were hypothesis testing, forward inferencing, topic continuation, and off-task discussion. These strategies exemplified how pre-freshman Egyptian EFL university students could avoid problems and maintain common ground in problem-free CMC interactions. The four strategies were selected and defined for the purposes of this study, in light of previous research (see Definition of Terms). This investigation can be a starting point to further research that provides guiding principles for best practices in enhancing communicative effectiveness in an NBLT setting, from an Egyptian EFL perspective.

1.5   Research Questions

1. Of the selected communication strategies, which is/are the most frequent one(s) produced during problem-free task-based interactions in synchronous written chat?

2. Of the selected communication strategies, which is/are the most frequent one(s) produced during problem-free task-based interactions in asynchronous threaded discussion?

3. What are some of the possible reasons for variation in communication strategy use in each medium type?

1.6   Definition of Terms

Computer-assisted language learning (CALL). As reported by Chapelle (2001), early practitioners agreed upon the term CALL to refer to computers in language learning and teaching in the 1983 TESOL conference. The term denotes the search for and study of computer applications in instructional settings for language learning purposes (Fotos & Browne, 2004). This study explored task-based interactions in network-based CALL, also known as network-based language teaching (NBLT) (Kern et al., 2004).

Computer-mediated communication (CMC). First coined by Hilz and Turoff in 1978, this term denotes computer conferencing. It is now used to refer to all electronic communications where interlocutors type and send messages to each other, e.g. email, bulletin boards, IRCs, MUDs, and usenets (Fotos & Browne, 2004). This study investigated the use of four communication strategies in CMC interactions.

CMC interactions. These are two- or multi-way interpersonal exchanges involving humans in computer-mediated activities in real-time and/or delayed time (based on Ellis' 1999 definition of face-to-face interaction). In this study, CMC interactions were studied by analyzing electronically archived scripts of written chat and threaded discussion.

Synchronous CMC (see *Internet relay chat*)**.** It denotes instantaneous interactions in CMC where people send and receive immediate messages in real-time (Fotos & Browne, 2004). In this study, *written chat*, a popular synchronous CMC mode, was used to accommodate task-based interactions in 30 minutes.

Internet relay chat (IRC). This is a type of synchronous CMC. It is an electronic chat system that allows anyone with internet access at any place to send and receive instantaneous messages in real-time. Text-based, or written, chat is the most commonly used so far (Fotos & Browne, 2004). Oral chat is a more recent breakthrough of IRC that is not as popular as written chat.

Asynchronous CMC (see *Threaded discussion*). It refers to electronic communications that are read some time after they have been written in delayed time (Fotos & Browne, 2004). In this study, threaded discussion, a popular asynchronous CMC mode, was used to accommodate task-based interactions over one day.

Threaded discussion (also known as discussion board or bulletin board). This is a type of asynchronous CMC. It is a web-based facility where everyone can post and exchange information with others in a bulletin-board fashion in delayed time. Discussions normally develop into threads where there are replies to an initial posting on a given topic (Fotos & Browne, 2004).

Interlocutors. These are two or more participants in a communicative activity, e.g. speaker(s)/listener(s), or writer(s)/reader(s). In CMC environments, participant

roles are hybrid—simultaneously combining one or more of the previously mentioned roles. In the present study, the participants, i.e. interlocutors, were randomly assigned to groups of three or four during task completion.

Decision-making tasks. These are tasks in which interlocutors equally know all relevant facts, yet they do not necessarily have to reach one common solution (Pica, Holliday, Lewis, & Morgenthaler, 1989). In this study, a two-part decision-making task was used to trigger interaction among the interlocutors in written chat and threaded discussion.

Problem-free interactions. It refers to exchanges that are free from instances of communication breakdown where interlocutors deviate from the mainline of interaction to iron out problems in understanding through meaning negotiation (Firth & Wagner, 1997; Smith, 2003b). This study focused on task-based interactions in problem-free CMC discourse where there was no communication breakdown. It is noteworthy that, in this study, interactions were considered problem-free, even if they had linguistic problems, as long as the interlocutors provided positive evidence of understanding.

Communication strategies. For the purposes of this study, communication strategies were defined as moves taken by the interlocutors to help facilitate the co-construction of meaning as well as avoid potential communication breakdown in problem-free interactions (Smith, 2003b). The four communication strategies under study were hypothesis testing, forward inferencing, topic continuation, and off-task discussion. In this study, the strategies were identified based on a tailored typology (see Table 1 for baseline definitions and examples).

Typology of Communication Strategies

As explained in further detail in Chapter 2, terms referring to more or less the same construct seem to overlap. Going back to related SLA and NBLT literature, the

umbrella term communication strategies seemed to be the most appropriate to refer to the four strategies under study.

Table 1

Typology of Communication Strategies: Baseline Definitions and Examples[1]

Strategy	Definition	Examples[1]
1. Hypothesis testing <HT>	Interlocutor asks questions or makes comments about the previous discourse to test his/her own understanding (Rost & Ross, 1991; Smith, 2003b; Vandergriff, 2006; Vandergrift, 1997)	ACMC <<I've been reading your suggestions about, as far as I can put it into words, how to create "a community of practice" among our online students.>>
2. Forward inferencing <FI>	Interlocutor explicitly indicates his/her own understanding of the previous discourse by asking questions based on established information (Rost & Ross, 1991; Smith, 2003b; Vandergriff, 2006; Vandergrift, 1997)	ACMC <<Assuming I'm all set on which skill(s) that will be taught and have my set of objectives, where should I go from there?>>
3. Topic continuation <TC>	Interlocutor uses promoters to prompt the continuation of the discussion or hand the floor to the others (Chun, 1994; Smith, 2003b; Sotillo, 2000; Vandergriff, 2006; Vandergrift, 1997)	ACMC <<Can't wait for hear your feedback…>> <<This is what I personally think, what about you guys?>> <<What do you think?>> <<Many questions … any answers?>> <<If there is a problem, do get back to me>>
4. Off-task discussion <OTD>	Interlocutor makes a personal comment about issues that do not directly relate to the final outcome of the task but can add a personal dimension to the discussion (humor, praise, sympathy, thanks, wishes) (Smith, 2003b; Sotillo, 2000)	ACMC <<Let's be serious and get down to business right away:)>> <<Can't we mix serious stuff with fun:)>> <<It's nice to c u here!>> <<This is turning out to be real interactive and fun too:-)>> <<Hope this helps for now…>>

[1] Thanks are due to Dr. Robert Williams for granting permission to use these examples.

The approach to communication strategies in this study was along the lines of two previous NBLT studies: Smith (2003b) and Vandergriff (2006). Smith (2003b) examined a set of 26 communication strategies in online problem-free interactions. Vandergriff (2006) investigated a set of four reception strategies across spoken and online interaction. These strategies were a subset of an adapted typology by Vandergrift (1997) based on Rost & Ross (1991).Vandergrift's (1997) investigated categories were termed as reception strategies, a subcategory of communication strategies for listening comprehension.

The typology tailored for the present study advocated an interactionist approach to communication strategies where categories can be adapted and defined for particular study purposes (see Chapter 2 for details). The four categories selected to represent problem-free interactions were adapted from the above studies. Several criteria for selection were considered. First, the strategies illustrated communication strategies used among learners of higher language proficiency (Rost & Ross, 1991). Second, the strategies reflected moves used to explicitly signal understanding or forward communication. Third, the selected strategies seemed to exist in both CMC modes, unlike other strategies that can be restricted to one mode only. Thus, based on the researcher's observation of CMC interactions, the selected strategies appeared to exemplify communication strategies in two relatively different modes: synchronous and asynchronous CMC.

Following similar NBLT research, the categories and their definitions were slightly modified for the purposes of the present study. Two categories were used across all of the above studies, viz. hypothesis testing and forward inferencing (Rost & Ross, 1991; Smith, 2003b; Vandergriff, 2006; Vandergrift, 1997). Topic continuation was used in three of the above studies, under the name of continuation signals (Rost & Ross, 1991; Smith, 2003b; Vandergrift, 1997). Off-task discussion

was used by Smith (2003b), who termed it meta-talk. It should be noted that the last two categories were mentioned across other NBLT studies under other umbrella terms, such as discourse strategies (Sotillo, 2000) (see Chapter 2 for details).

1.7 Delimitations

The present study did not focus on communication strategies in problematic learner interactions. In other words, it did not scrutinize instances of communication breakdown and utter misunderstanding, in which the interlocutor(s) provided evidence of non- or misunderstanding. However, these problematic instances were used as counterexamples for clarification. The study investigated the use of four communication strategies in problem-free CMC interactions, in two text-based CMC modes: synchronous written chat and asynchronous threaded discussion. It did not consider other synchronous modes, such as MOOs, oral chat, or instant messaging. Nor did it consider other asynchronous modes, such as email and mailing lists. This focus was based on a personal observation that written chat and threaded discussion are most commonly compared with face-to-face communication (Kitade, 2006, Schwienhorst, 2004, Vandergriff, 2006). In addition, it was based on an assumption that chat and threaded discussion are the two modes that most likely lend themselves to a classroom-like experience in virtual environments. Put another way, the former can create a voice in the class, and the latter can be shared by the entire class. A case in point is WebCT, a platform for online instruction which includes these two communication tools.

1.8 Importance of the Study

The present study is significant in theoretical and practical terms. Theoretically, it may contribute to the body of research on communication strategy use during problem-free interactions in network-based language teaching (NBLT). It also provided information on an under-investigated area, viz. the nature of task-based

CMC interactions among Egyptian EFL university learners. Practically, the study may help EFL instructors in Egyptian university contexts make informed decisions about using NBLT to enhance communicative effectiveness among learners. These decisions can be based on sound theoretical grounds and research findings, and not only personal biases.

1.9 End of Chapter Summary

This chapter provides an overview of current trends in NBLT research, pointing out some of the challenges in the field. It also highlights the significance of the current study in theory and practice. Finally, it indicates the necessity of examining higher levels of communicative competence, such as communication strategies, in various modes of interaction. It also suggests their potential in enhancing communicative effectiveness in L2 task-based interactions.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The present study aimed at investigating communicative effectiveness in L2 learner interactions across synchronous and asynchronous CMC modes. It set out to diagnose how nonnative learners manipulate their strategic competence during online task-based interaction. That is, it approached metacognitive strategies for assessing contexts, setting goals, constructing plans, and controlling the execution of plans toward task completion (Bachman & Cohen, 1998). It did this by examining communication strategy use during online task-based interactions in an Egyptian university-level EFL context.

The investigation of current network-based language teaching (NBLT) literature highlights many issues related to the study of communication strategies in nonnative problem-free CMC interactions. First, since it is a relatively recent field of study, NBLT lacks a well-established approach to its study in general. This lack of a principled NBLT approach has led to non-standardized classroom practices in which CMC can be randomly utilized, regardless of its pedagogical value in a particular situation. Second, pre-networked CALL and many NBLT studies, stemming from SLA research, mainly focus on the examination of discrete linguistic features, such as grammar and vocabulary. Higher levels of communicative competence, such as communication strategies, are under-investigated. Third, most existing SLA and early NBLT studies focus on nonnative problematic learner output. Few studies examine problem-free task-based interactions. As a result, the study of communication strategies has been investigated in its strictest sense in nonnative problematic interactions (Firth & Wagner, 1997). Therefore, more studies examining under-explored areas such as communication strategies in a broader sense are

necessary, in order to contribute to research on NBLT and metalinguistic features, especially in EFL contexts.

2.2 Chapter Overview

This chapter provides a review of state-of-the-art NBLT literature investigating learner strategy use during nonnative task-based interactions in CMC. Reflecting the scope of the present study, it reports on findings that support the potential impact of various modes of interaction on metalinguistic levels in general and communication strategies in particular.

To give a clearer picture of recent trends in NBLT research, the review is divided into three main sections: *NBLT connections to SLA principles*, *communication strategies in NBLT*, and *studies on CMC modes*. The first section, *NBLT connections to SLA principles*, is an overview of three core concepts in NBLT studies that can be traced back to previous SLA research on spoken interaction: *task-based interactions*, *negotiation of meaning*, and *communication strategies*.

The second section, *communication strategies in NBLT*, sheds light on the challenges related to the study of communication strategies. Challenges such as non-standardized categorization and restricted focus on problematicity have resulted in the under-investigation of communication strategies in nonnative problem-free interactions. This section includes three themes: *overlapping categories in NBLT research, communication strategies in problematic CMC interactions,* and *communication strategies in problem-free CMC interactions*. Illustrating the overlap in terminology, the first theme traces various categories that refer to communication strategies in NBLT studies. Highlighting the interrelationship between strategies used in nonnative problematic and problem-free CMC interactions, the second theme includes *trigger types* and *strategies in negotiated episodes*. The third theme outlines

NBLT literature in which the term 'communication strategies' is used in the problem-free sense intended in the present study.

Lastly, the third section, *studies on CMC modes*, highlights major findings in studies exploring various synchronous and asynchronous CMC medium types, as well as the potential impact of different modalities. This section is subdivided into: *studies on strategy use in synchronous CMC*, *studies on strategy use in asynchronous CMC*, and finally *studies on the impact of medium type*.

2.3 NBLT Connections to SLA Principles

The current investigation of communication strategies in problem-free task-based interactions raises several questions. First, how are interlocutors prompted to interact? Second, what kinds of interaction can possibly occur? Third, when do interlocutors actually resort to communication strategies? Answers to these questions go back to SLA literature, the foundation of current NBLT theory and practice.

2.3.1 Task-based Interactions

Along the lines of similar studies, the present study utilizes a two-part decision-making task to trigger learner interactions in CMC. Adopting task-based pedagogy (Ellis, 2000), most NBLT studies require participants to complete tasks in one or more mode(s) of interaction. The characteristics of tasks seem to affect the quantity and quality of interaction. Tasks should be goal-oriented with a few possible outcomes (Pellettieri, 2000). However, some findings imply the need for open-ended tasks in promoting interactions as well (Tudini, 2003). In addition, for successful task completion, interlocutors need to interact with one another over information beyond their repertoires (Pellettieri, 2000). In other words, interlocutors seem to reach better outcomes when the task is embedded with ideas and vocabulary that are relatively more challenging than their actual proficiency level.

Based on previous SLA research, a variety of task types are used across NBLT studies. It is noteworthy that the effect of task type in CMC is inconsistent with findings on spoken interaction. According to Pica, Kanagy and Falodun (1993), jigsaw tasks appear to be the most facilitative for SLA in face-to-face interactions. The least facilitative types are arguably opinion exchange tasks, in addition to information gap, problem-solving, and decision-making tasks. In contrast, the extent to which a given task type can be influential in online interactions is still uncertain. The reasons may possibly be due to variations in interaction types or communicative goals, in addition to the nature of CMC itself.

The effectiveness of various task types in CMC interactions is still debatable. Many studies examined meaning negotiation in problematic interactions. Findings by Blake (2000) on synchronous CMC and Kitade (2006) on asynchronous CMC give support to jigsaw tasks in promoting negotiation in CMC. These findings are consistent with previous studies on face-to-face interaction. Smith (2003a) provides counter-evidence supporting decision-making tasks for negotiation in synchronous CMC. Other studies explored learner interactions without necessarily focusing on problematic interactions. Consensus-building tasks were found to promote interactions in a study investigating strategy use in negotiating and maintaining common ground (Vandergriff, 2006).

Furthermore, NBLT research provides negative evidence on the significance of using different task types. Smith (2003b) failed to find any significant difference between jigsaw and decision-making tasks on the use of communication strategies in synchronous CMC. Likewise, Vandergriff (2006) did not find any statistically significant effect of two consensus-building tasks on the use of grounding strategies in both online and spoken interactions. Thus, there is no evidence thus far to support the significance of task types in CMC environments.

Further insights into the nature of task types indicate that there could be problems in consensus-building that can well be ascribed to the special nature of CMC in many respects, according to Walther (1996). First, due to restricted time periods in synchronous CMC, versus delayed time in asynchronous CMC, it could take longer to reach decisions online than in spoken interaction. Second, sometimes reaching agreement online is doomed to failure because of the lack of personal and social messages. Third, it is sometimes difficult to organize structured CMC discussions, which could result in off-task digressions or the total drop of discussion threads. Fourth, CMC can sometimes be too meager an environment to reach set goals, unless there are broader social dynamics at play. Walther's view is further augmented by recent findings reporting several factors that could lead to breakdowns due to the very nature of CMC. Some examples are the delayed response time, lack of social consequences for dropping a discussion thread or inactive participation, and preferred brevity over sustained attention (Ware, 2003, cited in Kern, et al., 2004).

The choice of appropriate task types can influence the quantity and quality of learner output. Jigsaw tasks were used in NBLT studies that investigated meaning negotiation over vocabulary and grammar (Blake, 2000; Kitade, 2006). Consensus-building tasks were found appropriate in investigating broader levels of interaction such as strategy use (Vandergriff, 2006). Therefore, decision-making tasks would probably better function in the investigation of metalinguistic features in CMC, yet under conditions that cater for the limitations in decision-making in CMC environments. This factor was considered in the decision-making task used in the present study.

2.3.2 Negotiation of Meaning

The present study dealt with problem-free interactions, unlike the majority of studies investigating problematic interactions. However, findings in those studies are considered relevant to the present study, since interactions in problematic and problem-free interactions can be similar in many respects (Gass & Selinker, 2001). Most NBLT studies investigate meaning negotiation in CMC for better language acquisition. Previous SLA research on negotiated interaction generally supports the belief in its various benefits. Negotiated interaction can foster a positive learning environment that promotes comprehensible input, access to target forms/meanings, and opportunities for modified output (Varonis & Gass, 1985). Thus, many NBLT researchers have adopted the concept of negotiation, along the lines of similar SLA research.

One of the most widely used negotiation models is the one suggested by Varonis and Gass (1985). This model accounts for negotiation *routines* or *episodes* triggered by breakdowns in spoken interaction. An episode starts by a *trigger* in which there is a misunderstanding of a word, structure, or whole proposition. This turn is followed by an *indicator* or *signal* of the problem where one of the interlocutors highlights the problem and starts negotiation by asking for clarification, echoing the item, among other strategies. A *response* follows in which there is elaboration or correction, among others to iron out the temporary *pushdown*, or deviation from the mainline of interaction (Varonis & Gass, 1985). In other words, the interlocutors have to leave the actual task to deal with the breakdown in communication. The episode can end right afterward or can be followed by an optional *reaction to the response* in the form of reconfirmation, or overt indication of understanding, among other strategies.

The above model accounts for meaning negotiation when communication breaks down due to linguistic or other reasons. It should be noted that it restricts negotiated interaction to instances that are triggered by an explicit expression of non-understanding. Put another way, the analysis of problem-free interactions has not apparently been a main concern, as much as L2 erroneous output, for SLA researchers in general.

Grounding is a similar concept to meaning negotiation, yet in a broader sense. This notion suggested by Clark and Brennan (1991) refers to all attempts by interlocutors to avoid communication breakdown. These mutual attempts include evidence on understanding as well as non-understanding to negotiate and update common ground. This framework contrasts with the previously mentioned negotiation model which focuses solely on problematic interactions.

Many NBLT researchers have adopted the model suggested by Varonis and Gass (1985) in computer-mediated discourse analysis (Blake, 2000; Kitade, 2006; Pellettieri, 2000; Smith, 2003a; Toyoda & Harrison, 2002). However, given the different nature of online interactions, Smith (2003a) suggests his own adapted model for meaning negotiation in CMC. Smith's model is considered one main contribution to research on negotiated interaction in synchronous CMC, yet it does not account for meaning negotiation in asynchronous CMC with its own distinctive features (Kitade, 2006). On the other hand, Vandergriff (2006) opts for the model suggested by Clark and Brennan (1991). This framework accounts for learner strategy use in various interactions including evidence on understanding and non-understanding. However, the typology adapted by Vandergriff (2006) in her study represents a very limited set of strategies that cannot give a clear picture of learner strategy use in CMC.

2.3.3 Communication Strategies

Unlike the general view of communication strategies, the present study investigated their use in problem-free CMC interactions. Like negotiation routines, the concept of communication strategies has been perceived in terms of problematicity. These strategies are generally recognized as tools used by L2 learners to overcome problems in communication when lacking sufficient knowledge to proceed with interactions.

In one of the early volumes on communication strategies research, several studies identified *problematicity*, *consciousness* and *intentionality* as the principles underlying the use of communication strategies (see Færch & Kasper, 1983a). However, a few scholars, e.g. Bialystok (1983) and Raupach (1983), had opposing viewpoints. In fact, Tarone (1983) attempted to broaden her previously defined concept of communication strategies to include both linguistic and sociolinguistic knowledge. Her new definition denotes mutual efforts by interlocutors to reach an agreement in a situation where core meaning structures do not seem to be shared (1983, p. 65). Still, the idea of *problematicity* remains pivotal. This conception is very close to the notion of common grounding, except for its restricted focus on problematic interactions.

Some scholars in the early 1980s argued that the study of L2 performance should not only focus on erroneous nonnative output, but should also include the use of *successful* strategies of communication (Raupach, 1983). Interestingly, Kasper and Kellerman (1997), in a subsequent anthology on communication strategies, challenged the notion of *problematicity* as a central driving force behind L2 communication strategy use. As a paradigm shift, learner strategy use is evidently being recognized to be strategic on all occasions, whether problematic or not.

Other models from previous SLA research seem to support the notion of learner strategy use on all occasions. Clark and Brennan (1991) put forward a model on oral/aural interaction, describing four states of listening comprehension. In state '0' the listener does not notice nor understand an utterance made by the speaker. In state '1' the listener notices but does not correctly hear the utterance. In state '2' the listener correctly hears but needs to confirm understanding. In state '3' the listener correctly hears and understands the utterance. The first two states provide evidence of non-understanding, while the last two states give evidence of understanding. Listeners can employ strategies, e.g. global and specific reprises, i.e. clarification requests, to overcome the former states of breakdown in communication. In the latter cases, other strategies, e.g. hypothesis testing and forward inferencing, can be utilized.

In terms of grounding, *strategies* can provide positive or negative evidence to establish a common ground of shared knowledge or beliefs (Vandergriff, 2006). In a similar vein, Smith (2003b) investigated communication strategy use in instances of problem-free CMC interactions, before the occurrence of breakdowns in communication. This contribution is an addition to Smith's (2003a) previously introduced expanded model of negotiated interaction in CMC.

As Smith (2003b) explains, there are overlaps among communication strategies approaches. There appear to be substantial problems with existing taxonomies, categories, and definitions utilized in the analysis of communication strategies in general, in addition to those particularly characteristic of CMC media. Most significantly, there is strong polarization between the psycholinguistic and interactionist approaches to communication strategies. Interactionists strongly believe in the expansion of typologies to include additional categories, i.e. strategies, as opposed to the psycholinguistic view (Yule & Tarone, 1997).

Given these different perspectives, it is hard to answer the question of when exactly learners resort to communication strategy use. An eclectic interactionist approach may be helpful in this respect (Smith, 2003b). As shown in further detail, many NBLT researchers use sets of categories selected and defined for their particular study purposes (see Overlapping Categories in NBLT Research).

2.3.4 End of Section Summary

The section above points out major interrelationships between current NBLT research and SLA fundamentals. Strongly related to the present investigation, three significant themes are traced back to SLA literature. The first theme, *task-based interactions*, outlines the use of different tasks to trigger various interaction types, adopting task-based pedagogy (Ellis, 2000). The second theme, *negotiation of meaning*, outlines various perspectives on negotiation in problematic and, less commonly, problem-free interactions. The third theme, *communication strategies*, the focus of the present study, tracks the history of development of the term in SLA, guiding its use in the present study, among other NBLT studies, as seen in the following section.

2.4 Communication Strategies in NBLT

Influenced by the majority of SLA literature in which communication strategies are perceived in terms of problematicity, most NBLT investigators have followed suit. However, a few researchers explore the term in its broader sense which is not restricted to L2 erroneous output (see Communication Strategies above).

This section points out different perspectives on communication strategies among NBLT researchers. Following are three themes tracing reference to communication *strategies in NBLT literature. The first theme, overlapping* categories in NBLT research, illustrates striking overlaps in terminology denoting

almost the same strategies. The second theme, *communication strategies in problematic CMC interactions*, with its two subdivisions*, trigger types* and *strategies in negotiated episodes*, provides an overview of the type and structure of interaction in problematic CMC interactions, in which strategies can be identified across negotiated episodes. On the other hand, the third theme, *communication strategies in problem-free CMC interactions*, highlights studies that refer to communication strategies in interactions that are not necessarily problematic, or problem-free.

2.4.1 Overlapping Categories in NBLT Research

In NBLT literature, several terms have been used to refer to more or less the same categories representing strategies in CMC learner interactions. Chun (1994) analyzed discourse and interactional features in synchronous CMC. Sotillo (2000) investigated whether there are quantitative and qualitative differences in the discourse functions produced across synchronous and asynchronous interactions. Pellettieri (2000) and Lee (2002) examined modification devices in synchronous CMC. Jepson (2005) studied repair moves across two synchronous modes.

Chun's study (1994) probably provided the earliest categorization of what she termed as discourse functions, divided into: (1) questions/answers; (2) statements/imperatives; (3) and discourse management devices. The first set includes general and specific questions as well as replies. The second set consists of other statements (topic expansion and topic shift, etc); imperatives; suggestions; and exclamations. The third set is comprised of requests for clarification (statements, questions, tags); feedback (agreement, apologies); and social formulas (greetings, farewell).

In her study, Sotillo (2000) used the term discourse functions to refer to a broader set of fourteen strategies randomly listed as follows: greetings; topic

initiation moves; assertions/imperatives; requests (clarification, comprehension check, explanation, apology, agreement); responses (to all the previous); adversarial moves; off-topic comments; topic shift moves; humor; information requests; floor holding moves/topic continuation; reprimands; and closing moves. It might have been easier to group similar categories in subsets to avoid confusion. Logical relations between similar functions are blurred. For instance, the categories of clarification and explanation requests are put together, while the category of information requests is put separately. However, the distinctions between these three categories are not well-justified.

Some of Sotillo's (2000) categories seem to overlap with Chun's (1994). For example, Sotillo's apologies, which are categorized as requests, come under Chun's feedback strategies. Alternatively, Sotillo's requests for clarification comprise a complete subset under Chun's discourse management devices. Finally, Sotillo's responses comprise a complete set, while they are combined with questions in Chun's categorization.

Other terms, such as modification devices and repair moves, underscore how learners interact together to deal with errors in the discourse. It is noteworthy that a modification device could well be used throughout various parts in a negotiated episode. According to Pellettieri (2000), it is used in response to a signal (indicator) or corrective feedback. It can be used in a response that is preceded by a trigger in problematic interactions, and an indicator of the problem, be it lexical, syntactic or discoursal. It can be also used as an indication of understanding or non-understanding, in reaction to corrective feedback provided by peers. However, in Lee's (2002) terms, modification devices also cover strategies used in signals, e.g. clarification check.

Lee (2002) investigated a set of nine modification devices. These devices included comprehension check, confirmation check, clarification check, request for help, self-correction, use of English (code-switching), topic shift, use of approximation, and emoticons/keyboard symbols. A number of remarks should be made on the selection of categories. First, code-switching, topic shift, and use of approximation are borrowed from the literature of communication strategies, as they correspond to the categories of language switch, message abandonment, and approximation, respectively (Tarone, 1983). Second, confirmation check, in Lee's terms, refers to what is known elsewhere as hypothesis testing or echo questions. These denote the repetition of parts of the discourse to check one's own understanding. Third, there are vague differences between clarification check and request for help. According to Lee's definitions, the former denotes explicit expression of non-understanding, while the latter denotes a question about the meaning of some difficult item(s).

Jepson (2005) categorized repair moves into negotiation of meaning and negative feedback moves. The first set includes clarification requests, confirmation checks, comprehension checks, paraphrases, and incorporations based on others' cues. The second set consists of recasts, explicit instruction, questions, incorporations based on others' feedback, and self-corrections.

In brief, NBLT research has plenty of overlap in the categories used to analyze CMC interactions. The liberal expansion of taxonomies seems popular, yet rather overwhelming. Thus, to avoid ambiguity, a principled approach was advocated in the typology of communication strategies in the present study (see Definition of Terms in Chapter 1).

2.4.2 Communication Strategies in Problematic CMC Interactions

Meaning negotiation and communication strategies seem to intersect across NBLT studies. As will be illustrated below, communication strategies can be recognized in CMC negotiated routines, defined in terms of the Varonis and Gass (1985) framework. Thus, findings on negotiated interaction are included to give a more complete picture of interaction types and strategy use in CMC. Findings revealed mixed results pertinent to the nature and structure of negotiated routines (Blake, 2000; Kitade, 2006; Pellettieri, 2000; Smith, 2003a; Toyoda & Harrison, 2002; Tudini, 2003).

Broadly speaking, interlocutors do not seem to spend much time negotiating meaning in CMC, compared to spoken interaction. Smith (2003a) examined meaning negotiation of vocabulary in synchronous CMC using jigsaw and decision-making tasks. He reported that learners did negotiate meaning when non-understanding occurred. However, it was found that two thirds of the turns in synchronous CMC were spent in interactions toward successful task completion, even though the tasks were embedded with unfamiliar vocabulary. In a similar vein, Blake (2000) investigated the differences between various task types in promoting meaning negotiation in synchronous CMC: jigsaw, information gap, and decision-making tasks. In addition, Tudini (2003) explored whether negotiation would occur in unattended open-ended chat sessions with native speakers in a distance learning project. Both studies reported similar findings to Smith's (2003a) where negotiated episodes comprised a relatively small percentage of overall turns in synchronous CMC. Negotiation in CMC does not seem to occur as often as in similar face-to-face interactions. Thus, interlocutors apparently tend to focus on successful task completion in CMC interactions, which emphasizes the importance of examining problem-free interactions.

2.4.2.1 Trigger Types

The present study dealt with problem-free CMC interactions, unlike many NBLT studies reporting findings on triggers in problematic interactions. Lexis and grammar are reportedly the highest triggers of problematic instances in CMC (Blake, 2000; Tudini, 2003). Pellettieri (2000) found that negotiation over content came second after lexis, while morphosyntactic negotiation was the least in synchronous CMC. Conversely, Kitade (2006) reported that almost half of the triggers were syntactic in asynchronous CMC. The asynchronous medium could have possibly encouraged the production of more syntactically complex turns (Sotillo, 2000). Toyoda and Harrison (2002) identified forty-five triggers in synchronous CMC, categorized under the word, sentence and discourse levels. Interestingly, it was reported that the more the learners moved from the word to the discourse level, the more challenging it was to distinguish whether successful negotiation of meaning took place. These findings also suggest the importance of examining CMC discourse in its broader sense, rather than focusing on negotiated interactions only.

2.4.2.2 Strategies in Negotiated Episodes

Strategies in negotiated routines seem to overlap with strategies in problem-free interactions, the present focus of study. Pellettieri (2000) reported the use of modifications, in response to indicators (signals) or corrective feedback. Some of the reported strategies in indicators were clarification requests, confirmation checks, echo questions, and explicit statements of non-understanding. Other strategies were found in responses, such as repetition, paraphrase, and elaboration. Strategies such as indication of comprehension and over-indication of non-understanding were used in reactions to the response. However, this optional last turn seems to provide conflicting findings across synchronous and asynchronous CMC. Pellettieri (2000) and Smith (2003a) reported that responses were followed by reactions to the

response, unlike asynchronous CMC where they seemed to be unnecessary (Kitade, 2006). It is noteworthy that the present study targets strategies that provide positive evidence, such as the indication of understanding, where interlocutors overtly signal understanding and forward communication toward successful task completion in CMC.

2.4.3 Communication Strategies in Problem-free CMC Interactions

Quite a few studies investigated communication strategies in problem-free CMC interactions. Smith (2003b) examined communication strategies in synchronous chat before the occurrence of communication breakdown. The findings reported a wide variety of strategies, with no significant effect of task type on strategy use.

In his study, Smith (2003b) adopted an in-depth and rather unique approach in analyzing communication strategies in CMC. This approach is in line with the interactionist perspective that advocates the liberal expansion of taxonomies (Yule & Tarone, 1997). Although insufficient definitions were provided, Smith developed a typology representing a combination of 26 categories from various taxonomies for spoken interaction. Furthermore, unlike the common view of communication strategies, he focused on strategies in problem-free interactions. That is, in contrast to other studies investigating problematic learner output, this study highlights instances of positive evidence of understanding in learner interactions. The present study advocated a similar approach to communication strategies in CMC.

Savignon and Roithmeier (2004) studied communication strategies and co-construction of meaning in asynchronous threaded discussion. The most characteristic features were the cohesion of postings, mitigation of conflict, and collaborative construction of text and context. The data provide evidence on the

potential of intercultural exchanges in promoting communicative competence. These results are in line with Chun's (1994) findings.

Biesenbach-Lucas (2005) analyzed communication strategy use in asynchronous email exchanges between American and international students. Four strategies were studied: explicit requests for response; other requests for clarification, permission, feedback, etc.; negotiating; and reporting. The American students quantitatively and qualitatively outperformed their international peers in reporting, negotiating, and requesting the instructor's response.

Overall, a number of studies have investigated communication strategies in synchronous/asynchronous CMC, three of which have been described here as typical of this type of study. It is noteworthy that the term communication strategies is used across the above three studies in the positive, or at least neutral, sense of the word. This contrasts with its traditional negative sense denoting strategies employed to compensate for gaps in the discourse in case of communication breakdown (see Communication Strategies above). It should be also noted that negotiation, as defined by Biesenbach-Lucas (2005), refers to suggested plans made by the students. These plans include alternatives for the instructor and can be followed by further requests for approval or permission. This definition is an extension to what is commonly associated with meaning negotiation (see Negotiation of Meaning). Thus, it appears that this definition may also be extended to include meaning negotiation in problem-free interactions in future NBLT literature.

2.4.4 End of Section Summary

The section above outlines NBLT studies in which there is direct or indirect reference to communication strategies in CMC, indicating challenges faced by researchers exploring these grounds. The overlap in terminology and heavy focus on

problematic interactions has resulted in the under-investigation of communication strategies in problem-free interactions. Thus, studies exploring that area are seen essential.

2.5   Studies on CMC Modes

The present study explored the use of communication strategies in two CMC modes of interaction: synchronous written chat and asynchronous threaded discussion. This scope of inquiry can answer questions about the potential influence of various modalities on higher levels of communicative competence. To this end, this section provides a more in-depth analysis of core NBLT studies investigating linguistic and/or metalinguistic features across one or more synchronous and/or asynchronous CMC mode(s).

Based on this in-depth analysis, several observations are noteworthy. First, most studies investigate the potential of CMC in promoting SLA through meaning negotiation in nonnative problematic interactions. Second, research on synchronous CMC by far exceeds research on asynchronous CMC. Third, although several studies explore various modalities, quite a few compare synchronous and asynchronous CMC, as well as investigate communication strategies across both modes. The literature seems to lack studies investigating communicative effectiveness in problem-free interactions across synchronous and asynchronous CMC modes. Thus, it is essential to study communication strategies in problem-free synchronous and asynchronous CMC to explore the potential of various modalities in enhancing communicative competence.

2.5.1 Studies on Strategy Use in Synchronous CMC

Many studies in NBLT literature examined synchronous CMC, mostly targeting linguistic features. However, fewer studies investigated higher levels of

communicative competence. Following are discussions of three closely related studies to the current scope of inquiry.

In a pioneer study, Chun (1994) conducted a two-semester investigation of discoursal and interactional features in synchronous written chat discussions among fourteen ESL German students. The premise of the study was that computer-mediated discussions can enhance communicative competence in light of ACTFL oral proficiency guidelines for intermediate levels. The study specifically compared CMC vs. spoken interactions in terms of active strategy use. It also examined the most distinctive features for successful online discourse management. Compared to spoken interaction, strategy use was reportedly more active in CMC. Prominent strategies used for successful online discourse management were identified: discoursal moves, e.g. topic initiation and expansion; interactional moves, e.g. clarification requests, comprehension, and confirmation checks; and repair moves in case of communication breakdown.

Chun's (1994) findings have significant implications pertaining to the transferability communicative competence across various modes of interaction on different levels. The results indicate that although computer-mediated discussions essentially provide written practice, there is a resemblance between CMC and spoken interaction in terms of interactive functional competence. These similarities strongly suggest that CMC competence can gradually transfer to spoken interaction through practice. This line of research is further pursued in more recent NBLT studies.

In a within-groups 5-week study, Smith (2003b) investigated communication strategies in problem-free task-based interactions among nine intermediate-low ESL dyads at a US university. The study specifically examined the most frequently employed communication strategies, the effect of task type on strategy use, and the

effectiveness of strategies used. However, despite the wide variety of strategies employed, the data suggest that neither jigsaw nor decision-making tasks had any statistically significant influence over communication strategy use. These findings are inconsistent with previous research on spoken interaction. Mixed results on the effect of task type, as an independent variable, suggest that there could be other extraneous variables at play, when it comes to interactions in CMC.

Schwienhorst (2004) conducted a synchronous MOO project among dyads and triads of 29 low-intermediate Irish learners of German as a foreign language and 22 advanced German learners of English as a foreign language. The study investigated topic initiation and negotiation patterns in CMC, compared to spoken interaction. Refuting the researcher's hypotheses, the quantitative analyses demonstrated balanced topic initiation in both groups. Furthermore, topic initiation patterns were found to be similar in German and English. Some of the study's hypotheses were supported by the data that included questions, statements, and imperatives on both sides, yet more questions were produced by the German group.

2.5.2 Studies on Strategy Use in Asynchronous CMC

Unlike research on synchronous modes, research on asynchronous CMC is insufficient, emphasizing the need to conduct more studies in this respect. Fortunately, the following three studies explore metalinguistic features. Two studies, Savignon and Roithmeier (2004) and Biesenbach-Lucas (2005), refer to communication strategy use in the broad sense of the term, which is not confined to problematicity. The last study, Kitade (2006), advocates the importance of giving more attention to asynchronous CMC and its distinctive features.

Savignon and Roithmeier (2004) conducted a three-week qualitative analysis of asynchronous threaded discussions of an intact group of college-level learners of

EFL in Germany and another group of learners of German as a foreign language in the US. The study explored communication strategies and co-construction of meaning, in terms of coherence and cohesion. It also investigated whether asynchronous discussion can facilitate collaborative dialogue, promoting strategic development. The most characteristic features were reportedly the cohesion of postings, mitigation of conflict, and collaborative construction of text and context. The qualitative analyses showed that discussion board postings seem to qualify as texts displaying discoursal and sociolinguistic features. The data provide evidence on the potential of intercultural exchanges and meaning negotiation in promoting communicative competence, especially strategic competence. These findings support Chun's (1994) on the potential transferability of communicative competence from CMC to spoken interaction.

Biesenbach-Lucas (2005) examined communication strategy use in asynchronous CMC by comparing seventy-one emails sent by American students and fifty-four emails sent by international students in a TESOL teacher training program in the US. Four strategies were studied: explicit requests for response; other requests for clarification, permission, and feedback, among others; negotiating; and reporting. The categories used for analysis were adopted from the ones used by Bardovi-Harlig and Hartford (1990) to analyze similar spoken interactions. The American students quantitatively and qualitatively outperformed their international peers in reporting, negotiating, and requesting the instructor's response.

Kitade (2006) investigated linguistic and metalinguistic development in asynchronous CMC. The study specifically examined negotiation episodes in task-based email exchanges among twenty-four NS/NNS dyads of intermediate-low Japanese students at an American college. In support of previous research findings, syntactic development seems possible in CMC (Pellettieri, 2000; Fiori, 2004),

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although findings in other studies imply otherwise (Blake, 2000; Jepson, 2005). Kitade also argues for explicit instruction in effective feedback strategies. Most significantly, she highlights the need for expanding the CMC negotiated interaction model suggested by Smith (2003a) to include the distinctive features of asynchronous CMC.

2.5.3 Studies on the Impact of Medium Type

A number of studies probed the impact of various modalities on linguistic and/or metalinguistic development from relatively unique perspectives. Sotillo (2000) and Abrams (2003) are probably the only two researchers who compared the discourse of synchronous and asynchronous modes. Sotillo (2000) investigated discourse strategies and syntactic complexity across both modes. Abrams (2003) studied the impact of both modes on oral production. In a similar vein, Sykes (2005) investigated the effect of pragmatic instruction on oral production by comparing three discussion types: text chat, voice chat, face-to-face interaction. Finally, Vandergriff (2006) studied the impact of face-to-face and synchronous chat discussion types on building common ground.

Sotillo (2000) specifically examined quantitative and qualitative variations in discourse functions and syntactic complexity in the output of twenty-five students from advanced ESL writing classes. Synchronous chat was found to elicit similar discourse functions to spoken interaction, unlike asynchronous threaded discussion that seemed to encourage more extended as well as syntactically complex exchanges.

In her quasi-experimental study, Abrams (2003) examined the different characteristics of synchronous and asynchronous CMC and their potential influence on the oral performance of three groups of learners in a third-semester German course. The synchronous chat group was found to outperform the other groups,

followed by the control face-to-face group. Surprisingly, the asynchronous threaded discussion group came last, but the reasons for that were open to speculation, since there was no student post-perceptions questionnaire to capture the exact causes of limited participation in asynchronous discussions. It should be noted that the quantitative analysis indicated no significant differences among the three groups in their oral performance in terms of lexical richness, lexical diversity, and syntactic complexity. Still, these results support previous findings reporting an increase in the amount of language produced in synchronous CMC.

Sykes (2005) was one of the very few researchers that studied the effect of voice and text chat on oral production in general and pragmatic instruction in particular. The study specifically examined whether the quality of refusal speech acts was influenced by synchronous written and oral chat among nine triads in two classes of third-semester Spanish students. The results showed that the synchronous written chat experimental groups outperformed the other groups in the complexity and quality of strategies produced. The results underscore the potential of synchronous CMC platforms in enhancing second language proficiency in general and oral production in particular. However, they cast doubts on the effectiveness of oral chat in pragmatic development at the present time. These findings further reiterate the potential transferability of proficiency from CMC to spoken interaction, as previously maintained by Chun (1994).

Vandergriff (2006) explored four reception strategies: global reprises, specific reprises, hypothesis testing and forward inferencing across synchronous chat and face-to-face interactions. A counter-balanced design including two similar consensus-building tasks was implemented, so that each of the six participating groups would complete one task in one medium only. The quantitative analyses showed no significant effect of medium type on strategy use, whereas the qualitative

analyses revealed that the strategies were manipulated to negotiate and update common ground, rather than just compensate for gaps in L2 proficiency.

Taken together, the above studies provide evidence on the potential impact of medium type on linguistic and metalinguistic development. Vandergriff (2006) failed to find any statistically significant influence of medium type on strategy use. Still, this is a crucial point worthy of investigation, as findings on spoken interaction seem to support the significance of medium type (Clark & Brennan, 1991). That is why the present study aimed at further exploring how medium types potentially relate to the enhancement of communicative competence. It did so by specifically investigating the use of four communication strategies in synchronous and asynchronous CMC, besides some of the possible reasons for variation in communication strategy use.

2.5.4 End of Section Summary

The section above provides a detailed analysis of some core NBLT studies investigating various CMC modes. This in-depth analysis points out several gaps in the literature. First, studies exploring synchronous CMC exceed those exploring asynchronous CMC. Second, several studies compare various modalities, while others compare synchronous and asynchronous modes. Third, many studies examine linguistic features in CMC, but relatively less research explores higher levels of communicative competence, particularly communication strategies in CMC. That is why it is important to examine communication strategies across synchronous and asynchronous CMC, in order to explore the potential of various modalities in promoting communicative competence.

2.6 End of Chapter Summary

This chapter provides an overview of current NBLT literature investigating learner strategy use during L2 task-based interactions in CMC. As illustrated, a complete picture of meaning negotiation in CMC representing both synchronous and asynchronous modes is still not available in the literature. Moreover, there rarely seems to be a single generally accepted approach to the study of metalinguistic features in CMC interactions. A case in point is the study of learner strategy use which is still vacillating between analyzing problematic and problem-free nonnative output. To further illustrate, there are conflicting views in approaching communication strategies in general SLA research, as well as NBLT research which still lacks standardized practices. This absence of clarity has resulted in a gap in identifying typical strategies of CMC modes, as opposed to spoken interaction. Furthermore, there are mixed results concerning variables that can potentially have a significant influence in CMC environments. For example, is it the change of task type, the change of medium type, or a combination of both that can possibly effect change in learner strategy use?

Hence, it is still unclear how synchronous and asynchronous CMC can each contribute to more effective L2 communication. The study of areas like communication strategies has illustrated some of the challenges involved in the investigation of metalinguistic levels. Put another way, more research on CMC, as a distinct entity in its own right, is essential. To provide some answers to the above questions, the present study set out to investigate communication strategies in problem-free synchronous and asynchronous interactions among pre-freshman EFL learners in an Egyptian university context.

CHAPTER 3: METHODOLOGY

3.1   Chapter Overview

This chapter discusses in detail the research methodology adopted in the present study. Section 3.2 analyzes the study design, providing information on the participants, materials, procedures, and instrument used. Section 3.3 explains the method of data collection and analysis, outlining data types, data coding, and data analysis procedures.

3.2   Study Design

This study adopted an applied, exploratory, mixed design. Being closely related to classroom applications, the study aimed at describing CMC interactions among pre-freshman EFL university-level learners in Egypt. Away from seeking definitive answers, it specifically explored the use of four communication strategies (hypothesis testing, forward inferencing, topic continuation, and off-task discussion) in synchronous CMC (written chat) and asynchronous CMC (threaded discussion). A mixture of quantitative and qualitative procedures was used for data analysis.

3.2.1 Participants

The participants in the study were 15 students (eight males and seven females) enrolled in English 100, a program supervised by the English Language Institute (ELI) at the American University in Cairo (AUC). One intact class was selected as a convenience sample after consultation with the program coordinator. The participants were pre-freshman university students taking English language courses to improve their writing skills before enrolling in mainstream courses. They were divided into three mixed groups of four (two males and two females each) and one group of three (two males and one female), since the class comprised 15 students only.

3.2.2 Materials

A class WebCT was designed for the purposes of the study giving the class instructor and participants step-by-step instructions throughout its three stages: pre-, during, and post-task completion. Along the lines of similar studies (Abrams, 2003; Sotillo, 2000; Vandergriff, 2006), the study included a reading text to trigger discussions among group members during the completion of a related decision-making task (see Procedures; also Appendix A for task details). The participants received a hardcopy of the reading text with comprehension questions in class during orientation in Stage 1. They also had online access to the reading, exercises, and quiz throughout the study. They had access to the decision-making task only on the day of task completion right before data collection.

The researcher met with the instructor and participants for 50 minutes daily over the four-day study at the ELI computer lab. During task completion, each participant was seated at a separate station away from his/her team members throughout the session. The participants communicated with each other electronically in closed groups through the chat rooms or the discussion board on WebCT. The data were collected and archived electronically via WebCT for later retrieval.

The data were later handled using computer programs. MS Word was used to prepare the scripts for coding and analysis. Each of the two data sets was handled in a separate file. The two coders, including the researcher as a first coder, marked and classified instances using colors. MS Excel was used for electronic counting and classification before quantitative analysis. It was also used for creating graphs and charts. Statistical Package for the Social Sciences (SPSS) was later used for chi-square analysis.

3.2.3 Procedures

In coordination with the class teacher, this four-day study was managed as part of class activities, ensuring that the topics fitted with the course syllabus. Since it was a non-graded activity, the participants were awarded certificates of merit upon completing the task successfully (see Appendix A for an overview of task implementation over the four days). To help ensure quality output and comfort with both CMC tools on WebCT, the participants were given a 50-minute orientation session in the computer lab on the first day of the study before any data collection.

The study was divided into three stages: pre-, during, and post-task completion (see Appendix A for instructions in detail). In Stage 1, the participants were given directions, in addition to homework warm-up readings. Stage 2 took two days in which the participating groups completed a two-part decision-making task. Stage 3 was the closure of the study in which the participants completed a post-perceptions questionnaire (see Instrument; also Appendix B). The participants were given explicit instructions throughout the three stages of the study. Time was allowed for questions to check the clarity of instructions.

Stage 1 oriented the participants to task completion in Stage 2. The class instructor worked with the participants on a reading text with comprehension questions in class before task completion. This was done to ensure comprehension and baseline knowledge of a relatively technical topic, viz. recreating the Avian flu virus for scientific purposes. For further practice, the participants electronically answered comprehension questions, in the form of closed items with feedback on WebCT. Later, the researcher introduced them to task-based interaction through a trial problem-solving activity. In addition, they were introduced to the chat and threaded discussion communication tools in WebCT. They were familiarized with the fundamentals of participation and posting in synchronous and asynchronous

modes. They had access to the reading, exercises and quiz via the class WebCT throughout the data collection period.

In Stage 2, the participants were randomly assigned to groups of four with even gender distribution except for one group of three. All participants were given the same task requirements (see Appendix A). The design of the decision-making task presupposed that they had access to the same information requiring them to reach a decision, not necessarily a consensus, on the issues under discussion. The two parts of the task were intended to be parallel in terms of topics and complexity. In the first part, the participants were required to reach a decision on how to approach a neighbor raising chickens indoors in light of recent Avian flu threats. The participants completed this part of the task in written chat over 30 minutes on Day 1 in the ELI computer lab. In the second part, the participants assumed the roles of consultants from various backgrounds who were required to reach a decision on whether to authorize the recreation of viruses in Egyptian labs. They worked on this part of the task in threaded discussion on Day 2 in the lab first and then on their own. Group members fulfilled the requirements by sending an introductory message, responses to peers, and a closing message, although some made minimal contributions.

Upon the completion of discussions, the participants moved to Stage 3, in which they filled out a computer-based post-perceptions questionnaire (see Appendix B and Appendix C). The questionnaire somewhat helped in capturing intervening factors with task completion that were not directly revealed by the scripts. To provide more insights, the class instructor also provided her feedback on the study and the participants' performance during task completion (see Appendix D).

3.2.4 Instrument

For triangulating and verifying the findings, a semi-structured computer-based questionnaire was used (see Appendix B and Appendix C). The purpose of the questionnaire was twofold: (1) to capture information that was not directly revealed by the scripts; (2) to explain potential reasons for high/low frequency in communication strategy use. As argued by Ortega (1997), the use of a combination of data sources, e.g. computer-collected data and self-reports, can contribute to internal validity. Most significantly, it helped reduce speculation about the possible reason(s) for high or low interaction among the participants during task completion in the CMC modes under study (cf. Abrams, 2003).

The questionnaire consisted of a mixture of closed alternative response items, in addition to ordinal items on a 5-point Likert scale. The item types were chosen for ease of rating and objectivity. Twenty-five items measured student post-perceptions in six areas: (i) working with others and computers in general; (ii) medium preference; (iii) medium and task fit; (iv) satisfaction with task completion; (v) group dynamics; and (vi) strategy use. Optional open-ended responses were allowed throughout the questionnaire. Those opinion items were meant to capture causes and explanations that were not revealed by the scripts alone (Perry, 2005).

3.3   Data Collection and Analysis

The quality of data, in terms of authenticity and depth, was an issue of concern. On the one hand, the participants were prompted to communicate in a relatively authentic context where the data were collected as unobtrusively as possible in the two CMC modes. On the other hand, based on observations made during the piloting stage, the output produced by different groups had sometimes been found to lack depth. Thus, in-class reading and discussions were included prior to data collection.

This methodology, in which the data were electronically collected and archived, stands out among other methodologies where the data can be seen as contrived or unnatural (Smith & Gorsuch, 2004). Authenticity and accuracy were relatively ensured, since neither the researcher nor the class instructor interfered in data entry (Perry, 2005). Furthermore, because the data were electronically collected and archived, the researcher was able to economize on the time taken in transcription. However, data representativeness and generalizability were not of direct concern in this study, due to limitations in sample size.

3.3.1   Data Types

A combination of verbal and numerical data was used in this study. Most of the data were verbal, in the form of written chat and threaded discussion scripts, in addition to the participants' comments in the post-perceptions questionnaire as well as class instructor's feedback. The rest were numerical, in the form of frequency counts and percentages of the four strategies, in addition to the counts and percentages of the closed items in the post-perceptions questionnaire.

3.3.2 Data Coding

Since it was necessary to establish baseline knowledge of characteristic communication strategies used during CMC interactions in Egyptian EFL contexts, a pilot inductive analysis was conducted prior to the study. The analysis included a sample of asynchronous threaded discussions collected during an online course for graduate students in the Teaching English as a Foreign Language (TEFL) program at AUC (see Table 1 in Chapter 1).

3.3.3 Data Analysis Procedures

Guided by the practices followed in typical NBLT research, qualitative measures of discourse analysis were utilized in this study. The electronically archived chat and threaded discussion scripts, collected via WebCT, were copied and pasted in two separate files in MS Word for analysis. The scripts were processed and marked for all instances to be classified later by the two coders. The researcher, also being the first coder, started classifying a sample of the data before setting the guidelines for the second coder who is a PhD holder in Applied Linguistics with a TEFL background.

The two coders worked separately on classifying the instances in each data set electronically, according to the typology tailored for the purposes of the study (see Table 1 in Chapter 1). After receiving the second coder's files, the researcher compared both versions to calculate inter-coder reliability using MS Excel. The coders had 77.4% agreement on the written chat data set and 81.3% on that of threaded discussion on the first round. The coders met for a moderation session to settle debatable items. They reached a 100% agreement on the instances that matched the four categories under study and those that were non-applicable. Due to time constraints, it was not possible to consult a juror to verify findings by matching the identified instances with the definitions of the four categories. However, high inter-

coder reliability on the first round provided adequate reassurance at that point.

MS Excel was used for frequency counts and calculations. It was also used in managing the qualitative analysis by clustering similar uses. After processing frequency analyses on both data sets, it became evident that the threaded discussion data set did not qualify for statistical analysis. A chi-square analysis was conducted on the written chat data only to verify statistical significance in <u>overall</u> communication strategy use.

For qualitative analysis, the scripts were screened again to extract forms of interaction, in order to describe strategy use in each medium type. The analysis scrutinized possible reasons for variation in communication strategy use in synchronous CMC. It also highlighted factors pertaining to low interactivity in asynchronous CMC in particular.

Finally, the results of the computer-based post-perceptions questionnaire were screened for evidence to support findings. The preliminary results were first processed via WebCT. Then, the researcher matched the quantitative results with the participants' qualitative comments as well as the scripts for verification. For triangulation, the results were combined with the class instructor's feedback on the overall structure of the study and participants' performance.

3.4 End of Chapter Summary

This chapter explains the research methodology in the present study. It first mentions the study design, in addition to details on the participants, materials procedures, and instrument used. This is followed by a detailed account of data collection and analysis procedures.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter reports the results of the present study which investigated four communication strategies during problem-free task-based synchronous and asynchronous CMC interactions. The four communication strategies were hypothesis testing, forward inferencing, topic continuation, and off-task discussion. These strategies illustrated how pre-freshman Egyptian EFL university students could avoid problems and maintain common ground in CMC interactions. The study had three research questions. The first question examined the frequency of the four strategies in synchronous written chat. The second question examined the frequency of the four strategies in asynchronous threaded discussion. The third question explored some of the possible reasons for variation in communication strategy use in each medium type. The participants in this study were 15 Egyptian EFL university students. They were divided into three groups of four and one group of three. Each of the groups interacted in a closed 30-minute group discussion in written chat, and another group session over a whole day in threaded discussion, on the following day.

4.2 Chapter Overview

The results are divided into four main sections. Section 4.3 outlines the framework of data coding and analysis. Section 4.4 focuses on findings pertaining to the first research question about the frequency of the four communication strategies in synchronous written chat. Illustrative examples, other characteristics and counterexamples are also included. Section 4.5 presents findings pertaining to the second research question about the four communication strategies in asynchronous threaded discussion. Counterexamples are also included for further clarification.

Finally, Section 4.6 outlines some of the possible reasons for variation in communication strategy use.

4.3   Framework of Data Coding and Analysis

The data were electronically collected and archived via WebCT, an online course management system. The written chat and discussion board tools were used by each of the four participating groups who interacted in closed discussions that were inaccessible to the other groups.

The scripts were downloaded and prepared for coding and analysis. Written chat had a word count of 4530 words (1195 per person), compared to 2180 words (545 per person) in threaded discussion. A total of 620 turns (163 per person) in written chat and 89 posts (24 per person) in threaded discussion were reviewed. The coders worked on classifying 212 instances in written chat and 32 instances in threaded discussion.

As indicated in Table 2 and Table 3, the two coders agreed on 192 instances in written chat and 26 instances in threaded discussion where they found evidence on the use of the four communication strategies investigated. All turns and postings were considered, including those nonnative-like forms with language problems, such as punctuation, spelling, and grammar, among others. Such instances were counted as long as they illustrated the communication strategies investigated.

Table 2

Results of Data Coding of Written Chat Scripts

	1st round		2nd round (final)	
No. of instances classified by coders	212		212	
No. of instances that match the selected CS categories	145		192	
Inter-coder reliability:				
Agreement	164	77.4%	**192**	**100.0%**
Disagreement	48	22.6%	0	0%
	14	HT	25	HT
	24	FI	29	FI
	59	TC	75	TC
	48	OTD	63	OTD
	17	NA	20	NA
	50	to be decided		

Note. The abbreviations in the table above stand for the categories of communication strategies in data coding and analysis as follows: HT= hypothesis testing; FI= forward inferencing; TC= topic continuation; OTD= off-task discussion; and NA= non-applicable.

Table 3

Results of Data Coding of Asynchronous Threaded Discussion Scripts

	1st round		2nd round (final)	
No. of instances classified by coders	32		32	
No. of instances that match the selected CS categories	24		26	
Inter-coder reliability:				
Agreement	26	81.3%	**26**	**100.0%**
Disagreement	6	18.8%	0	0%
	0	HT	0	HT
	4	FI	4	FI
	16	TC	17	TC
	4	OTD	5	OTD
	4	NA	6	NA
	4	to be decided		

A coding scheme was required for the facilitation of coding and analysis. First, some editing was found necessary when typos or other language problems happened to obscure the message. Thus, corresponding native-like forms were added in between square brackets ([[ ]]) following those instances. Second, abbreviations, symbols and

emoticons were also spelled out in between square brackets ([[   ]]). Third, as will be seen in later sections, examples from the synchronous written chat and asynchronous threaded discussion data sets were included in the results. Each example is followed by a code that refers to the actual order of the item in either of the data sets as well as the group in which it was produced. For example, [#200G4] denotes item number 200 produced in Group 4.

Finally, occurrences illustrating utter breakdown in communication, in which the interlocutors gave evidence of non-understanding, were also identified and marked as 'non-applicable'. They were later used as counterexamples to those that were regarded as problem-free instances, in which the interlocutors gave no evidence of non-understanding or communication breakdown.

4.4   Results Pertaining to Research Question 1

Of the selected communication strategies, which is/are the most frequent one(s) produced during problem-free task-based interactions in synchronous written chat?

The two coders identified 192 instances in the synchronous written chat data set matching the four defined categories of communication strategies in the present study. These instances were present in interactions that were free from evidence of non-understanding or utter communication breakdown. The category of topic continuation (TC) had the highest frequency with 39.1% (75 out of 192) of communication strategy use, followed by off-task discussion (OTD) with 32.8% (63 out of 192), and then forward inferencing (FI) with 15.1% (29 out of 192). The category of hypothesis testing (HT) came last with 13% (25 out of 192) (see Figure 1).
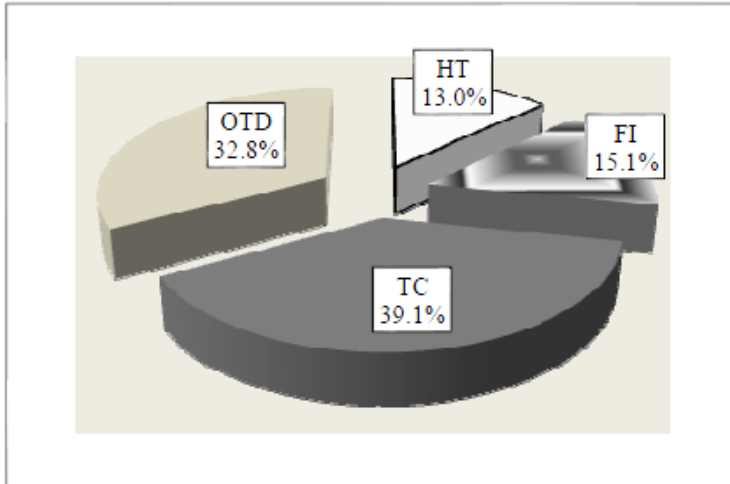
Figure 1. Distribution of overall communication strategy
use in synchronous written chat.

A chi-square analysis revealed that there was a significant difference in communication strategy use in synchronous written chat, χ^2 (3, N = 192) = 38.42, p <.000. This finding indicates that the distribution of the four communication strategies occurred at significantly different rates. That is, the high levels of topic continuation, followed by the low levels of hypothesis testing were the biggest contributors to this statistically significant difference. Interpretations about the possible reasons for variation, including differences in the nature of the four strategies among others, are provided in the discussion section in Chapter 5.

4.4.1 Communication Strategies in Synchronous Written Chat

Each of the four categories investigated had a number of forms in communication strategy use. However, off-task discussion examples revealed complex forms of communication strategy use in which strategies, other than those under study, appeared as shown below.

4.4.2 Examples of Communication Strategy Use in Synchronous Written Chat

Several forms were observed in the use of the four communication strategies in synchronous written chat. Guided by similar studies (Vandergriff, 2006; Vandergrift, 1997), the following examples were selected and analyzed to illustrate some of these uses.

4.4.2.1 Hypothesis Testing

Following are two examples illustrating forms of hypothesis testing in synchronous written chat.

- A question or comment to challenge the interlocutor(s) to explain their reasoning as in (1).

- Repetition of what was previously said to verify self-understanding as in (2).

(1)

EHM>>they should regularly check the houses in the country side

RHL>>**all the houses everyday??** [#16G1]

EHM>>probably they would make a campain [[campaign]] from time to time

(2)

SMN>>ok i agree if we get the doctors to check on them and show the parents how those chicken are harm [[harmful]] a *[[to be continued ...]]*

SMN>>agreeeeeeeeeeeeeeee

CRG>>okk

SMN>>**so all of you agreed that doctors should check on them and show them how dangerous are those chicken's and they should be reomved [[removed]] from the house** [#134G2]

CRG>>yes

4.4.2.2 Forward Inferencing

Following are two examples illustrating a form of forward inferencing in synchronous written chat. Forward inferencing by a question in which one accepts what was previously said and challenges the interlocutor(s) to justify or explain their reasoning as in (3) and (4).

(3)

SAY>>no it won't be a joke

SAY>>it is horrible

MWL>>i got your point but what i mean is how can you get a sick person out of the hospiatl [[hospital]] telling him plz [[please]] be a real example [#201G4]

SAY>>i think there r [[are]] many poor and kind who donnot [[don't]] mind to help others

(4)

SMN>>we can gove [[give]] her example if one of her neghbiours died because of those chicken

MYR>>what if they dont agree after we tell them politely that they have to remove the chicken [[chickens?]] [#110G2]

AAM>>i think we can inform the authority and they will take the procedures to protect them and protect their nighbors [[neighbors]]

4.4.2.3 Topic Continuation

Following are four examples illustrating forms of topic continuation in synchronous written chat.

- A question or comment to prompt the interlocutor(s) to continue as in (5).

- A question mark to prompt the interlocutor(s) to continue as in (6).

- A question or comment to prompt the interlocutor(s) and hand them the floor as in (7).

- A question or comment to prompt the interlocutor(s) to justify their reasoning as in (8).

(5)

SAY>>ok i agree with u this may let her forget about the chickens

SAY>>**do u all agree ????????????????????** [#207G4]

MWL>>i do

KSG>>yessss

SAY>>ok we have finished then

(6)

AMH>>she will call the police

YGS>>why

YGS>>**??????** [#178G3]

AHM>>guys YGS is right i agree with her

(7)

SMK>>i am with EHM's opinion

SMK>>**what about you?** [#11G1]

(8)

RHL>>but you are so young to advise her

EHM>>maybe they should start with advertising campaigns

RHL>>**how** [#45G1]

SMK>>they did this before

4.4.2.4 Off-task Discussion

Off-task discussion had a frequency of 32.8% (63 out of 192) of overall communication strategy use in synchronous written chat. Code-switching appeared in 60.3% (38 out of 63), while emoticons and symbols appeared in 20.6% (13 out of 63) of off-task discussion. The remaining 19.1% (12 out of 63) included other forms of off-task discussion (see Figure 2).
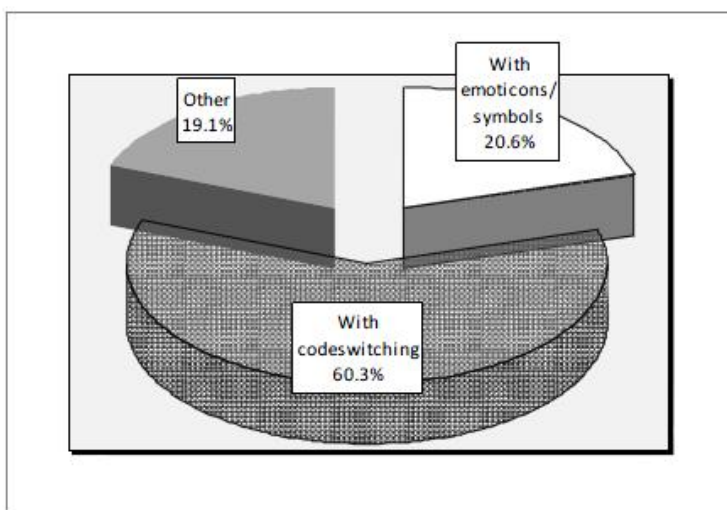
Figure 2. Distribution of off-task discussion in synchronous written chat.

Following are four examples illustrating forms of off-task discussion in synchronous written chat.

- A question or comment to direct the interlocutor(s) toward task completion as in (9).

- A question or comment for praise as in (10).

- A question or comment for humor as in (11).

- Emoticons or symbols for humor as in (12).

(9)

AMH>>bc [[because]] it seem she doesnt agree about leaving her chicken outside
　　　and then we are building

AAT>>we have 5 min. we must decide what is our solution? [#177G3]

AMH>>really

(10)

MWL>>read it and tell if ok or not

KSG>>ok that is nice [#210G4]

(11)

SAY>>no it won't be a joke

SAY>>it is horrible

KSG>>i see that we kjill [[kill]] this woman [#200G4]

(12)

EHM>>u cant make people who make the same mistake advise another people

EHM>>^_^ [[happy]] [#31G1]

4.4.2.5 Other Characteristics

The synchronous written chat interactions revealed other related as well as complex forms of communication strategy use. Two prominent forms are worthy of mention: reprises, i.e. clarification requests, and code-switching. The two categories have been predominantly recognized in the literature as communication strategies that interlocutors resort to when they encounter difficulties in understanding (Rost & Ross, 1991) or cases of breakdown where meaning is negotiated (Tarone, 1983). That is, these categories are generally perceived in nonnative problematic interactions

(Firth & Wagner, 1997, p. 291). In fact, the analyzed scripts included some of these instances, yet they included several more in which there was no evidence of non-understanding or communication breakdown, i.e. in problem-free interactions (Firth & Wagner, 1997).

4.4.2.5.1 Reprises (Clarification Requests)

Several studies refer to the use of reprises, i.e. clarification requests, as an example of strategies used in dealing with non-understanding or communication breakdown among interlocutors (Rost & Ross, 1991; Vandergriff, 2006; Vandergrift, 1997). Thus, this category, among others, was opted out from the typology designed for the purposes of the present study, as it had little relevance to communication strategies in problem-free interactions. However, the synchronous written chat data set included 28.3% (60 out of 212 total coded and analyzed instances). As they constitute a prominent form of communication strategy use and overlap with the categories under study, instances of reprises were found worthy of investigation.
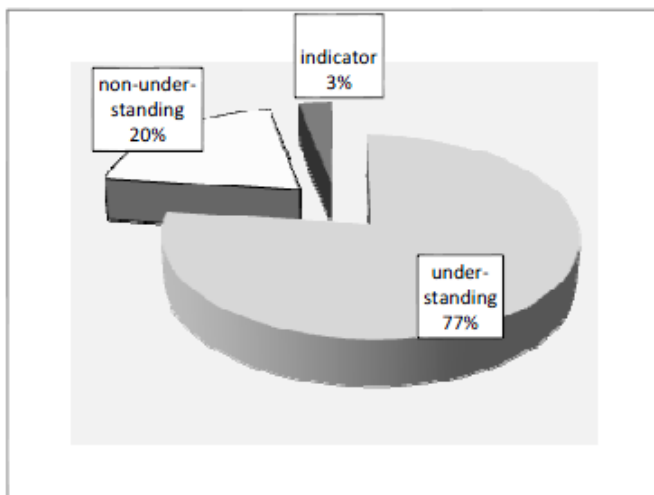
Figure 3. Distribution of reprises in synchronous written chat.

The use of reprises in synchronous written chat had some similarities, yet more differences to the above-mentioned studies. Similar to other findings, the data

set included 3% (two out of 60) in which reprises acted as indicators in negotiated episodes with utter breakdown in communication, and 20% (12 out of 60) in which they acted as explicit statements of non-understanding. However, 77% of reprises (26 out of 60) were essentially used as prompts for topic continuation in problem-free interactions (see Figure 3).

In other words, the synchronous written chat data set supports the significantly more frequent use of reprises, i.e. clarification requests, in problem-free interactions, in which the interlocutors did not state non- or misunderstanding. In contrast, this category has been predominantly considered among communication strategies that provide evidence of non-understanding or utter communication breakdown (Rost & Ross, 1991; Vandergriff, 2006; Vandergrift, 1997). Therefore, even some of the common categories in the literature of communication strategies in nonnative problematic interactions may well serve as communication strategies in problem-free interactions under similar conditions.

Following are examples illustrating the three abovementioned uses of reprises in synchronous written chat. The use of a reprise:

- With evidence of understanding as in (13).

- With evidence of non-understanding as in (14).

- As an indicator in a negotiated episode as in (15).

(13)

CCC>>everyone says his opinion

SMK>>EHM

CCC>>EHM wht [[what]] do u think? [#139G2]

EHM>>probably i agree with it it may harm the family since they are raising those

       chickens indoors

(14)

AMH>>ok we can try to lether [[let her]] son to convince her and we can get some

       evidence

AMH>>and then we can send the police

AHM>>what evidence?? [#167G3]

(15)

SMK>>it will make success [[be successful]]

SMK>>if aperson [[a person]] they trust

RHL>>yes

CCC>>make what, guys what are u talkin about now ? [#28G1]

It should be noted that example (13) directly relates to the present focus of investigation, viz. communication strategies in problem-free interactions. Examples (14) and (15) fit more into communication strategies in problematic interactions that are presented below in more detail (see Counterexamples).

4.4.2.5.2 Code-switching

Code-switching was another prominent form of communication strategy use in synchronous written chat. Consistent with previous findings about code-switching (Tarone, 1983), few instances were identified in which the interlocutors faced

problems expressing meaning in L2, resulting in their use of L1. However, in the synchronous written chat data set, code-switching was more frequently used as off-task discussion in problem-free interactions, especially to add humor and personalize the interactions (see Figure 4).
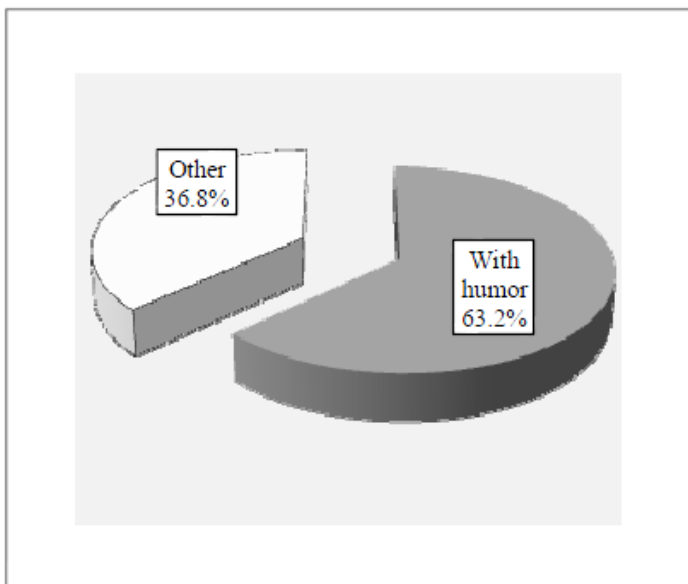
Figure 4. Distribution of code-switching in synchronous written chat.

Code-switching was used in problem-free interactions in 18.4% (38 out of 212 total coded and analyzed instances) of the synchronous written chat data set. As shown in Figure 4, code-switching was used in off-task discussion for humor in 63.2% (24 out of 38). The remaining 36.8% (14 out of 38) included instances in which code-switching appeared with the other communication strategies under study, in addition to some instances marked as non-applicable. It should be noted that Group 1 was the main contributor with 82% (31 out of 38), mostly produced by participant G1A with 53% (20 out of 38).

Following is an example illustrating a predominant form of code-switching in off-task discussion for humor as in (16).

(16)

SMK>>bosom a7san 7al ne7ra2 el beyoot bely fehom [[look, the best solution is to burn down the houses with those people inside]] [#64G1]

4.4.2.6 Counterexamples

Following are two examples illustrating the other side of communication strategy use in problematic interactions in synchronous written chat, which were marked in coding and analysis as 'non-applicable'. They also happen to be two cases of reprises, as explained above (see Reprises). The use of a reprise:

- With evidence of non-understanding as in (17).
- As an indicator in a negotiated episode, preceded by a trigger and followed by a response, involving code-switching and humor, as in (18).

(17)

EHM>>the whole country's money

RHL>>it is not htat [[that]] easy

SMK>>yes RHL

CCC>>money of wht [[what?]] [#51G1]

(18)

RHL>>I agree with mohamed that we will let someone in the familly biger [[bigger/older]] than me, some one to trust to talk and show eviedenvces [[evidence]]

SMK>>meen mohamed dah? [[Mohamed who?]] [#20G1]

EHM>>loool [[laugh out loud]] meen Mohamed [[who is Mohamed?]]

RHL>>sorry SMK

These were examples of communication strategy use in synchronous written chat. Having answered research question 1 in this study, research question 2 about the most frequent communication strategies in asynchronous threaded discussion is answered in Section 4.5.

4.5 Results Pertaining to Research Question 2

Of the selected communication strategies, which is/are the most frequent one(s) produced during problem-free task-based interactions in asynchronous threaded discussion?

The two coders identified 26 instances in the asynchronous threaded discussion data set matching the four defined categories of communication strategies in the present study. These instances were present in interactions that were free from evidence of non-understanding or utter communication breakdown. Topic continuation clearly ranked first in frequency of occurrence with 65.4% (17 out of 26) of overall communication strategy use, followed by off-task discussion with 19.2% (five out of 26), and then forward inferencing with 15.4% (four out of 26). Hypothesis testing was not used in the asynchronous threaded discussion data set (see Figure 5).

The communication strategies under study appeared in the asynchronous threaded discussion data set much less frequently than they did in that of synchronous written chat. A chi-square analysis could not be conducted since the numbers were too sparse. This low frequency may be partly ascribed to the relatively smaller body of postings totaling approximately 2180 words collected over one day in threaded discussion, as compared to that totaling approximately 4530 words collected over a 30-minute session in written chat. Other considerations related to low interactivity in this medium will be explored in the discussion section in Chapter 5.
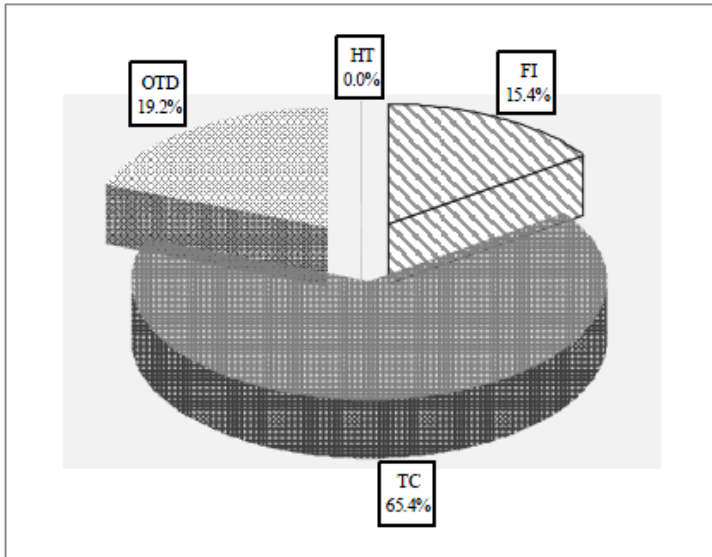
Figure 5. Distribution of overall communication strategy use in asynchronous threaded discussion.

4.5.1 Communication Strategies in Asynchronous Threaded Discussion

As mentioned earlier, topic continuation represented 65.4% (17 out of 26) of communication strategy use, followed by off-task discussion with 19.5% (five out of 26), and lastly forward inferencing with 15.4% (four out of 26) (see Figure 5).

Only seven out of the 15 participants in the study produced occurrences of communication strategy use, illustrating three of the categories investigated, in asynchronous threaded discussion. The remaining eight participants did not use any of the other communication strategies in asynchronous threaded discussion.

To sum up, research question 2 focused on the frequency of four communication strategies in asynchronous threaded discussion. Apparently occurrences of communication strategy use in asynchronous threaded discussion were sporadic. That is why it is hard to extract forms or make generalizations. The next section explores these data further.

4.5.2 Examples of Communication Strategy Use in Asynchronous Threaded Discussion

A few forms were observed in the use of three out of the four communication strategies in asynchronous threaded discussion. However, they lacked the variety of those in synchronous written chat. To illustrate, following are some examples that were selected and analyzed along the lines of similar studies.

4.5.2.1 Forward Inferencing

Following is an example illustrating a form of forward inferencing use in asynchronous threaded discussion. Forward inferencing by a question in which one accepts what was previously said and challenges the interlocutor(s) to justify or explain their reasoning as in (19).

(19)

AMH>>-->>AHM>> i agree with you about not recreating the virus, but how exactly does it harm people? [#26G3]

4.5.2.2 Topic Continuation

Following are two examples illustrating forms of topic continuation use in asynchronous threaded discussion.

- A question or comment to prompt the interlocutor(s) to continue as in (20).

- A question or comment to prompt the interlocutor(s) to justify or explain their reasoning as in (21)

(20)

AAM>>i think if this recreation of that virus will enhance our power as that will be a biological weapon i will agree with... **agree? [#17G2]**

(21)

AAM>>-->>MYR>>**MYR, could you explain what are you trying to say? [#20G2]**

4.5.2.3 Off-task Discussion

Following are four examples illustrating forms of off-task discussion use in asynchronous threaded discussion.

- A question or comment to express surprise as in (22).

- A question or comment to express hopes or wishes as in (23).

(22)
AAM>>-->>MYR>>**whyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy MYR? [#24G2]**

(23)
RHL>>-->>CCC>>**I hope I am on track this thime[[time]]. [#10G1]**

4.5.2.4 Counterexamples

Following are two examples illustrating the other side of communication strategy use in problematic interactions in asynchronous threaded discussion, which were marked in coding and analysis as 'non-applicable'. The use of a reprise as an indicator in a negotiated episode:

- Preceded by a trigger with no appropriate response as in (24).

- Preceded by a trigger and followed by a response as in (25).

(24)

MYR>>I think that Egypt needs the comittee [[committee]] to authorize the research on virus recreation because every 5 & 6 years egypt develop new and more dangerous viruses.

AAM>>-->>MYR>>oh my God, MYR you have solved the problem ...... **i think you are talking about another topic** [#19G2]

(25)

AAM>>-->>MYR>>**i want to remind you that he [[the committee]] wants to know if you agree or not with recreation of virus not your oppinion [[opinion]] about the committee.** [#21G2]

MYR>>-->>AAM>>I agree that they should authorize the recreation of virus in Egypt

These were examples of communication strategy use in asynchronous threaded discussion. Having answered research question 2 in this study, research question 3 about some of the possible reasons for variation in communication strategy use is answered in Section 4.6.

4.6 Results Pertaining to Research Question 3

What are some of the possible reasons for variation in communication strategy use in each medium type?

The answers to the first two research questions in this study give support to the fact that there was variation in communication strategy use, particularly in synchronous written chat.

Sources of variation in communication strategy use can be explored on several levels. The first level includes conclusions drawn from the scripts, including the frequency and distribution of the communication strategies in each medium type. The second level explores the researcher's own observations about task design, medium type, nature of interactions, and participant roles. The third level covers the post-perceptions of the class instructor whose feedback touched upon some of the above points from a teacher's perspective. The last level delves into the participants' post-perceptions about their experience during both discussion types. The participants' feedback covered several areas, e.g. medium preference, medium-task fit, satisfaction with task completion, and group dynamics. The first three levels of potential sources of variation will be covered thoroughly in the discussion section in Chapter 5. However, the participants' feedback will be reported in this chapter.

The participants' post-perceptions were collected one day after task completion using a computer-based questionnaire (see Appendix C for results in detail). The questions targeted a number of areas, most importantly medium preference, medium-task fit, satisfaction with task completion, and group dynamics.

Questions about medium preferences revealed a general comfort level with computer-mediated discussions. It should be noted though that 11 out of 15 felt more comfortable during chat. Eleven out of 15 felt they were active in chat only, and three out of 15 in both medium types. Eight out of 15 preferred to make group decisions in chat only and three out of 15 in both. Some of the stated reasons were that chat was more effective, easier and more interesting, besides allowing free discussions and

quick responses. Three responses supported threaded discussion for allowing more thinking time before writing.

Questions about medium-task fit emphasized the suitability of the task to computer-mediated discussions. Nine out of 15 preferred to work with their group on a complex learning task with no right answer in both medium types, and two out of 15 in chat only. Six out of 15 thought that the content of the decision-making task was suitable to discuss in chat only, four out of 15 in threaded discussion only, and four out of 15 in both. Seven out of 15 preferred to reach group decisions on the task in chat only, and five out of 15 in both. Some of the stated reasons in support of chat were the easy access to information without having to go back to previous turns, the efficiency of reaching a quick decision, and the ability to know the reaction of others immediately. Three participants were in favor of threaded discussion as it helped them see each other's opinions and reach a final decision, which might not happen in chat. One participant was dissatisfied with both medium types for the inability to get the right answer when discussing complicated topics.

Questions about task completion showed general satisfaction with the outcome of computer-mediated discussions. Seven out of 15 thought the quality of the group discussion was good in chat only, and six out of 15 in both medium types. Five out of 15 thought the issues raised in the group discussion were important in chat only, and seven out of 15 in both. Six out of 15 thought the group discussion was well-managed in chat only, and four out of 15 in both. Six out of 15 found the final group decision satisfactory in both, and four out of 15 in chat only. However, 12 out of 15 thought the group discussion was slow and tiresome during threaded

discussion. Some of the stated reasons were the fact that all members felt they were obliged to contribute in chat. Other reasons were the immediacy of interaction and responsiveness of group members in chat. Threaded discussion, on the other hand, invited mixed reactions. Some felt disappointed for getting late or no replies. Some felt that this medium created barriers that hindered them from expressing their thoughts. Two participants thought that interactions were interesting, challenging, and better managed in threaded discussion. Three participants thought that it allowed them thinking time to reflect on each other's opinions and come up with a collective rather than an individual decision. One participant was dissatisfied with the final outcome of both discussions.

Finally, the last set of questions showed positive group dynamics among the participants in chat and threaded discussion. Eight out of 15 thought that participation in the discussion among group members was equally distributed in both, three out of 15 in chat only, and three in threaded discussion only. Six out of 15 felt that there was no domination in either discussion type. However, five out of 15 felt that there was domination by one or two members in threaded discussion only, and three out of 15 in chat only. Seven out of 15 felt that the group discussed alternative views in chat only, and seven out of 15 in both. Nine out of 15 felt that the group considered the contributions made by all members in both, and three out of 15 in chat only.

To summarize, the participants' post-perceptions revealed a general positive attitude about both computer-mediated discussion types, in terms of medium preference, medium-task fit, satisfaction with task completion, and group dynamics. A closer look at the above perceptions showed a bias toward chat as a preferred

medium of interaction among the majority of the participants. These perceptions touch upon one main level of variation in communication strategy use in synchronous written chat and asynchronous threaded discussion. Further analysis and elaboration on this level, among others, will be covered in Chapter 5.

4.7　End of Chapter Summary

This chapter reports the findings pertaining to the frequency of four communication strategies in synchronous written chat and asynchronous threaded discussion, as well as some of the potential reasons for variation in communication strategy use. It first presents the framework of coding and analysis of the written chat and threaded discussion scripts. Then, it outlines the levels and sources of variation in communication strategy use, before giving a detailed account of one level: the participants' post-perceptions. A more in-depth analysis touching upon potential sources of variation will follow in the discussion section in Chapter 5.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

5.1 Introduction

This study has set out to investigate the use of four communication strategies in synchronous CMC (written chat) and asynchronous CMC (threaded discussion) during problem-free interactions among pre-freshman Egyptian students in an EFL university context. It was reported that topic continuation was used at significantly higher rates, while hypothesis testing was used at significantly lower rates in synchronous CMC. The findings in asynchronous CMC were too sparse to allow statistical analysis. Still, three potential sources of variation were identified and analyzed in light of available data. Furthermore, several considerations that particularly relate to low interactivity in asynchronous CMC are put forward.

5.2 Chapter Overview

This chapter presents a more in-depth analysis of the current focus of investigation. Section 5.3 summarizes related results to the three research questions in the study. Section 5.4 delves further into the third research question by exploring three potential sources of variation in synchronous CMC: the nature of communication strategies, the nature of medium type, and intra/interpersonal factors. Section 5.5 highlights four considerations that particularly relate to low interactivity in asynchronous CMC: the nature of medium type, medium preference, the novelty of interaction type, and task design. Section 5.6 compares the results of the present study with findings in similar studies. Section 5.7 discusses the pedagogical implications underlying the study. Section 5.8 presents the limitations of the study. Finally, Section 5.9 offers suggestions for future research.

5.3　Summary of Findings

Chapter 4 provided a detailed account of quantitative and qualitative analyses of the data. It reported the results of the present study which explored the use of four communication strategies in two CMC modes. The first question addressed the frequencies of the communication strategies in synchronous written chat. The second question addressed their frequencies in asynchronous threaded discussion. The third question addressed some of the potential reasons for variation in communication strategy use.

The results showed a statistically significant difference in the use of topic continuation in synchronous written chat at higher levels, while hypothesis testing was found to be used at lower levels. A closer look at frequency analyses revealed discrepancies in overall communication strategy use in synchronous CMC. These findings indicate that there was variation in communication strategy use in synchronous CMC. One or more factors were at play, in terms of the nature of the four communication strategies, the nature of medium type, and/or intra/interpersonal factors.

Secondly, a few differences that were too modest to allow statistical analysis were observed in communication strategy use in asynchronous threaded discussion. Topic continuation was clearly used at a higher rate, followed by off-task discussion and then forward inferencing, while hypothesis testing was not used in this mode. However, several considerations regarding interactivity in this mode can be elicited from the participants' comments, instructor's feedback, and researcher's observations. In other words, the nature of medium type, medium preference, the novelty of interaction type, and/or task design may have resulted in low interactivity in asynchronous CMC in general.

Finally, no conclusive answers were reached concerning reasons for variation in communication strategy use in synchronous CMC. However, three potential sources of variation were identified, viz. the nature of the four communication strategies, the nature of medium type, and intra/interpersonal factors. No substantial variation was found in asynchronous CMC. Factors that may have led to low interactivity, particularly in asynchronous CMC, were pinpointed: the nature of medium type, medium preference, the novelty of interaction type, and task design.

5.4 Variation in Communication Strategy Use in Synchronous CMC

The results showed variation in communication strategy use in synchronous CMC, whereas no similar variation was found in asynchronous CMC. The data failed to support any conclusive answers about the exact reasons for variation. However, three potential sources of variation were identified, i.e. the nature of the four communication strategies, the nature of medium type, and intra/interpersonal factors.

5.4.1 Nature of Communication Strategies

The results showed a statistically significant difference in communication strategy use in synchronous CMC. Topic continuation was used at higher rates, whereas hypothesis testing was used at lower rates. It is noteworthy that topic continuation was also the highest in asynchronous CMC. There is an indication that topic continuation was the most accessible for use by these participants. There could be inherent differences in the nature of the four communication strategies under investigation, as illustrated by the following analysis.

The four communication strategies in this study were selected to reflect moves that signal understanding or forward communication. Hypothesis testing, forward inferencing and continuation signals are among those strategies with forward orientation (Vandergrift, 1997). That is, these strategies consolidate mutual

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understanding and forward communication among interlocutors. The results of communication strategy use in synchronous CMC are consistent with Vandergrift's (1997) premises about spoken interaction. However, the fact that forward inferencing and hypothesis testing were comparatively less frequent implies the different nature of these two communication strategies. In fact, the analysis of the scripts showed that each of the four communication strategies played a different role in the interactions.

Topic continuation acted as a prompt to continue or elaborate on the discussions. That is, the interlocutors were not required to contribute as much as ask their peers to do so. In synchronous CMC, the interlocutors did prompt each other to elaborate or respond under pressure to reach a decision by the end of the 30-minute session.

Off-task discussion played a role in adding a personal dimension to the discussions. In synchronous CMC, the interlocutors made great use of this communication strategy, especially in one of the groups where humorous comments ran parallel to the main discussion throughout the session. The real-time nature of interaction, in which all group members were available at the same time, must have encouraged this personal informal way of discussion.

Forward inferencing was used to explicitly signal understanding and forward the discussions. In synchronous CMC, the interlocutors used this communication strategy to accept previously presented ideas and challenge their peers to further justify their reasoning by asking questions on new information. The fact that forward inferencing was limited in use denotes the more advanced nature of this communication strategy, compared with topic continuation and off-task discussion. It requires analyzing old information as well as synthesizing new ideas in question form. The interlocutors, being novice in this way of reasoning in group CMC

discussions, may have found difficulty in using this communication strategy more often (see Novelty of Interaction Type for details).

At first blush, hypothesis testing may seem to have backward orientation, compared to forward inferencing and topic continuation. However, as maintained by Vandergrift (1997), hypothesis testing indirectly forwards communication. By seeking positive evidence of understanding, contributions are considered complete among interlocutors, leading them to carry on with discussions upon receiving this evidence (Vandergriff, 2006). These premises were supported by the present study's findings on synchronous CMC. Hypothesis testing was actually used to verify self-understanding and challenge peers to justify their reasoning. The interlocutors needed to move the discussions forward without having to scroll up and read previous contributions, as they were bound in real-time. They asked questions or made comments by repeating previously mentioned information to help them reach a final decision.

To sum up, the data highlight inherent differences in the four communication strategies. Topic continuation was evidently the most accessible in forwarding the discussions. Off-task discussion seems to have added a personal dimension. Forward inferencing may have been the most challenging for its complex nature, resulting in its use at lower rates. Hypothesis testing was also used at lower rates. Thus, inherent differences in the nature of the four communication strategies may have led to variation in communication strategy use in synchronous CMC.

5.4.2 Nature of Medium Type

It was reported that off-task discussion comprised 32.8%, while hypothesis testing comprised 13% of overall communication strategy use in synchronous CMC. It is worth noting that off-task discussion reached 19.2%, whereas hypothesis testing

did not appear in asynchronous CMC. These findings denote that while certain communication strategies were particularly active in synchronous CMC, the same strategies decreased or even disappeared in asynchronous CMC. Synchronous CMC gave ample room for personal, humorous, and other comments. The data seem to imply a relationship between medium type and the (de-)activation in communication strategy use. Accordingly, medium type may be related to variation in communication strategy use, particularly in synchronous CMC.

5.4.3 Intra/Interpersonal Factors

The frequency analyses indicated within-groups differences in communication strategy use in synchronous CMC. Topic continuation and off-task discussion were reportedly the two most commonly used. However, some participants demonstrated observed differences, while others did not. Off-task discussion was used at a clearly higher rate than other communication strategies. Topic continuation was also used at a comparatively higher rate by some participants, while others did not demonstrate similar clear forms of use.

A closer look at the data revealed characteristic forms of use among some participants more than others. Code-switching and humor were predominant in off-task discussion, including the adoption of the role of a joker and a challenger by one participant. Forward inferencing was produced the least by some participants. That is, forward inferencing appeared to have sometimes given way to off-task discussion. Other participants did not have prevalent forms of use. Put together, these results indicate that distinctive uses in the amount and way of interaction occurred in the data of some participants, compared to others.

5.4.4 End of Section Summary

Three factors were recognized as potential sources of variation in communication strategy use in synchronous CMC. First, the data highlight the unique nature of each of the four communication strategies. Second, the data suggest a relationship between medium type and communication strategy use. Finally, the data imply the existence of intra/interpersonal differences among participants. Therefore, it can be argued that variation in communication strategy use in synchronous CMC was due to one or more of these reasons.

5.5 Considerations Regarding Low Interactivity in Asynchronous CMC

The data provided modest results on communication strategy use in asynchronous CMC; it was not possible to make generalizations. Accordingly, the results failed to support variation in this mode. However, the data supported a number of considerations that specifically relate to low interactivity in asynchronous CMC.

5.5.1 Nature of Medium Type

The participants' post-perceptions and class instructor's feedback provided evidence that asynchronous threaded discussion was perceived as being quite different from synchronous written chat (see Appendix C for details). Some of the identified characteristics of threaded discussion were non-simultaneous interaction, delayed responses, and formality. These characteristics which reflect the nature of asynchronous CMC may have led to low interactivity.

Moreover, the number of identified communication strategies in asynchronous CMC was disproportionate to the size of the data set, however its small size. To illustrate, the word count showed that the written chat data set exceeded by almost a double that of threaded discussion, yet overall communication strategy use in synchronous CMC exceeded that in asynchronous CMC by more than seven times.

Furthermore, the scripts showed that the participants mainly presented their own ideas and engaged in a few dialogues in asynchronous CMC where questions and comments on other contributions were relatively limited. By contrast, they made contributions in which they presented their own ideas, besides other contributions in which they challenged each other's ideas in synchronous CMC. Put another way, asynchronous CMC included monologues and sporadic fragmented dialogues, unlike extended dialogues in synchronous CMC.

Lastly, as previously mentioned, the frequencies in asynchronous CMC were too low to extract prominent forms of use. Still, it should be mentioned that certain communication strategies, e.g. off-task discussion, were used at comparatively lower rates, i.e. they had little room in asynchronous CMC. It should be also noted that one communication strategy, hypothesis testing, was not used in asynchronous CMC. A number of interpretations of this absence can be made. First, lack of immediacy and delayed responses in asynchronous CMC may have led to the limited use of off-task discussion. Second, the interlocutors may have found it unnecessary to use hypothesis testing in asynchronous CMC, since they could always go back to previous posts and respond in delayed time.

Taken together, there seems to be a relationship between medium type and low interactivity in asynchronous CMC. The findings also suggest an implicit relationship between medium type and low rates of overall communication strategy use.

5.5.2 Medium Preference

The previously reported participants' post-perceptions revealed a general comfort level with CMC discussions, with a dislike of asynchronous CMC (see Appendix C). The participants stated several reasons why they were not in favor of

threaded discussion. The interactions were described as slow and tiresome, "like an email [that can] take two days to discuss", as maintained by one participant. The participants sometimes felt bored or disappointed for receiving late or no responses since "some of the group members did not reply", as stated by another participant. Some felt that there were barriers, or as put by a third participant "barricades between [their] thoughts", preventing them from expressing their ideas freely. Still, threaded discussion had an advantage where "[the] opinion[s] of every one [was clearly] shown", as maintained by the same participant. A few participants enjoyed threaded discussion as it allowed them more time to think and reflect on each other's ideas, in addition to being challenging and interesting.

The class instructor's feedback emphasized the participants' strong inclination toward chat rather than threaded discussion (see Appendix D for details). According to the class instructor, the participants were more comfortable with chat because most of them use it often in non-academic online discussions. Having captured their attention, chat was more informal, engaging, and appealing, resulting in more interaction. The only drawback from her point of view was their use of L1. However, although chat allowed ample room for ideas and interaction, formality was maintained more in threaded discussion. She believed that the outcome of interactions was satisfactory in both modes, relative to the participants' maturity. In her view, the issues raised were more varied during chat. However, she believed that "the quality was slightly better during threaded discussion [because t]he activity lends itself to more profound ideas and a more formal level of communication."

In short, the above perceptions emphasize a strong dislike of asynchronous CMC among the majority of participants. Therefore, this medium preference may have strongly affected the amount of output in general, and the rate of communication strategy use in particular.

5.5.3 Novelty of Interaction Type

It was reported that the participants had not been extensively exposed to the use of either mode in academic discussions before this study. They were also inexperienced in doing decision-making tasks in group discussions in an EFL context. They were only given a 50-minute warm-up session, one day before data collection. Thus, it can be assumed that their familiarity with decision-making tasks in both modes was the same. Despite the participants' lack of experience in this interaction type, the script analyses had evidence of their grasp of the underlying notions in decision-making tasks. In synchronous CMC, the participants managed to present, challenge, support, and elaborate on ideas before making their final decisions. However, this grasp was not fully reflected in asynchronous CMC. Thus, the novelty of this interaction type, among other factors, may have contributed to low interactivity in asynchronous CMC.

5.5.4 Task Design

The two-part decision-making task was designed for the purposes of this study based on one topic (see Appendix A). The participants discussed the first part over a 30-minute session in synchronous CMC and the second part over a whole day in asynchronous CMC. Looking back at the scenarios in both parts, they could have been slightly different in nature.

The two scenarios were intended to be parallel in topic and difficulty level. Both scenarios were about two issues that required the participants to reach decisions in group CMC discussions. Both parts of the task encouraged the participants to challenge each other's ideas by asking questions and making comments.

Nevertheless, a more in-depth analysis revealed a subtle distinction between the two scenarios. The first decision in synchronous CMC may have been more

personal where the participants could just refer to their background knowledge and each other. The second decision in asynchronous CMC was more technical, where the participants had to refer to the reading, in addition to their background knowledge and each other. That is to say, the participants may have found the first part relatively easier in discussion than the second one. Thus, this fine distinction may have also contributed to low interactivity in asynchronous CMC (see Study Limitations below).

5.5.5 End of Section Summary

The data supported several considerations in relation to low interactivity in asynchronous CMC, viz. the nature of medium type, medium preference, the novelty of interaction type, and task design. There are implied relationships between medium type and low interactivity, especially medium type and low communication strategy use. However, further investigation is required to substantiate or discredit such claims.

5.6 Findings in Similar Studies

The results of the present study are comparable with findings in two studies in NBLT literature: Vandergriff (2006) on reception grounding strategies in face-to-face vs. synchronous CMC interactions, and Smith (2003b) on communication strategies in synchronous CMC. Findings relevant to the four communication strategies in synchronous CMC are highlighted.

The present study is consistent with Vandergriff's (2006) findings. Her study compared the frequencies of global reprise, specific reprise, hypothesis testing, and forward inferencing in spoken vs. synchronous CMC interactions. Unlike global reprise and specific reprise, the last two strategies were relatively higher in both modes. The findings indicated that hypothesis testing had equal frequencies in both modes, while forward inferencing was used at lower rates in synchronous CMC. However, the differences were not statistically significant.

The present study investigated the use of hypothesis testing, forward inferencing, topic continuation, and off-task discussion in synchronous and asynchronous CMC. The findings showed that topic continuation was used at significantly higher rates in synchronous CMC, compared to hypothesis testing which was used at significantly lower rates. It should be noted that both studies reported rankings in which forward inferencing preceded hypothesis testing in synchronous CMC.

Furthermore, Vandergriff's findings indicated that some participants varied, while others did not, in their strategy use across both modes. However, the numbers were too small to reach statistical significance. Similarly, the present study also reported observed differences in communication strategy use in synchronous CMC.

It is worth mentioning that the results of the present study are inconsistent with Smith (2003b). In his study, Smith investigated the frequency of a set of 26 communication strategies in synchronous CMC. His findings reported the most frequent use of other communication strategies: substitution, politeness, framing, and fillers. Similar communication strategies to those currently investigated were reportedly used at relatively lower rates. It is noteworthy that the four selected categories were adapted for the purposes of the present study. Their ranking in Smith's study from the most to the least frequent was hypothesis testing, continuation signals, meta-talk, and forward inferencing, yet with no observed differences. In the present study, topic continuation ranked first, followed by off-task discussion, forward inferencing, and hypothesis testing in synchronous CMC. However, topic continuation was reportedly used at statistically higher rates, while hypothesis testing was used at significantly lower rates.

The results on asynchronous CMC in the present study cannot be compared with results from other studies for two reasons. First, the four categories under study have not been investigated in similar NBLT studies exploring communication strategy use in asynchronous CMC. Second, the findings on asynchronous CMC were too modest to make generalizations or extract forms of use. Still, this study gives support to Biesenbach-Lucas's (2005) investigation of communication strategy use in asynchronous CMC. In the present study, communication strategy use was recognized in asynchronous CMC, although the categories under investigation differed, in addition to the previously-described low frequencies. This study is also consistent with Sotillo's (2000) findings that synchronous CMC, rather than asynchronous CMC, elicited more discourse functions, i.e. communication strategies, that are similar to spoken interaction.

Overall, the present study implicitly supports premises and findings in several NBLT studies. First, it supports Vandergriff (2006) in the use of decision-making or consensus-building tasks to investigate metalinguistic features, e.g. communication strategies. Other tasks in other studies, e.g. jigsaw or information gap, may be better suited for the investigation of linguistic features, e.g. lexis (Blake, 2000; Smith, 2003a; Smith 2003b). Second, the study emphasizes the validity of investigating communication strategies in problem-free CMC interactions, as first suggested by Smith (2003b). Although the scripts included a few breakdowns where meaning was negotiated, the majority of interactions illustrated communication strategy use before the occurrence of communication breakdown. Finally, the study gives support to Blake (2000), Smith (2003a), and Tudini (2003) in their findings that much less time was spent on meaning negotiation upon meeting problems in understanding; the data provided evidence that more time was spent on successful task completion.

5.7   Pedagogical Implications

The current investigation of communication strategies in problem-free CMC interactions has a number of pedagogical implications. According to the class instructor, the present research study was "an eye-opener". She believes that she should include more of these activities in her teaching. "Besides breaking the monotony of in-class instruction, these interactive activities are intriguing to the students. They help students begin to think, analyze, and become problem-solvers". Thus, both synchronous and asynchronous CMC interactions, the class instructor maintains, can have a positive impact on EFL learners in academic contexts.

Besides adding interest to in-class activities, CMC is now essential in EFL/ESL settings for its great capacity in building an online community of practice that extends beyond classroom boundaries (Zhao, 1996). Furthermore, CMC modes, especially asynchronous CMC, are the backbone of distance learning programs. Learner preferences and comfort level affect decisions about the most suitable modes of interaction in these contexts (Levy & Stockwell, 2006). That is why it is essential to raise learners' awareness of the dynamics of different CMC modes. The present study identified several areas that need careful consideration, e.g. the nature of communication strategies, the nature of medium type, medium preferences, and inter/intrapersonal factors. EFL/ESL instructors should use that knowledge to set up an environment with optimum learning conditions for their learners. They should also prepare learners to deal with various modes of face-to-face and online learning, considering the pros and cons of each mode of interaction.

Finally, the current investigation reiterates the importance of studying learner interactions with a problem-free lens. This perspective contrasts with a longstanding focus on EFL learners' "linguistic deficiencies" and "communicative problems" (Firth & Wagner, 1997, p. 288). Along with predominant studies on difficulties and problems, this alternative view may provide insights into EFL/ESL learners' productive efforts to achieve "communicative success", despite their linguistic and communicative limitations (Firth & Wagner, 1997, p. 288).

This focus on agency should by no means sacrifice accuracy. The present study acknowledges the downside of CMC interactions, especially synchronous CMC discourse in which there were a number of typos and language problems, in addition to informality and code-switching. However, these are a natural byproduct of authentic communicative activities. On the positive side, the scripts can be always retrieved for later reference. Post-activities can follow, where learners spot and correct their own errors, guided by their EFL/ESL instructors.

Most importantly, the focus on efficient communication strategy use in CMC can enhance reasoning abilities in EFL/ESL contexts. As maintained by the class instructor, decision-making task-based activities can help students "become more analytical and consequently better thinkers". The present study findings revealed forms of communication strategy use in which the participants challenged each other to justify or explain their reasoning. Hypothesis testing, forward inferencing, topic continuation, and even off-task discussion, encourage students to open a dialogue in which they question presented ideas. Explicit instruction on various communication strategies can train EFL/ESL learners on how to present, challenge, support, and elaborate on ideas (Yule & Tarone, 1997). Practice and consciousness-raising activities on efficient communication strategy use in various modes can help in better communicative effectiveness. These activities can promote the transferability of

communicative competence across modes of interaction (Chun, 1994). As a result, EFL/ESL students can be more capable of building profound well-supported arguments in speaking and writing.

5.8 Study Limitations

The present study had a number of limitations. First, the period of data collection was necessarily truncated, in addition to a subject sample that was relatively small due to practical constraints. That is why the results in the present study cannot be generalized. Second, the number of categories under study does not reflect a much broader domain of communication strategies. Thus, the study does not claim that this sample of communication strategy use is representative of any other group, except a similar one of pre-freshman Egyptian EFL university-level students with the same conditions as specified. Third, the findings might have been influenced by the carryover effect (Upton & Cook, 2008), resulting from the completion of the decision-making task in synchronous and asynchronous CMC over two successive days. A wash-out period between the two parts is advisable in later studies. An interval of time in between both parts would result in fewer chances where learning experiences are carried over to the second part of task completion. Furthermore, the analysis of the task revealed a small variation in task scenarios that may have slightly affected task completion. Given more time, larger samples, and more control for variation as well as output, the results could potentially give a more accurate picture of communication strategy use in an Egyptian EFL university context.

5.9 Suggestions for Future Research

More studies on communication strategy use in CMC are needed in order to provide more insights into the nature of communication strategies as well as medium type in Egyptian EFL university contexts. More research on representative categories of communication strategy use in problem-free interactions is needed. Moreover, it is important to explore how communication strategy use contributes to the quality of arguments produced during various CMC discussions. Further investigation on how communicative competence can potentially transfer across CMC and other modes of interaction is needed. Finally, the study of how high/low interactivity relates to communication strategies, medium type, and intra/interpersonal factors is also needed.

5.10 Conclusion

This study aimed at exploring the use of four communication strategies in problem-free synchronous and asynchronous CMC interactions among pre-freshman Egyptian students in an EFL university context. The data yielded a statistically significant difference in overall communication strategy use in synchronous CMC. The difference resulted from the use of topic continuation at significantly higher levels, compared to the use of hypothesis testing at significantly lower rates. There were also observed differences, denoting variation in communication strategy use in synchronous CMC. These findings suggest that certain communication strategies may be more accessible than others in a given mode of interaction, bearing in mind intra/interpersonal factors. The results failed to support similar findings in asynchronous CMC. However, the data implied several considerations that particularly relate to low interactivity in asynchronous CMC, viz. the nature of medium type, medium preference, the novelty of interaction type, and task design. Further research on how interactivity relates to these factors is needed.

5.11 Chapter Summary

This chapter provides a detailed analysis of the findings in the present study investigating the use of four communication strategies in synchronous and asynchronous CMC. Section 5.3 summarizes related results to the three research questions under study. Section 5.4 analyzes three potential sources of variation in synchronous CMC. Section 5.5 puts forward four considerations that particularly relate to low interactivity in asynchronous CMC. Section 5.6 compares the findings of the present study to similar studies. Section 5.7 discusses pedagogical implications behind the present focus of investigation. Section 5.8 mentioned the limitations of the study. Finally, Section 5.9 offers suggestions for future research.

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APPENDIXES

Appendix A - Decision-making Task

Overview of the Study

FOUR DAYS ALL IN ALL		
Stage One (in-class & home)	**Stage Two (in-lab & home)**	**Stage Three (in-lab)**
Pre-task	*While task*	*Post-task*
Overview of task	Day 1: chat session in the CALL lab	Post-perceptions questionnaire completion
General instructions for task completion	Day 2: initial postings on the discussion board in the CALL lab. Later postings in delayed time.	
Student Q/A		
(class time: 50 minutes)	*(class time: 100 minutes)*	*(class time: 50 minutes)*

General Instructions to the Participants

Over the next few days, you will participate in a research study in which you will get to learn how to use two of the most important tools for online discussion. You will be awarded a certificate of merit for completing the three stages of the study successfully (see details below).

In each of the discussions, you will need to make a decision about a problem, based on the information you gather. You may agree or disagree as a group. You are greatly encouraged to challenge each other's views by asking questions and making comments on your contributions.

Your group discussions will be conducted in chat and threaded discussion in WebCT. To prepare for both discussions, you are expected to read and answer questions to help you with ideas during actual online discussion. You must have completed the first preparatory stage before starting your discussions in Stage 2. Throughout Stage 2, you will be working in groups of three/four with the same team members over two days (see Stage 2 for details). You should note that all your discussions **will be in English and will be later retrieved for reference.** After you finish both discussions, you will complete a computer-based questionnaire about your reactions to this experience. By this you will have covered the three stages required for this study.

Stage 1: Preparation for Discussion

Over the weekend, you need to get prepared for the discussion task. The reading text and questions are accessible via the class WebCT. To get credit for fulfilling the requirements of Stage 1, you will take an online quiz with comprehension questions on WebCT before the start of the discussions. Here are the details:

Theme: Biology

Article for chat entitled: <u>Back from the dead</u> Available online: Class WebCT

One quiz to be taken electronically

Stage 2: The Discussion Task

In this stage, you will have online discussions on an issue of concern over two days. You are required to make two decisions based on readings and interactions with your team members. You will remain with the same team members throughout the two days of discussion. All the groups will start with the chat discussion, and then do the threaded discussion the following day. Remember that all your discussions are in English, just like your class discussions. Also remember that successful task completion depends on your weighty and timely contributions. In the chat, you need to give attention to all your team members, asking questions and making comments throughout the 30-minute discussion. In the threaded discussion, you need to make a minimum of **<u>five</u>** postings including an introductory message, responses to your team members, and a concluding message. Here are the details:

Chat Discussion - Decision 1

In the holiday, you visit your grandparents' house in the countryside. You meet with your good old friends at the neighbor's house as you normally do on your visits. You happen to notice that their mom is still raising chickens indoors. You feel an obligation to do something about this situation since the whole family, let alone your grandparents, may be at great risk. In a 30-minute chat session, decide with your group members what you will do to ensure the safety of all those concerned. You may agree or disagree with other group members. However, you are encouraged to challenge each other's views to reach a sound decision. Note that all your discussion is **<u>in English</u>.**

Threaded Discussion - Decision 2

You have been designated to join a committee of consultants to discuss the liability of conducting research on virus recreation in Egypt. Over a whole-day threaded discussion, your group of committee members needs to decide whether research on virus recreation should be authorized in Egypt. You, as an expert committee member, must consider various perspectives to come up with a well-supported decision on the matter before it is referred to the Parliament for voting. It is highly recommended that the committee consider current affairs, facts, and opinions related to this matter. The committee members may agree or disagree, as long as each makes a sound argument. However, you are encouraged to challenge each other's views to reach a common vision. Note that all your discussion is **in English.**

Stage 3: Questionnaire

Now that you have successfully completed the task, you are ready to move on to Stage 3, the last part of this study. Provide your thoughts and feelings about your experience in chat and threaded discussion. Your further elaboration and explanation will be seriously considered for later activities.

Appendix B - Post-perceptions Questionnaire

Complete the following questionnaire[2] about your experience in the past days during the completion of the assigned decision-making task in chat and threaded discussion. Choose one answer for each of the following items. Feel free to add your own comments for further explanation.

Name of respondent _____ [3]

6 items	Elaborate on your answers to one or more of the following items, by mentioning your reason(s) why you think/feel so:	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
General preferences toward working with others and	1. I prefer to work with others than to work by myself.					
	2. I prefer to make a group decision than an individual decision.					
	3. I am comfortable with computer technology.					
	4. I am experienced with computer-based discussions.					
	5. I believe that computer-based discussions can help in learning.					
	6. I feel comfortable participating in computer-based group discussions.					

3 items	Elaborate on your answers to one or more of the following items, by mentioning your reason(s) why you think/feel so:	Chat	Threaded Discussion	Both	Neither
	7. I felt more comfortable with discussions during:				
	8. I was more active during:				
	9. It was preferable to make group decisions during:				

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[2] Computer-based multiple-choice items with additional boxes for qualitative comments
[3] Anonymity was found to be problematic as WebCT does not allow tracking surveys to their original respondents.

3 items	Elaborate on your answers to one or more of the following items, by mentioning your reason(s) why you think/feel so:	Chat	Threaded Discussion	Both	Neither
	10. It was preferable to work with my group on a complex learning task with no one right answer during:				
	11. It was suitable to discuss the content of the decision-making task during:				
	12. It was preferable to reach group decisions on the task in:				
5 items	Elaborate on your answers to one or more of the following items, by mentioning your reason(s) why you think/feel so:	Chat	Threaded Discussion	Both	Neither
	13. The overall quality of the group discussion was good during:				
	14. The group discussion was slow and tiresome during:				
	15. The issues raised in the group discussion were important during:				
	16. The group discussion was well-managed during:				
	17. The final group decision was satisfactory during:				
4 items	Elaborate on your answers to one or more of the following items, by mentioning your reason(s) why you think/feel so:	Chat	Threaded Discussion	Both	Neither
	18. Participation in the discussion among group members was equally distributed during:				
	19. One or two members dominated the group discussion during:				
	20. The group discussed alternative points of view during:				
	21. The group considered the contributions made by all members during:				

Group Dynamics

4 items	Elaborate on your answers to one or more of the following items, by mentioning your reason(s) why you think/feel so:	Chat	Threaded Discussion	Both	Neither
Hypothesis testing	22. I asked questions and/or made comments about the ideas in previous messages to check my own understanding during:				
	23. I explicitly showed my understanding and/or furthered the discussion by asking questions based on information in previous messages during:				
Topic continuation	24. I used expressions to encourage my peers to respond to my messages and/or carry on with the discussion during:				
Off-task discussion	25. I made contributions that do not directly relate to the task, e.g. jokes and personal comments, during:				

Appendix C - Questionnaire Results

Abbreviations

SA	Strongly Agree	**N**	Neither
A	Agree	**B**	Both
U	Undecided	**TD**	Threaded Discussion
D	Disagree	**CH**	Chat
SD	Strongly Disagree		

1. I prefer to work with others than to work by myself.

Comments

AAT	working together makes anything easy and the result of it is better than working individually.	**SA**
KSG	Group discussions are more effective than personal ones	**SA**
MYR	working with people makes u absorb new information from different points of view	**A**
AHM	because its better to make a group decision	**A**
MWL	working with others let me have a chance to share experiences of others	**A**
YGS	sometimes you have to work alone	**A**
SMN	Working with groups help everyone to know different perspective	**SA**
CCC	sometimes i prefer to work in a group to help each other with ideas and fro example in understanding something but while studying i prefer to work alone so i can focus more and review as i want and sometimes my ability to learn or to understand something is much more quickly or slower than others with is a disadvantage while working in group (as a waste of time)	**A**
AMH	Group work is much better than individuals	**A**
CRG	to share the ideas together	**A**

2. I prefer to make a group decision than an individual decision.
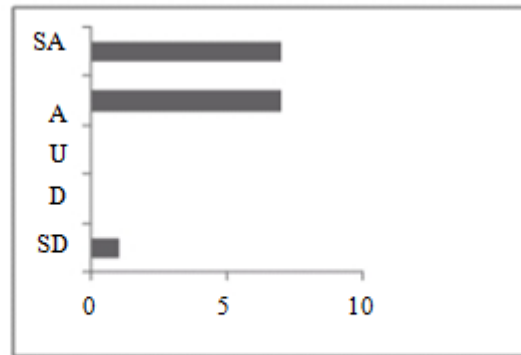
Comments

AAT	Group decision is more wiser.	SA
MYR	making a group decision is important because you will have someone that agree's and support ur ideas	A
AHM	Group descision makes people reach the best solution	A
MWL	When I work with others I feel more active than working alone	SA
AAM	because that will make us reach to the best decision because through that we can share our ideas to get a good decision	SA
YGS	To help each others in taking the dicision	SA
CCC	i dont prefer a group but i prefer to take another person opinion , someone confident , if it;s about studying or working or anything in life .. AND then the final decision is mine but after taking someone else advice .	A
AMH	we always see any subject from one view and give our decision, so group decisions open anothers [[other]] views that we dont consider.	SA
CRG	i prefer to take the decision alone without any pressure	SD

3. I am comfortable with computer technology.
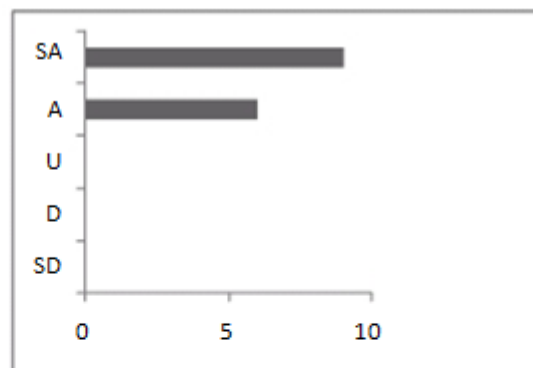
Comments

AAT	it facilittes [[facilitates]] many things.	SA
MWL	computer tech. is preferable as everything now is done using computers	SA
AAM	who don't want to live in the new age?	A
YGS	i use it all the time	SA
CCC	we all have to use computers so we can ameliorate our ways of working and thinking and really we provide lots of things while using technology in all electronics stuff .	SA

| AMH | it developed everything around us. | A |
| CRG | But somtimes it is not easy to understand the technology | A |

4. I am experienced with computer-based discussions.
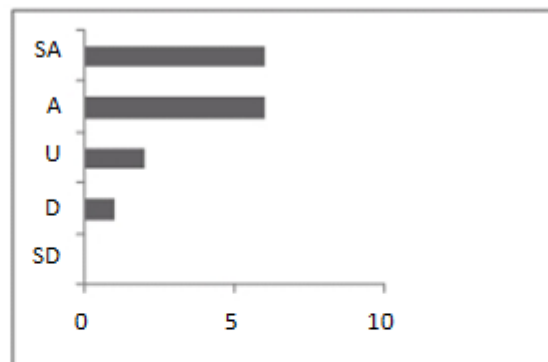
Comments

AAT	Undecided	U
MWL	I am used to on-line chatting with my freinds and also with threaded discussions	SA
YGS	We use it in all our careers and in all studies	A
CCC	by using the msn and while chatting with others , i got used to write and practiced the writing skill ..	SA
CRG	i am used to chat with my friends	SA

5. I believe that computer-based discussions can help in learning.
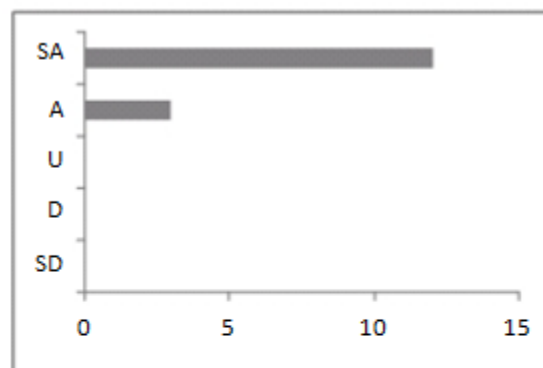
Comments

AAT	it makes you to konw other people's opinions.	SA
AHM	Because it helps people to share their experience	SA
MWL	computer based discussions give more chance to voice my point of view more freely than the oral discussions	SA
RHL	If it is related to what we study	A
YGS	it helps in learning how to chat and gives us more voc. and practice the language	SA

CCC	But we dont have to be based on this way of learning .. coz being face to face with others and especially the teacher it's the best way of lerning and understanding	A
AMH	Ofcourse computer based help us learn more	**SA**
CRG	Because we get use to the language	**SA**

6. I feel comfortable participating in computer-based group discussions.
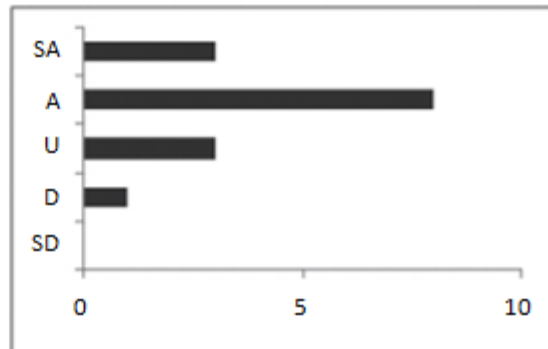
Comments

AAT	Because i love computers.	**SA**
AHM	Because it helps people to make group descision [[decisions]]	**A**
MWL	I am free to say whatever I want to without being inetrupted [[interrupted]] by anybody in conrast [[contrast]] to oral discussions	**SA**
YGS	Sometimes is usefull but it is a little bit boring	**U**
SMN	Yes. it helps us to know different way of thinking	**A**
CCC	i didnt like this way especially if u are with a lazy and uncheerful group and the group member dont have a good opinion and u feel that i dont know how to think.....so i prefer to choose the person u want him to help u and u go toghether somewhere	**D**
AMH	its fun and challenging, and let you be more lucid than face to face discussion.	**A**
CRG	To learn more and more	**A**

7. I felt more comfortable with discussions during:
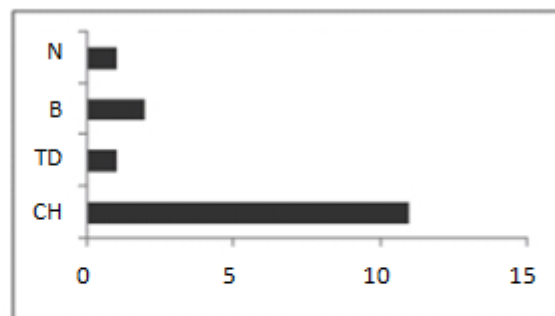
Comments

AAT	Chat is like talking face to face.	**CH**
KSG	Chating is more effective	**CH**
AHM	because it gives us time to think before w write	**TD**

MWL	I was more comfortable in the chat as I was able to know the others opinion immediatly without waiting for their reply for a long time	CH
AAM	As you can express your point of view without any stress	CH
YGS	Chat is more easy and it is not boring like the other kind	CH
SMN	Chatting assists us to speak free about the discussions and we can find answers quickly.	CH
CCC	better thn the other one ..coz at least u receive the answer (reply) immediatly .. but not the best way	CH
AMH	i think its the same but the difference that the chat is at the same time and the threaded takes time, but ofcourse i felt comfortable expressing my opinions to my group.	B
CRG	To combine the ideas together	B

8. I was more active during:
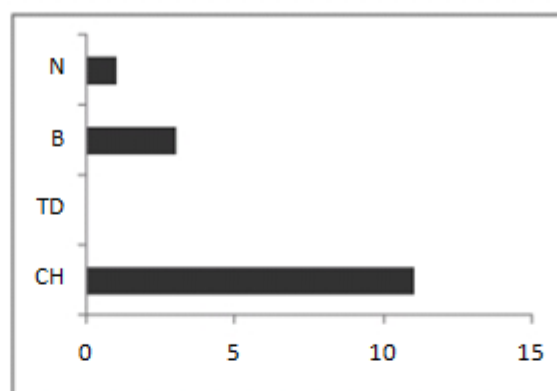
Comments

AAT	Because i like chatting.	CH
SAY	iam rely [[really]] interested on chat in general	CH
AHM	Because during chat we have to participate coz we are restricted with specific time	CH
MWL	I was more active in the chat discussion as I was concentrating on the topic and I was always thinking of how to defend my points of view	CH
YGS	more interesting	CH
SMN	Chat was comfortable in the way of speaking. Each one of us can constrate more clearly about the discussion.	CH
CCC	The same answer of the last question [[better thn the other one ..coz at least u receive the answer (reply) immediatly .. but not the best way]]	CH
AMH	i think chat because you can see your group reaction at the same time and you respond at the same time, thats makes me active and challenged.	CH
CRG	Because there were interesting discussions	B

9. It was preferable to make group decisions during:
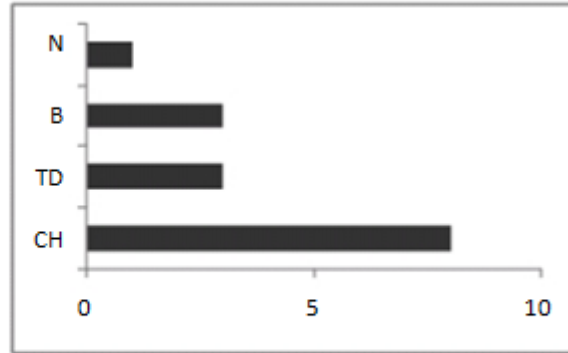
Comments

AAT	Because if there is something i don't know, anyone can tell me about it.	**CH**
SAY	Group decesion is always more accurate	**B**
MYR	When ever u have something to add u added it in the chat discssion and will get feed back right away	**CH**
AHM	Because during chat we have to reach final decision	**CH**
MWL	Both were nearly the same as we wanted to reach a final descion [[decision]] but the the chat was quicker in reaching the descions	**B**
YGS	remember the dicisions without going back to the previous post or waiting another post	**CH**
CCC	The same opinion .. [[better thn the other one ..coz at least u receive the answer (reply) immediatly .. but not the best way]]	**CH**
AMH	We actually all agreed in the chat.	**CH**
CRG	Because we wanted to reach only one decision	**TD**

10. It was preferable to work with my group on a complex learning task with no one right answer during:
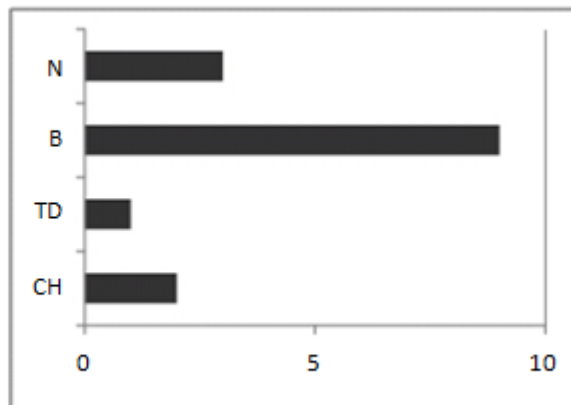
Comments

YGS	We found the final dicision easier and faster than the other kind Thread discussion helps us to see each one opinion but not like the chat.	**CH**
SMN	Thread discussion assists us to know the final opinions, but chat might end up without a final discusiion [[decision]].	**TD**
CRG	To share ideas together	**B**
AMH	Both in chat and threaded discussion we didnt get the right answer because the topics are really complicated and hard to get the conclusion of.	**B**

11. It was suitable to discuss the content of the decision-making task during:
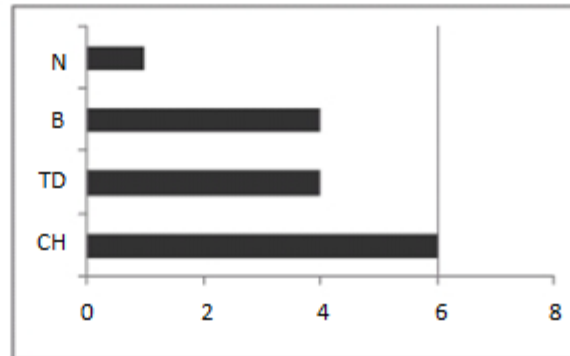
Comments

AAM	Because in this case every one can express his oppinion in an organized way , so we can get a good decision that express all of our oppinions	**CH**
YGS	have the time to think about some dicision	**TD**
CCC	we didnt get the best solution ..	**N**
CRG	Because we were talking about the same subject and wanted to reach a decision	**B**
AMH	In the chat we actually chated about the topic easily and faster.	**CH**

12. It was preferable to reach group decisions on the task in:
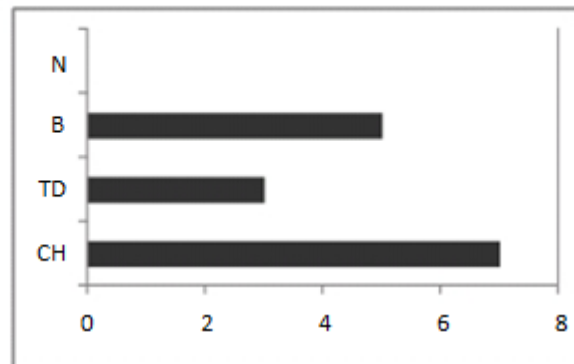
Comments

MWL	It was quicker and we all were concentrating on the same topic at the same time.	**CH**
YGS	nothing to add [[have the time to think about some dicision]]	**CH**
AMH	Its was easy to get the group decision in the chat.	**CH**
CRG	because we wanted to reach one solution	**TD**

13. The overall quality of the group discussion was good during:
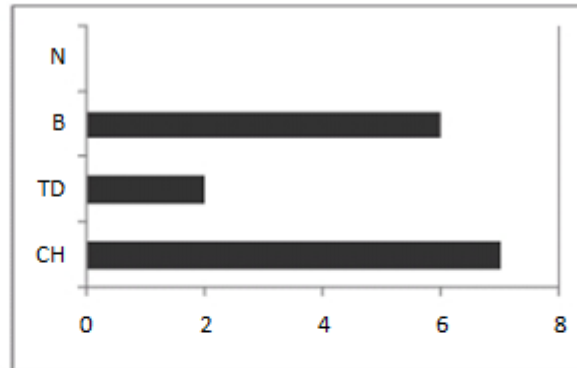
Comments

AHM	because we all had to participate	CH
MWL	we reached convinient discions [[decisions]] in both	B
AAM	[[Chat was]] without stress and organized	CH
YGS	hey [[they]] are usefull	B
CCC	the group was better thn the other group [[in chat]]	CH
AMH	Th two was a good quality either in chat or the threaded discussion.	B
CRG	To combine our ideas together	B

14. The group discussion was slow and tiresome during:
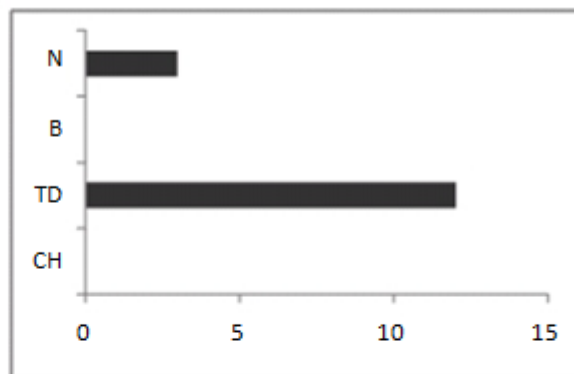
Comments

MYR	some of the group members did not reply	TD
AHM	because some didnt post msgs	TD
AAM	because it isn't an active way to express our ideas because it creats a barricades between our thoughts	TD
YGS	[[Both were]] interesting	N
SMN	It not as chat we should wait for the other person to answer for hours and may be the that person wont answer and answer so late	TD
CCC	As u had to wait a lot for the reply //	TD

| AMH | It was slow because its like getting an email it can take a whole two days to discuss. | TD |
| CRG | To reach a solution that satisfy everyone | TD |

15. The issues raised in the group discussion were important during:
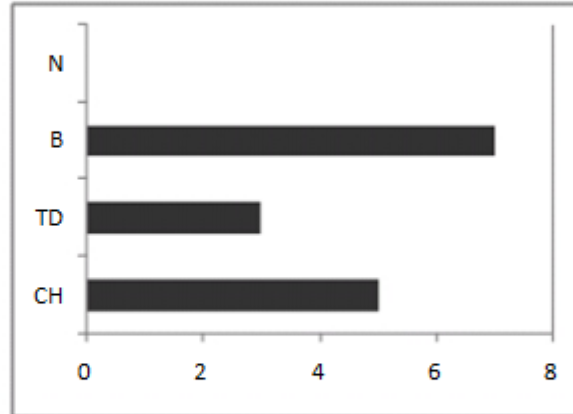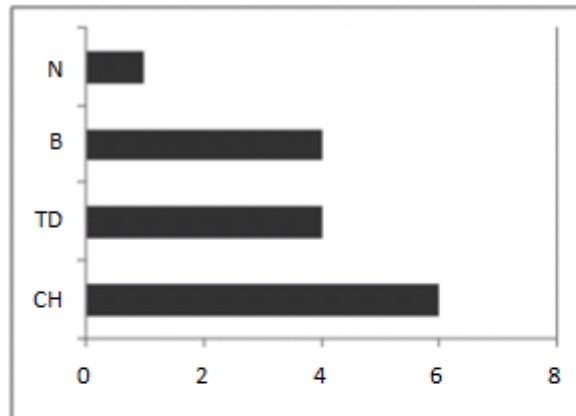

Comments

MWL	both topics deserve discussion	B
YGS	same thing like the previous ([Both were] interesting)	B
CCC	all the subjects were intresting ..	B
AMH	I think in the threaded discussion was interisting because it was a challenging issue.	TD

16. The group discussion was well-managed during:

Comments

| AHM | because we had to think before we write | TD |
MWL	all our answers were following each other but in the threaded sometimes we go back to a point we discussed before as one of our collegues was late	CH
AAM	well organized , no way for quarrels	CH
RHL	this is because each one of us waited to see the others' opinions completly, then we answered.	TD
YGS	[[Both were]] so managed	B

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| CCC | I didnt like it so much [[neither]] | N |
| AMH | we were all on the same track. | CH |

17. The final group decision was satisfactory during:
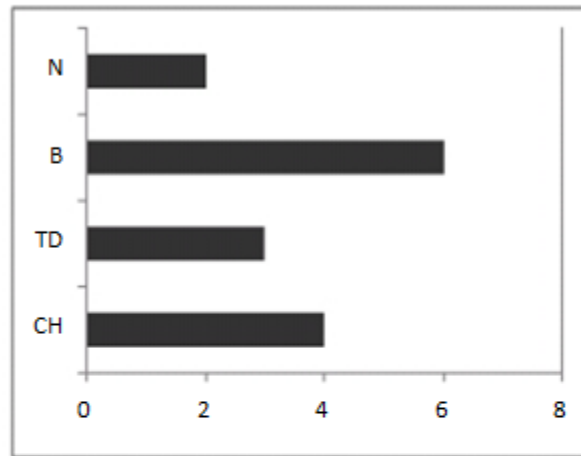
Comments

MYR	Because they had to answer right away	CH
AHM	because we had to make final descsion during a specific time	CH
AAM	because during the attendance of all of the group there is a thing that is called the activity of the promise as the decision that will be made will be the decision of the group	N
RHL	because it was after reading the others opinions, then I made my desicion based on not only my opinion but also others ones.	TD
YGS	we reached the right decision	B
CCC	I dint [[didn't]] like the solution we took	N
AMH	we all did agree on one solution during the chat.	CH

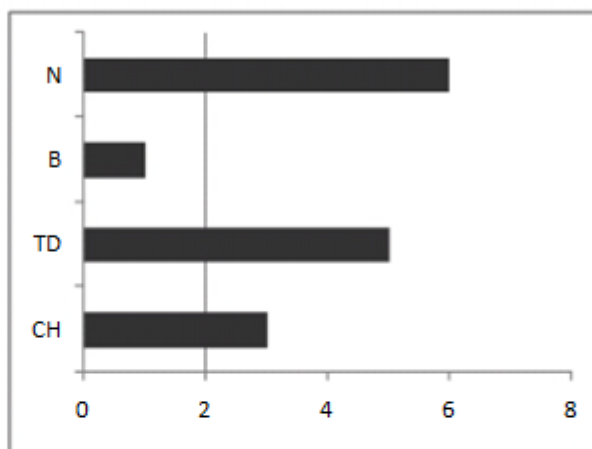18. Participation in the discussion among group members was equally distributed during:
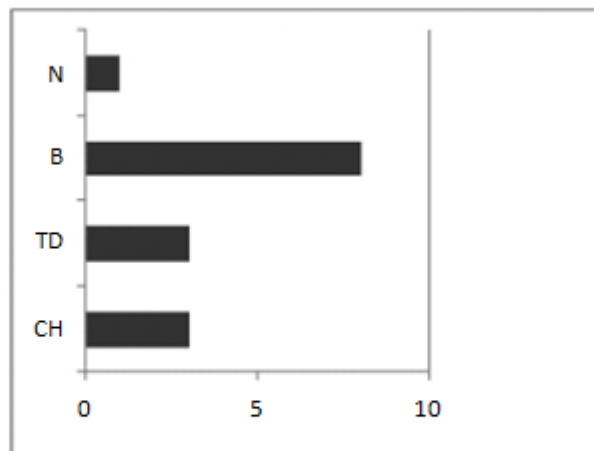
Comments

| RHL | Each one said his opinion freely. | B |
| YGS | [[Both were]] well distributed | B |

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19. One or two members dominated the group discussion during:

Comments

|		
SAY	we all shared the opinion and equally distributed the disecions	**N**
MWL	we all were equal	**N**
RHL	we listened to each others, and we totaly had different ideas and I liked this very much.	**N**
YGS	I don't have the time to post a new one [[in TD]]	**TD**
CCC	as it 's much more difficult to take one opinion and one stand in this way (the thread disscusion)	**TD**

20. The group discussed alternative points of view during:
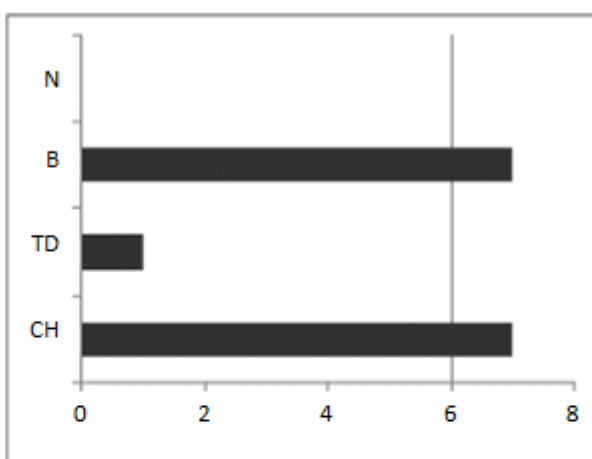
Comments

SAY	We were realy related to the topic in both .	**B**
MWL	sometimes we have different points of view and this must happen as we are different characters	**B**
YGS	every one has a different idea but in the end we reached the right one	**CH**
CRG	We were discussing the same topic to reach a conclusion	**B**

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| AMH	we didnt all get the same solution as we did imagin each one had his own solution.	TD

21. The group considered the contributions made by all members during:
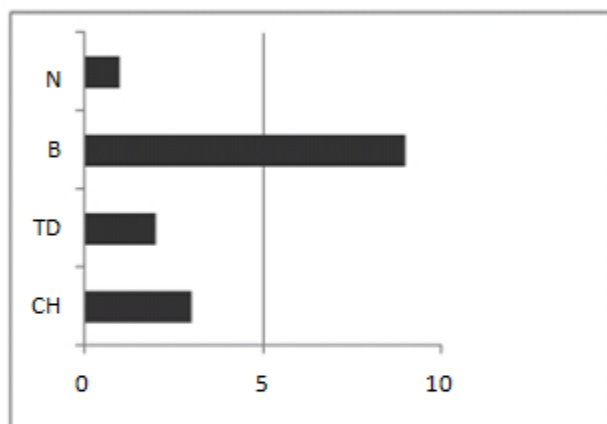
Comments

| AHM	Because we all contributed in both	B
MWL	We all respected each other	B
AAM	Because ever oppinion of everyone is parrently [[clearly]] shown	TD
RHL	esoecially, the treaded [[threaded]] one	B
YGS	We all are oneline [[online]] in the same time	CH

22. I asked questions and/or made comments about the ideas in previous messages to check my own understanding during:
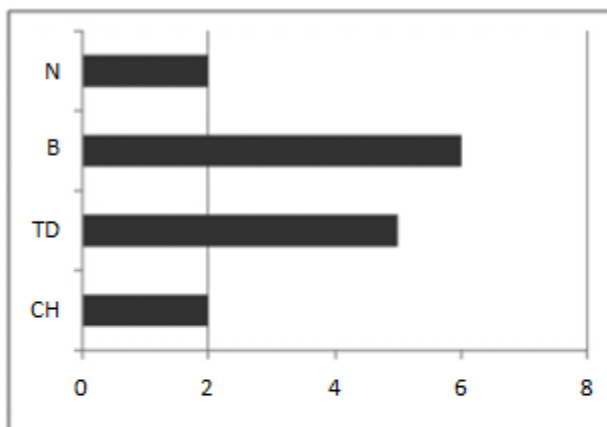
Comments

YGS	we can express our ideas in both of them	B
CCC	It's more difficult thn chatting	TD
AMH	so i could understand more, and to make sure that i didnt get something wrong about my discussion.	B

23. I explicitly showed my understanding and/or furthered the discussion by asking questions based on information in previous messages during:
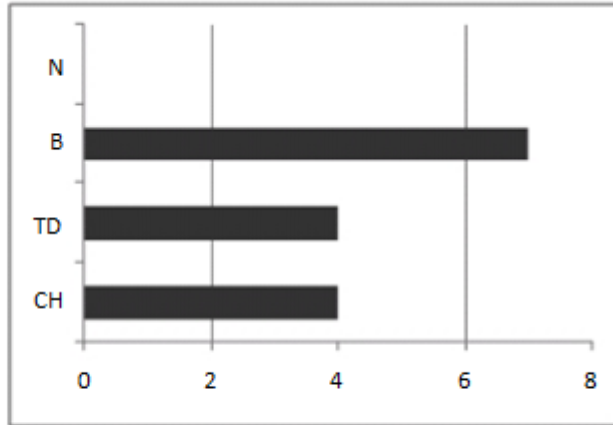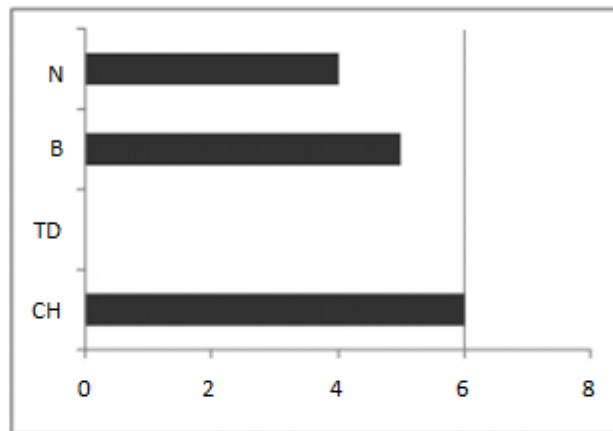

Comments

| YGS | Because we read a summary before it | TI |
| CCC | i liked the subject and the oral disscusion .. | B |

24. I used expressions to encourage my peers to respond to my messages and/or carry on with the discussion during:

Comments

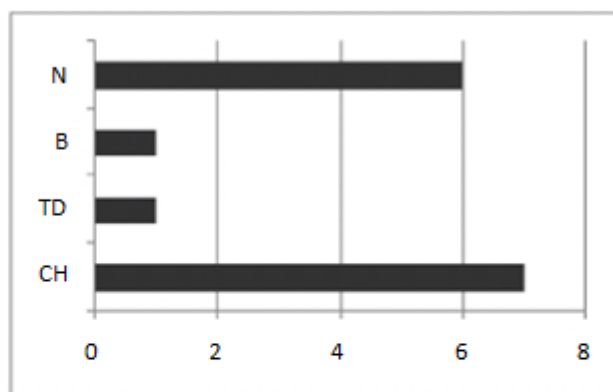| KSG | They responded quickly | N |
SAY	i had to encourage them to reach the best choice	B
AAM	to encourage them to challenge me because that will make us get the best decision	CH
YGS	Because the limited time	CH
AMH	i tried to motivate my peers to ask questions like why?	B

25. I made contributions that do not directly relate to the task, e.g. jokes and personal comments, during:

Comments

KSG	I did not have time to make jokes	N
RHL	but I did say some ideas that really was not related to the topic then, I realized that I am off topic, and I corrected my ideas	N
YGS	all of us are online...	CH

Other Comments

AAT	i liked the chat than any other thing [[TD]], it is a good idea for discussion.
AAM	i think these questions are very good questions for a survey for this topic as every question represnts a case that i faced during this process
RHL	I really liked the idea of doing this, but it would have been better if the topics was more familier, which we have more information about.
YGS	It was so interesting and useful..thank you
SMN	Chat and therad [[threaded]] discussion are the same but chat is more free than thead discussion. chat have answers respond so quickly but thread has to wait a long time to wait for their responding. finally, i think both may lead to final discussion [[decision]] but chat have final discussion [[decision]] quickly than thread disussion.
CCC	the best way of learning is being face to face .. but if u want my opinion i will chose the chating way , but i like the thread disscusion only by sending assignements or an email like the wEB CT BUt i dont agree by letting ths way a way of learning or understanding and dont be a way to disscus a problem the chat is much better as u can see the oher people respond and u can immediatly change the oters opinion ...
AMH	I was really benefited from this experience, and it was full of challenging and motivated [[motivating]] issues. i was glad to be involved.

Appendix D - Class Instructor's Feedback

1.   The overall structure of the study was easy to follow (SA).

Comment: Very much so, structure was clear and easy to follow

2.   The participants were well-oriented throughout the study (A).

Comment: Most of them were.

3.   The instructions facilitated the process throughout the study (SA).

Comment: Instructions were clear and were repeatedly explained to students. This definitely helped facilitate the process.

4.   Stage I activities provided sufficient preparation for the participants (A).

Comment: I believe that may be stage I could have been on two days. Some students were still disoriented and others were absent and missed the preparation stage.

5.   The class WebCT guided the participants throughout the study (SA).
Comment: Very much so

6.   The class WebCT design, interface, navigation, animation and interactivity were appealing to the participants (SA).

Comment: Absolutely! WebCT design, interface, navigation and animation were truly appealing! This reflected positively on the students' level of engagement. It captured their attention.

7.   The Hide/Reveal feature was used efficiently throughout the study (U).
Comment: Can' tell! I don't remember how the feature was used. Sorry!!

8.   The online exercises and quiz facilitated the comprehension of baseline information necessary for later discussions (SA).

Comment: these exercises provided pertinent and ample background for the students.

9. The post-perceptions questionnaire was easy to fill out for the participants (A).

Comment: The questionnaire was easy to follow; the problem is with the attitude of the students. They are usually reluctant to fulfill such tasks wholeheartedly.

10. The participants reacted positively to the decision-making task during: (CH).

Comment: They felt more comfortable and familiar with the chat activity. They are used to it. The only drawback is their occasional use of Arabic.

11. The participants interacted well as a group during: (CH).

Comment: Just because they are used to using type of online discussion; plus the fact that it is less academic and consequently, more appealing to them.

12. The overall quality of discussion was good during: (B).

Comment: I believe that the quality was slightly better during threaded discussion. The activity lends itself to more profound ideas and a more formal level of communication.

13. The issues raised in the discussion were important during: (B).

Comment: Maybe more varied during chat, but more serious and profound during threaded discussion.

14. The outcome of the discussion was satisfactory during: (B).

Comment: Relative to the level of language proficiency of the students as well as their level of maturity, the outcome of the discussions was satisfactory during both activities.

15. It was suitable to discuss the content of the decision-making task during: (CH).

Comment: Chat allowed more interaction and engagement. It captured their attention and the result was more discussion.

16. The choice of reading led to successful task completion during: (B).

Comment: More interaction and more ideas were raised during chat; however, the level of formality was maintained more during threaded discussions.

17. The design of task scenario embedded triggers to provoke thoughtful discussions during: (TD).

Comment: Thoughtful discussions were more during threaded discussions. I believe this was due to the fact that they had more time to think about the issue at hand.

18. Your additional feedback on strengths, areas to work on and suggestions for the future is highly appreciated.

Comment: I really enjoyed participating in this research. It is an eye-opener. I believe [I] will incorporate more [of these activities in my teaching. Besides breaking the monotony of in-class instruction, these interactive activities are intriguing to the students. They help students begin to think, analyze, and become problem solvers. I believe chat and threaded discussions in the academic context will definitely reflect positively on the students. They will make them more profound thinkers and better writers, since they will be able to become more analytical and consequently better thinkers.