

1-1-2003

Facilitating second language acquisition (SLA) through computer-mediated communication (CMC) in an English for Civil Engineering (ECE) environment

Masputeriah Hamzah
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**FACILITATING SECOND LANGUAGE ACQUISITION (SLA)
THROUGH COMPUTER-MEDIATED COMMUNICATION (CMC) IN AN
ENGLISH FOR CIVIL ENGINEERING (ECE) ENVIRONMENT**

by

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B. A. (Hons.) in Language Studies

M. A. in Applied Linguistics

A Thesis Submitted in Fulfilment of the Requirements for the Award of

Doctor of Philosophy

**at the Faculty of Community Services, Education and Social Sciences,
Edith Cowan University
Perth, Western Australia.**

Date of Submission: November, 2003

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Abstract

This study explores the application of computer-mediated communication (CMC) in an English for Civil Engineering (ECE) learning setting. The aim is to examine the interactional opportunities present in the computer-mediated environment for evidence of conditions deemed facilitative of second language acquisition, based on the tenets prescribed by the Interaction Hypothesis. This theory emphasizes the importance of interaction in language learning and the necessity for learners to have access to meaningful and comprehensible input. It is based on the premise that acquisition will occur through interaction where learners are provided opportunities to negotiate meaning in order to develop mutual understanding. In turn, this allows for hypothesis testing related to learners' developing interlanguage systems. It also provides opportunities for learners to produce comprehensible output and have access to feedback related to their attempts. All these are regarded as crucial for language acquisition.

Most of the studies on interaction work reported in the literature are related to oral interaction. Nevertheless, studies on the use of CMC have reported that this medium can promote meaningful interaction that can foster interlanguage development through meaning negotiation and focus on form.

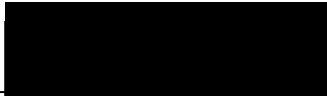
The participants in this study consist of one English language teacher and a group of seventy-three students. The task employed for this study is based on one of the requirements of the ECE program, specifically for the students to engage in a discussion forum on current and relevant social, economic and environmental issues related to the civil engineering field and profession. For a more in-depth and thorough understanding of the entire perspective in the application of CMC in this ECE setting, both qualitative and quantitative procedures are adopted for the purpose of data analysis.

The analysis of interactional exchanges reveals that this on-line platform serves as a suitable context and a conducive environment for interlanguage development. Both student-to-teacher and student-to-student interactional exchanges provide evidence of opportunities for modified input, feedback and modified output. The interview responses also provide important insights into the subjective dimension of learning in terms of students' overall opinion and perception of the on-line interactional exchange.

Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

- (i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;
- (ii) contain any material previously published or written by another person except where due reference is made in the text; or
- (iii) contain any defamatory material.


Masputeriah Hamzah

Date: 5/11/2003

Acknowledgements

First and foremost, my sincere gratitude goes to my principal supervisor, Prof. Dr. Ian Malcolm, who offered great encouragement, advice and support throughout my study, and spent many patient hours reading draft copies of this thesis.

I am very much indebted to my second supervisor, Dr. Rhonda Oliver for her expert advice, constructive criticisms and continuous guidance, without which this study would not have been possible. Your useful feedback, invaluable comments and endless contribution to this study have made what was at first a daunting task into something manageable and feasible. I'm extremely grateful to you Rhonda.

My sincere appreciation goes to Dr. Anthony Fetherston, who has been very supportive of this study. I'm also grateful to Dr. Danielle Brady, who offered assistance with the quantitative analysis of my data. My sincere thanks are also due to Samantha, who was the second coder for my data, and Arfah, who assisted during the final stages of my thesis.

I would also like to express my sincere gratitude to my colleagues at University of Technology Malaysia who helped during the data collection. My heartfelt appreciation goes to Khairi Izwan Abdullah for his dedication and commitment to the whole venture. Your outstanding feedback to the students' postings had made the task worthwhile to the students. My sincere thanks go to the whole class of English for Civil Engineering (ECE) students who had participated in the discussion forum. My appreciation also goes to the Government of Malaysia, in particular, University of Technology Malaysia and the Public Services Department for their financial support.

Most importantly, I dedicate this thesis to my loving husband, Ramli and my lovely children, Elisya and Adri. Your devotion, patience, support and encouragement have given me the strength and courage to persevere. Last but not least, this thesis is dedicated to my late mum, my dad, and all my sisters, Che Mas, Syill, Meya, Liz and Ed, whose passion for learning, enthusiasm for knowledge and zest for life have made my endeavour truly worthwhile.

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List of Acronyms

CALL	: Computer-assisted language learning
CMC	: Computer-mediated communication
ECE	: English for Civil Engineering
ESL	: English as a second language
ESP	: English for Specific Purposes
FLA	: First language acquisition
ICT	: Information and Communication Technology
IT	: Information Technology
L2	: Second language
MCE	: Malaysia Certificate of Education
MSC	: Multimedia Super Corridor
NS	: Native speakers
NNS	: Non-native speakers
SLA	: Second language acquisition
TEE	: Tertiary Entrance Examination
TESL	: Teaching of English as a second language
UTM	: University of Technology Malaysia

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CHAPTER ONE

Introduction

1.1 Overview

This chapter provides some background information to this study. Included is a brief outline of Malaysia's vision to be a fully-developed nation by the year 2020. One of the primary foci of this vision is the development and application of Information and Communication Technology (ICT). This also provides the impetus for the current study. Also in this chapter is a brief outline of the English for Civil Engineering (ECE) program at the University of Technology Malaysia (UTM), which was the learning context in which the study was conducted. This is followed by an outline of the approach taken to incorporate technology in language learning. Included in this is an outline of the principles for Computer Assisted Language Learning (CALL). An overview of the theoretical framework underpinning this study is also presented. Lastly, the purpose and significance of the study are given.

1.2 Malaysia's 'Vision 2020'

With rapid advancement in technology, the computer will remain a key element in almost everything we do in the twenty-first century and in the future. Impelled by the need to keep abreast with and to take advantage of this technological advancement, Malaysia is set to become one of the most committed Information Technology (IT) nations in the South-East Asian region (The Star, 1997).

Malaysia also aspires to be a fully-developed and knowledge-rich nation by the year 2020, a mission encapsulated in the country's national agenda called 'Vision 2020' that sets out specific goals and objectives for the country's long-term development (Tan, 1997). With this in mind, Malaysia has embarked on new-age developmental projects such as the Multimedia Super Corridor (MSC), which was launched in 1996. The setting up of the MSC reflects Malaysia's initiative to propel itself into the digital age of computerized technology, a move regarded by the Prime Minister of Malaysia, Dato' Seri Dr. Mahathir Mohamed as critical to achieving the national, social and economic goals of Malaysia's Vision 2020 (Mohamed, 1998).

The intent behind Malaysia's MSC is to create a high-tech environment through the development of the ICT sector and the application of this so as to increase global competitiveness. ICT is regarded as a strategic foundation for national development and global positioning, to accelerate Malaysia's entry into the Information Age and through it, help actualize 'Vision 2020'.

In tandem with the government's effort, UTM is set to become a 'Cyber Campus' by the year 2005 with the application of ICT in all its administrative and management operations as well as in teaching and learning programs, research and development and other important aspects of day-to-day operations (UTM Skudai Post, 1997).

Thus, the application of computer-supported language learning as part of the English language program in UTM is timely as students prepare themselves to be part of the

'global information superhighway' and 'global communicative network'. It is appropriate that students of the university are equipped with relevant skills and competencies needed to function effectively and efficiently in an even more challenging and demanding high-tech environment of the future. Moreover, as English becomes the most common language of communication and networking in this borderless world, there is an urgent need to develop literacy and communication skills on-line in English, which is of critical importance to meet the challenges of fast-paced globalization.

1.3 The English for Civil Engineering (ECE) Program at UTM

UTM emphasizes the important role of English for the students' academic needs and their future professional needs in the scientific and technical fields. The English language program at UTM is moving towards adopting an English for Specific Purposes (ESP) approach to language teaching and learning to cater specifically to the needs of science- and technology-based students at the university. Currently, two faculties in UTM have adopted an ESP approach, namely the Faculty of Civil Engineering and the Faculty of Mechanical Engineering.

For the purpose of this study, the focus will be on the application of computer technology in the ECE program to support the language learning environment in that setting. Thus far, there has been little, if any, research reported in the literature on the application of computer technology in language learning for civil engineering students.

The ESP approach to the design of the ECE program in UTM is based on the premise that for language learning to be relevant, it has to be embedded and integrated in the students' academic or professional community and carried out as an inherent part of the students' overall preparation to be effective members of the target community of civil engineers (Abdullah, Louis, Abdul Raof and Hamzah, 1995). In view of this, the ECE program adopts a functional definition of ESP, which sees the teaching of English as the "preparation of a learner for effective participation in a specific academic or professional community of civil engineers" (Abdullah et al., 1995:14). Relevant to the ECE program is the need to enculturate students into the professional community of civil engineers for them to gain some insights into the conceptual framework and the disciplinary culture of the civil engineering community of practice.

The notion of learning as an act of membership and a process of enculturation into a community of expert practice views students as 'apprentices' who need to learn the culture or 'ways of doing things' of the community (Brown, Collins and Duguid, 1989). Although students are not directly involved in the actual professional practice, they will be able to gain a great deal from their 'legitimate peripheral participation' (Lave and Wenger, 1991). According to this view, students move gradually through the process of integration and assimilation to gain exposure to the norms and practice as well as belief systems of the practising community. The exposure will provide a sense of motivation for students as they strive to acquire some understanding of the community of expert practice in their preparation to be effective members of that community.

In the application of computer-supported learning in the ECE program, the important consideration is how best to take advantage of the potential that technology makes available to enrich and enhance the language learning experience. The central concern is how the use of technology can facilitate and provide a conducive environment for second language acquisition.

1.4 The approach to the incorporation of technology

The relevance of incorporating computer technology into language learning has been highlighted by Warschauer (1998a, p. 6), among many others, who stresses that computer technology is an “essential new medium of language and literacy practice apart from face-to-face communication and the printed page”. Warschauer (1998b) further emphasizes that to know English well in the current era entails knowing more than the syntactic, pragmatic and lexical items of the language. It necessitates knowing how to read, write and communicate in electronic environments. Moreover, the development of literacy and communication skills in new on-line media is of critical importance in the present and future academic, social and workforce environments (Warschauer, 1999).

Various studies have reported the benefits that can be derived from incorporating the computer component into language instruction. As such, language professionals need to capitalize on the advantages and potential strengths that technology has to offer.

However, it must be noted that no matter how advanced the capabilities of the present computer technology, they should not determine language teaching practices. Technology in and of itself cannot be the focus of the changes that are needed. As pointed out by

Murison-Bowie (1993, p. 6), “we need to look for ways to capitalize on the fact that technology can enable rather than dominate the process and management of learning”.

Salaberry (1996) emphasizes that the potential pedagogical outcomes of technological tools used in second language instruction inherently depend on a sound theoretical and methodological approach to guide their application to the language learning phenomena. Without this strong foundation, second language (L2) instructors will not be able to make principle-guided decisions in their pedagogical use of technological tools.

It has also been consistently argued that research into CALL needs to be framed within the areas that are relevant to second language acquisition (SLA) (Chapelle, 1997, 1998; Doughty, 1987). The application of SLA theory is essential to draw empirical support for CALL use and to establish links with L2 learning and acquisition. As the goal of CALL is SLA, the investigations of the effects of computers need to be focused upon the processes which SLA theory has identified as being facilitative and beneficial to L2 development. As Chapelle (1997, p. 22) points out, the most critical questions to be addressed about CALL are the following:

- a) What kind of language does the learner engage in during a CALL activity?
- b) How good is the language experience in CALL for L2 learning?

Chapelle (1999) also emphasizes that in CALL applications, what needs to be investigated is the extent to which quality interaction can be fostered. It has been suggested that the Interaction Hypothesis of SLA is significant and sufficiently detailed

to draw principles for CALL applications (Chapelle, 1997, 1998; Blake, 2000; Sotillo, 2000). With this in mind, this study takes into consideration the Interaction Hypothesis of language acquisition as the underlying theoretical framework. The study aims to gain insights into the interactional opportunities present in the ECE learning environment using CMC that would be facilitative of interlanguage development.

However, it is important to note that computer-mediated interaction is not the only means of investigating the effect of CALL application on language learning. There are other useful approaches for investigating CALL (Dunkel, 1991) that go far beyond investigations into the value of interaction. These include cognitive and attitudinal variables in investigating CALL applications, the effectiveness of CALL for certain L2 skills, characteristics and strategy use of successful CALL users, the kinds of computer environments that support development of L2 learning, and the effectiveness of various types of CALL instructional designs and CALL activities.

Nevertheless, this is one area worthy of investigation, especially considering that computer-mediated interaction is fast becoming a platform for communicative practices in language classrooms. Therefore, an investigation into how best the language acquisition process can be facilitated through the use of this medium merits examination and inquiry.

1.5 Overview of the theoretical framework

This section will present an overview of the theoretical framework underpinning this study. This includes the Interaction Hypothesis of SLA, followed by a brief explanation of the three main components related to the Interaction Hypothesis of language acquisition, namely, comprehensible input, comprehensible output and feedback.

1.5.1 The Interaction Hypothesis

A number of different theoretical positions can be identified with regard to L2 acquisition. The behaviourist view emphasizes the importance of the linguistic environment, viewed in terms of stimuli and feedback. The development of language is perceived as similar to the development of other skills and knowledge. Learning takes place with the formation of habits resulting from the regulation of stimuli to which learners are exposed, and the provision of feedback or the reinforcement (both positive and negative) they receive.

On the other hand, the mentalist theories emphasise the importance of the learners' 'blackbox', or the language learning processes which operate internally. These theories view language development primarily in terms of the learners' innate capacities. Input is seen merely as a trigger which activates the internal processing mechanism of the learner, initiating the process of language acquisition. Nevertheless, the existence of such an innate language acquisition mechanism is still unclear.

In contrast to these two views, the Interaction Hypothesis of L2 acquisition emphasizes the joint contributions of the linguistic environment and the learners' internal mechanisms in language development. It describes a more complex interaction between input and the internal mechanisms of the learner. The Interaction Hypothesis focuses on the necessity of meaningful and comprehensible input to the learner and on the interactional discourse which learners and their interlocutors jointly construct.

Acquisition will happen through interaction where learners are provided with opportunities to negotiate meaning to arrive at a mutual understanding of comprehensible input, test hypotheses related to their developing interlanguage system, produce comprehensible output and have access to feedback related to their output (Long, 1996; Swain and Lapkin, 1995).

While studies done related to the Interaction Hypothesis have primarily focused on oral conversations, there is evidence that the interactional skills developed during CMC written tasks are transferable to spoken use of the language (Chun, 1994; Kern, 1995). As pointed out by Chun (1994, p. 17), "although CMC tasks entail written practice, the fact that the interactional structures resemble spoken conversation suggest that this competence can gradually be transferred to the student's spoken discourse competence as well". Since the Interaction Hypothesis refers mainly to oral communication, the CMC environment should be explored too because of the belief that what has been acquired through writing can transfer to oral communication.

However, some empirical studies which examined the nature of face-to-face communication of students working with CALL softwares have revealed that students' oral discourse lacks complexity and communicative value (see, for example Abraham & Liou, 1991 and Levy & Ninkfuss, 1990). Nevertheless, it has not been ascertained whether the limited nature of the 'off screen talk' is attributable to such factors as the proficiency level of the students, the nature of the task, or the design characteristics of the software used in the CALL environment, which all could have an impact on the quality of the language produced.

In this study, only the written discourse of the CMC on-line interaction will be examined. Since the Interaction Hypothesis of SLA has identified conditions that are facilitative and beneficial for interlanguage development, namely comprehensible input and interaction, feedback and comprehensible output, it would be worthwhile to identify instances of learner interaction using CMC, particularly those that are expected to be beneficial for language development, based on the tenets prescribed by the Interaction Hypothesis.

1.5.2 Comprehensible input

Input refers to the language the learner is exposed to (either spoken or written), which has been hypothesized as the potential starting point for acquiring aspects of the L2. The Input Hypothesis advanced by Krashen (1982, 1985) states that in order for input to be available for acquisition, it must be comprehensible, given a learner's particular stage of development. He asserts that if the input contains forms or structures just one stage beyond the learner's current level of competence in the language, which he calls 'i+1'

(Krashen, 1982, p.21), then comprehension and acquisition will occur. To understand, the learner has to be focused on meaning and not form. Krashen also argues that the ability to produce a second language is the result of acquisition and not the cause of it.

Long (1982) embraces Krashen's views about the role of comprehensible input. He argues that access to comprehensible input is characteristic of all cases of successful first and second language acquisition. He is of the opinion that the more a learner is exposed to comprehensible input, the faster the acquisition rate will be. Lack of access to it results in little or no acquisition. Long (1982) also suggests that input can be made comprehensible by:

- a) modifying speech;
- b) providing linguistic and extralinguistic context;
- c) orienting communication to the 'here and now';
- d) modifying the interactional structure of conversation.

Although all four ways may assist communication, Long (1982; 1983a, b; 1996) asserts that input shaped through conversational modifications is most likely to facilitate acquisition. This is because the modifications made during the process of interaction, especially the negotiation for meaning, help to make linguistic features more salient to the learner, which consequently facilitates comprehensibility of unfamiliar linguistic input.

Thus, although Krashen maintains that comprehensible input alone is necessary and sufficient for language acquisition, others like Long (1996) and Pica (1994) believe that it is necessary but not sufficient, especially for adult learners who wish to achieve native-like proficiency. Various other researchers have also challenged the view that comprehensible input, in itself, is adequate in facilitating the process of acquisition. There are many other contributive factors that could facilitate learner L2 development. This will be examined in much more detail in the review of literature.

1.5.3 Comprehensible output

A role for comprehensible output in L2 acquisition was proposed by Swain (1985). While Krashen's (1985) Input Hypothesis suggests that 'only comprehensible input is consistently effective in increasing proficiency' (p. 48), Swain (1985) stresses the crucial role for language production in L2 development apart from comprehensible input. She maintains the position that both comprehensible input and comprehensible output are important for L2 acquisition.

According to Swain's (1985) Output Hypothesis, second language learners need opportunities for what she calls 'pushed output' such as speech or writing in order to develop specific grammatical features that do not seem to be acquired based solely on learning to comprehend input. Meaningful use of a learner's linguistic resources in language production advances interlanguage development by focusing the learner's attention on linguistic features of the target language.

Swain contends that output is necessary because learners need to be able to signal the incomprehensibility of input to their interlocutors. Through output, learners can test hypotheses related to their current level of developing interlanguage system. Most importantly, the need to produce the language increases the possibility that learners will focus their attention on form, which will help facilitate the process of acquisition. The contributive role of comprehensible output will be further elaborated in the literature review.

1.5.4 Feedback

In language acquisition, the term feedback refers to the information given to learners that they can use to revise their interlanguage (Ellis, 1994). This can be seen as a response to efforts by the learner to communicate while identifying errors and providing feedback on the errors made. Lightbown and Spada (1999) refer to this as corrective feedback, defined as any indication to the learners that their target language use is incorrect. It includes various responses that the learners receive, which they illustrate in the following example:

“When a language learner says, “He go to school everyday”, corrective feedback can be explicit, for example, “No, you should say goes, not go”, or implicit “ Yes he goes to school everyday”, and may or may not include metalinguistic information, for example, “Don’t forget to make the verb agree with the subject” (p. 171)

A more comprehensive view of feedback is provided by Long (1996). Long suggests that the source of data available to the language learner from environmental input consists of both positive evidence and negative evidence. Long defines positive evidence as either modified input or models provided to the language learner of what is grammatical and

acceptable in the target language. The source of positive evidence includes both authentic texts (spoken and written), as well as those texts that have been modified for comprehensibility through simplification, elaboration, and redundancy, among others. Negative evidence is information given to the learner about what is inappropriate or not possible in the target language (Long, 1996).

In the first language acquisition (FLA) literature, the nativist perspective of language acquisition asserts that it is only positive evidence that constitutes input for language learners (Grimshaw and Pinker, 1989; Pinker, 1989). However, in SLA, although the utility of positive evidence has been widely accepted, debate regarding the sufficiency of positive evidence alone for promoting learning continues (see, for example, Larsen-Freeman and Long, 1991; Long, 1996). As shown in studies of French Immersion Programmes (Swain, 1985), students still could not achieve a satisfactory level of proficiency or mastery in French syntax and morphology despite receiving abundant exposure to comprehensible input. This seems to imply that some L2 structures are less likely to be acquired from positive evidence alone. Thus, in contrast to the innatist position, the interactionist paradigm views positive evidence as insufficient for language acquisition and proposes a role for both positive and negative evidence. A more detailed explanation on various forms of feedback will be provided in the literature review.

There are various benefits of providing feedback to learners. As reported in the literature, feedback may be able to promote learners to “notice the gap” between what the learner knows about the second language and what is the acceptable target-like form (Schmidt

and Frota, 1986). This will trigger learners' attention to L2 forms that might lead to immediate output change or improved language performance. A more detailed explanation on this will be presented in the literature review.

1.6 Computer-mediated Communication (CMC)

CMC, as defined by Santoro (1995) is "the use of computer systems and networks for the transfer, storage and retrieval of information among humans" (p. 11). Similarly, Levy (1997) defines CMC as follows:

"CMC is concerned with communication between two or more participants via a computer. It is used generically in the social sciences to cover e-mail, bulletin boards, discussion lists, and computer conferencing, both text-based and video-based" (p. 79).

For the purpose of this study, the internet-based bulletin board was utilized as the CMC technological platform for students to engage in an on-line discussion forum.

Various studies using CMC have reported the benefits of using this medium to support the learning process. Briefly, some of the advantages of using CMC reported in the literature are that it:

- provides a more equitable platform and a less threatening forum for L2 discussion (Sullivan and Pratt, 1996; Warschauer, 1996a)
- results in a dramatic increase in participation among learners (Beauvois, 1992; Kelm, 1992; Kern, 1995)
- results in a more decentralized role of the dominant teacher (Kern, 1995; Warschauer, 1997)

- provides possibilities for new interpersonal contacts and communicative engagements (Beauvois and Eledge, 1996; Swaffar, 1998)
- acts as a text-based medium that increases learners' attention to linguistic form (Blake, 2000; Pellettieri, 2000; St. John and Cash, 1995; Warschauer, 1997)
- provides personalized identification of target language errors (Kelm, 1992)
- produces improved quality language output (Chun, 1994; Kern, 1995; Warschauer, 1996a)
- provides opportunities for reflection and close attention to and correction of contributions made (Kroonenberg, 1994/1995; Sotillo, 2000)
- takes into consideration individual differences with diverse abilities and learning styles (Steeple, Goodyear & Mellor, 1994)
- offers an effective tool for learner autonomy and empowerment (Shetzer and Warschauer, 2000; Warschauer, Turbee and Roberts, 1996)

Thus, CMC could be viewed as a suitable platform that has the potential of providing ideal conditions and opportunities that are facilitative of learning and conducive to interlanguage development. A more detailed discussion of the benefits of using CMC will be included in the literature review.

1.7 Purpose of the study

This study seeks to replicate findings of previous studies which have analysed the facilitative nature of second language (L2) learner interaction based on Long's (1996) Interaction Hypothesis. However, whereas previous studies have focused on oral

interaction, this study examines on-line written interaction using CMC, at a tertiary level, foreign language context. It aims to seek insights into how the use of CMC can help to facilitate and support written language acquisition in the ECE learning environment. In particular, the study examines observable features of interaction in the student-to-teacher and student-to-student interactional exchanges, in order to:

- a) describe the interactional opportunities created in the CMC environment, particularly for ECE students;
- b) examine the patterns and features of interaction fostered in the CMC environment, again specifically for ECE students working in an ESP programme;
- c) analyse how these might facilitate and foster SLA.

Therefore, this study seeks answers to the following research questions:

1. Does CMC in the ECE context provide opportunities that facilitate SLA?
2. What input, output and interactional opportunities are afforded learners in ECE when using CMC?
3. What are the patterns of interaction and interactional features of CMC present in the ECE context?
4. Are there differences in the features of interaction in terms of input, feedback and output in the student-to-teacher, as compared to student-to-student interactional exchanges?

1.8 Significance of the study

This study seeks to add to a deeper understanding of L2 development in on-line written interaction using CMC. The aim is to gain a better insight of how learning opportunities are created in a computer-supported learning environment that will be facilitative of interlanguage development and conducive to second language acquisition. This will guide teachers to create the necessary conditions and opportunities in the learning environment using CMC that will be beneficial to L2 development.

Most importantly, the study aims to create an awareness among language instructors on the need to make principle-guided decisions in their pedagogical use of technological tools based on a sound theoretical framework related to SLA. Rather than simply assessing or measuring the end product of learning using technology, the central concern is to seek ways to determine how best to integrate technology effectively and efficiently, based on the tenets of SLA theories that have shown positive links to language learning and acquisition. The experience can guide teachers, researchers and curriculum developers toward principles of effective instruction in a computer-supported language learning environment that would be beneficial to language learning and acquisition.

The following chapter is the review of literature that presents the theoretical framework underlying this study.

CHAPTER TWO

Literature review

2.1 Overview

This chapter reviews the literature that forms the theoretical underpinning of this study. This includes a description of the Interaction Hypothesis of SLA, followed by a more detailed explanation of the various concepts related to this perspective relevant to this study, namely comprehensible input, comprehensible output, feedback, interaction, including negotiation for meaning, recasts, focus on form and the role of attention and noticing. As the participants for this study were non-native speakers (NNS) of English, findings of studies on learner interaction will also be reported, in particular NNS-NNS learner interaction and teacher-learner interaction. This will be followed by a report on studies that have incorporated the use of computer-assisted language learning (CALL) in general and those used in the context of English for Specific Purposes (ESP) settings. In addition, studies that report on the advantages of using CMC, especially in the context of interaction through this medium, will be presented.

2.2 The Interaction Hypothesis of SLA

The Interaction Hypothesis of language acquisition emphasizes the dynamic interplay of external and internal factors for language development. According to this theory, acquisition is seen as a product of the complex interaction of the linguistic environment and the internal processing mechanisms of the learner. Therefore, from this perspective, it is deemed that both linguistic input and learners' innate capacities play important roles in

acquisition. This theory also emphasizes the necessity for learners to have access to meaningful and comprehensible input and the importance of interaction in language learning, both being regarded as critical variables in the acquisition process. Also central to this theory is the fact that linguistic knowledge and its use are closely interrelated.

SLA interaction research began with the work of Hatch (1978, 1983). She claims that acquisition is a process that relies on conversational interaction, which forms the basis for the development of syntax. Further, syntax is viewed as developing from interaction rather than as the source of interaction. This is based on the premise that syntactic structures can develop from the process of building discourse between learners and their interlocutors. Hatch (1978) claimed that the regularities existing in the acquisition of grammar of an L2 were directly related to the kinds of interaction in which learners participated.

Hatch (1978) also emphasizes the collaborative efforts of the learners and their interlocutors in constructing discourse. In the process of interaction, learners can scaffold each other's production during the discourse and this helps them to produce utterances that they would normally be incapable of producing on their own. Through the process of interaction, learners have the opportunity to gradually incorporate target language structures, portions of sentences or lexical items and to reproduce sounds in meaningful ways.

The primacy of input in the Interaction Hypothesis is most often associated with the work of Krashen (1981, 1982, 1985). Krashen (1982) states that in order for acquisition to take place, learners must be exposed to comprehensible input, that is, target language data they can access. Krashen argues that comprehensible input is “the only causative variable in second language acquisition” (Krashen, 1981, p. 57) which holds the potential for developing aspects of the L2.

The Interaction Hypothesis is most clearly attributed to the work of Long (1980; 1981; 1982; 1983a, b; 1985; 1996). In contrast to Krashen’s claim which states that comprehensible input is both necessary and sufficient for second language learning, Long (1981; 1983a, b; 1985; 1996) maintains that input is necessary but not sufficient for acquisition to happen. He insists on the importance of interaction, and the negotiation of meaning in particular, for acquisition to occur.

Long argues that conversational and linguistic modifications made during the process of negotiating a communication problem will help to make input comprehensible to the L2 learner. Language that is modified to suit the capability of the learner is a crucial element in the language acquisition process and interlanguage is thus developed through negotiated interaction with others in the target language.

Long also supports the claim that interaction provides opportunities for other factors facilitative of acquisition to occur, namely, the opportunity to produce comprehensible output (Swain, 1985, 1995; Swain and Lapkin, 1995) and the opportunity to obtain useful

feedback on the attempts made at language production (Pica, 1994; Long, 1996; Gass, 1997; Oliver, 1995, 2000).

Nevertheless, the effect of interaction on acquisition has remained a complex and controversial issue. Ellis (1991) points out that what is missing from the Interaction Hypothesis is an explanation of how comprehensible input resulting from interactional modification leads to acquisition. Therefore, as Ellis (1990, 1991) suggests, it must be shown how through the process of interaction, input can be internalized, that is, input can become intake. To do this, it must be shown that learners attend to, or notice linguistic features of the target language and incorporate these into their interlanguage. Learners' awareness of the form of the input and the attention given to that form may be of critical importance to successful language learning (Pica, 1994; Schmidt, 1995; Robinson, 1995).

It is important, however, to note Long's (1996) argument that there are many factors involved in L2 learning, and the role of interaction is only claimed to be facilitative. Although interaction may provide the mechanism that allows input to become salient, and hence noticed, it should not be perceived as the cause of acquisition. It can only set the necessary condition for creating a fertile learning environment, which could potentially lead to acquisition.

Most of the studies on interaction work reported in the literature are related to oral interaction. However, this study aims to explore the Interaction Hypothesis within a CMC context, which is an emerging platform for communication practices in language

learning. The intent behind this study is to examine the interactional opportunities present in the CMC environment for evidence of conditions deemed facilitative and viable for interlanguage development.

The following will provide a more detailed explanation of the various aspects related to the Interaction Hypothesis, which are relevant to this study.

2.3 Comprehensible input

Comprehensible input is of prime importance to SLA theory. Its significance is based on the premise that mere exposure to the target language is not a sufficient condition for language acquisition to happen. The conviction is that input is necessary and must be comprehended by the learner if it is to assist the acquisition process (see Krashen, 1981, 1982, 1985; Long, 1981, 1983a, b; Varonis and Gass, 1985; Pica, Young and Doughty, 1987, Doughty and Pica, 1986, among many others).

The Input Hypothesis, as proposed by Krashen (1985) states that input (spoken and written) is necessary, sufficient and efficient for language acquisition. However, the role of comprehensible input in language learning remains a contentious issue. As indicated earlier, comprehensible input alone is an insufficient condition for second language acquisition to happen (Long, 1983a; 1985; 1996). The central issue with regard to input is the form it needs to take for acquisition to occur and how much of the input can actually become 'intake' (Larsen-Freeman and Long, 1991), that is, comprehended language that holds the potential for developing the learners' linguistic system.

Long (1983b, 1996) argues that conversational modifications, such as those present in foreigner talk and those used primarily by native speakers (NS) to non-native speakers (NNS), are useful mechanisms for input to be made comprehensible. These modifications include both modified input and modified interaction.

Modified input is adapted speech aimed to assist the learner to understand the input syntactically and/or semantically. This consists of such features as simplification, elaboration and regularization of the input, among others, which can make linguistic features more salient to the learners and thereby make input clearer and more easily understood (Larsen-Freeman and Long, 1991). For example, input is simplified with the use of shorter sentences, omission of complex grammatical forms or avoidance of subordinate clauses. Input that is elaborated consists of lengthening of phrases and sentences in order to make the meaning clearer.

Interactional modifications are motivated by the need to avoid or resolve communication problems during the L2 discourse. Long refers to this as negotiating for meaning. They are employed either, 'strategically', to avoid possible communication breakdowns, or 'tactically', as repairs in response to learner error of some kind (Long, 1996). They include a whole range of attempts to understand and be understood. Various devices can be used to modify the interactional structure. Three of the most important negotiation moves are comprehension checks, confirmation checks and clarification requests (Long, 1983b) (see 2.5.1 for a discussion of negotiation for meaning).

Long (1985) suggests that interactive modifications are more important for acquisition than modifications that only result in simplified linguistic input in terms of syntax and morphology. The study of input comprehension by Pica et al. (1987) illustrates this. They compared the effects of three types of input, namely unmodified input, premodified input and interactionally modified input on the ability of sixteen low-intermediate English as a second language (ESL) learners to comprehend oral instructions. The findings of their study revealed that the interactionally modified input, where the learners were given the opportunity to seek clarification, resulted in the highest level of comprehension. They argue that a reduction in the complexity of the input does not appear to be a critical factor in comprehension. On the other hand, interaction that results in input that was more complex led to better comprehension.

In another study, Gass and Varonis (1994) compared the effect of prescribed modified and unmodified input on comprehension and production, both with and without the opportunity for interaction. The comparison was made based on the NS partner's success in following directions. The results showed positive effect on comprehension of both negotiated and modified input. However, in the case of production, it was found that interaction with the opportunity for modification had more positive impact compared to prior modified input. It can be concluded that modified interaction can function to negotiate the meaning of the input, which is facilitative of acquisition because it helps to make unfamiliar linguistic input comprehensible.

It should be noted that Krashen's Input Hypothesis has been subjected to many criticisms. One of them is the fact that many of the key constructs of the theory are difficult to operationalise. Another criticism is the claim that instructional programs which incorporate the principles of this theory, such as the French Immersion Programs, have often failed to facilitate development of high levels of proficiency in syntax (Larsen-Freeman and Long, 1991).

Longitudinal studies of French Immersion Programs in Canada (see for example, Swain, 1985; Swain and Lapkin, 1995) reported that students in these studies received large amounts of target language input in a communicative setting over an extended period of time. Based on Krashen's theory of comprehensible input, these students should have achieved high fluency and comprehension of the target language. However, exposure to just comprehensible input was insufficient to give these learners the necessary competence they needed to produce target-language forms in the L2. These studies point to the fact that comprehensible input alone is insufficient for acquisition, and propose an equally important role for comprehensible output. (This will be further elaborated in 2.4).

Furthermore, it has been argued by White (1987) that apart from comprehensible input, incomprehensible input is equally vital to SLA. White contends that when learners encounter input that is incomprehensible, the comprehension difficulties can trigger a switch of attentional focus temporarily from meaning to grammatical form, which could be facilitative of acquisition. Opportunities for communication breakdowns can occur in interactive discourse, where learners experience difficulties in the process of trying to

understand and be understood. When this happens, their attention may be focused on form.

Another criticism of the Input Hypothesis is the claim that language acquisition is a purely subconscious exercise. Krashen (1985) argues that if there is sufficient comprehensible input, the necessary grammar is automatically provided and acquired. Nevertheless, several studies have shown that learners not only benefit from, but may sometimes require, focus on form to acquire knowledge of specific structures. For example, the study by Fotos (1993) shows that formal instruction can foster language learning. Through an experiment involving teacher-fronted grammar lessons and interactive, grammar problem-solving tasks, learners who were exposed to grammar-related activities became more aware of the target language structures. This shows that formal exposure and conscious attention to form can be facilitative of language development.

It has also been argued that learners' attention needs to be drawn to differences between input and what they have said. This attention to form is necessary for input to be converted to intake. As highlighted by Schmidt (1990, 1993), it is necessary that learners notice the variation between the input they receive and the output they produce for change to occur in their interlanguage development (see 2.7 for a description of the role of attention and noticing).

Thus, comprehensible input, on its own, is insufficient for acquisition. There are also various factors that intervene in the provision of comprehensible input and this, in turn, affect the facilitation of acquisition. In addition, Schachter (1986) points to the need of showing the effect of native speaker input on the language learning process to ascertain precisely the role of input and interaction in language development. Long (1996) and Pica (1994) propose a wider role for interactional modifications in the negotiation of meaning to increase the provision of comprehensible input. Other contributive factors may be equally important for input to be made comprehensible, and, therefore to subsequently become intake.

This study examines the features of modified input present in the ECE computer-mediated interactional environment to determine whether input had been modified, either syntactically or semantically, so as to make it more comprehensible.

2.4 Comprehensible output

Swain regards learner output as an important mechanism for acquisition (Swain, 1985, 1995, 1998). The relevance of comprehensible output is based on the premise that when learners experience communicative failure, they are pushed toward conveying their output more coherently, precisely and appropriately (Swain, 1985, p. 249). Learners' production of output, especially their attempts at making their output more comprehensible, serves to draw their attention to the L2 structures, that is, to focus on form. This is because production compels learners to pay closer attention to the means of

expression as they attempt to convey the message meaning more clearly and coherently, which will, in turn, increase the possibility that they will stretch their linguistic resources.

Thus, modification of output impels learners to move from the more semantic type of language processing to a more syntactic processing (Swain, 1985,1995; Swain and Lapkin, 1995). As claimed by Swain (1995):

“... output may stimulate learners to move from the semantic, open-ended, non-deterministic, strategic processing prevalent in comprehension to the complete grammatical processing needed for accurate production” (p. 128)

In a semantic type of language processing, it is often possible for learners to understand the meaning of L2 input without grasping its morphosyntax. This is because understanding can take place by merely attending to contextual clues or the meaning of content words. In contrast, to participate in extended discourse, learners must pay closer attention to form as they have to organize their output grammatically. Production of output may spontaneously activate syntactic processing, triggering a focus on form in the attempt to express the message meaning more clearly and accurately.

Swain (1995, 1998) identifies three functional roles of output and suggests ways in which learners can benefit from their own output. Firstly, producing output is hypothesized to promote noticing in several ways. The importance of output in promoting noticing is highlighted by Swain (1998):

“... It is while attempting to produce the target language (vocally or subvocally) that learners may notice that they do not know how to say (or write) precisely the meaning they wish to convey” (p. 67)

Thus, noticing may arise from the speaker's failure to find the right L2 forms to express some intended meaning. It could also result from the feedback given by interlocutors, which will create awareness in learners that the language they produce is not entirely appropriate and/or grammatical. In attempting to produce the target language, learners may be helped to 'notice the gap' (Schmidt and Frota, 1986) between the target language form and their own interlanguage production. This gap may help learners recognize the discrepancy between what they want to say and what they can actually say.

Thus, the activity of producing output may prompt L2 learners to be consciously aware of their linguistic problems. This awareness might lead learners to find out more about the target language. At the same time, Swain and Lapkin (1995) argue that this might trigger cognitive processing of the target language, which might promote new linguistic knowledge or reinforce already acquired existing knowledge. They claim that in L2 production, learners are led to notice a linguistic problem through feedback, and this noticing, in turn, triggers mental processing that leads to modified output.

Secondly, output can serve as a test-bed for learners to test hypotheses about the target language, in terms of comprehensibility or linguistic appropriateness of the L2. When faced with difficulties in language production, learners may use their existing competence or cognitive capacities to formulate hypotheses about the way L2 works. In doing so, they may experiment with new language structures and form, and manipulate their interlanguage resources. As Swain (1998) puts it:

“...learners may use their output as a way of trying out new language forms and structures as they stretch their interlanguage to meet communicative needs; they may use output just to see what works and what does not” (p. 68).

The production of erroneous output can thus be seen as an indication that learners are testing out hypotheses of how the language works. Output, therefore, functions as a vehicle for learners to test their hypothesis about the target language.

Thirdly, output serves a metalinguistic function as learners reflect upon their own target language production, either alone or in interaction with others. For example, Swain & Lapkin (1998) suggest when learners talk about the language they are producing when they engage in ‘collaborative dialogues’, such conversations, in turn, may be a source of L2 learning. Moreover, Swain (1998) claims that when learners are directed to discuss the language they are reconstructing, they are pushed beyond simple noticing and are drawn to notice the gaps or deficiencies in their interlanguage.

The metalinguistic function of output can thus lead to valuable insights about the language as learners may identify problems with their language production and discuss ways to improve them. This enables learners to have more understanding of linguistic forms as they develop and internalize new forms in their interlanguage.

Gass (1997) also sees the productive use of language as a necessary part of language development. Gass, like Swain, sees output as a means of testing hypothesis and generating feedback, which in turn facilitate syntactic-based processing that may lead to grammatical development.

Long's (1983b, 1985, 1996) Interaction Hypothesis identifies a different role for output in relation to negotiation. Specifically, he suggests that in the process of negotiation, L2 learners can obtain interactionally modified input, which is elicited by the learner's previous output. Through interactionally modified input, their focus of attention may be directed to linguistic forms, which help them to comprehend the input. At the same time, the implicit negative feedback (that is, information to learners about what is inappropriate and/or ungrammatical in the target language) learners receive on their attempts to communicate may induce them to reformulate, readjust or modify their initial non-target-like production, thereby promoting more target-like forms (Long, 1996; Pica, 1994).

The importance of learner output is also supported by a small-scale study by Nobuyoshi and Ellis (1993), which examined the developmental outcomes of 'pushed output'. Their study of Japanese students' correct use of past tense verb form shows that students were able to improve their performance in response to requests for clarification during focused communication tasks. They conclude that 'pushing' learners to improve the accuracy of their production results not only in immediate improved performance, but also gains in accuracy over time (p. 208). However, it should be noted that this small-scale study was exploratory in nature, based on just six learners and focusing on only the past tense linguistic feature. A much larger sample with different linguistic features under investigation needs to be examined before more definite conclusions can be made.

The role of 'pushed' output is further illustrated in the study by Van den Branden (1997). In addressing the effects of negotiation on language learners' output, he reported that in the context of a two-way communication task, fifth graders who had been 'pushed' to

modify their output produced slightly more output that was 'more complete and accurate' compared to the children who had not been pushed in the negotiation (p. 630).

In another study, Ellis and He (1999) also supported the positive role of output. They compared the effect of three types of treatment, namely, the negotiated output treatment, a premodified input treatment and an interactionally modified input treatment, on ESL university students' comprehension and acquisition of new L2 words. Conditions for incidental vocabulary acquisition were more favourable in the negotiated output treatment group as compared to the other two groups. Nevertheless, Ellis and He did not infer from the finding that the modified output condition was better than the other two input conditions. They noted the complex interplay between modified input and modified output, and asserted that modified output did not happen in isolation but occurred as a response to input and the opportunity to interact (p. 299).

The examples above show that through negotiation, interlocutors can immediately focus on the root cause of the communicative problem they are trying to resolve, which often relates to some aspect of the L2 forms in terms of lexis, syntax or semantics. Learners can thus attend to these very aspects of form in their output (Swain and Lapkin, 1995).

However, studies by Pica (1985) and Pica (2002) points to the fact that negotiation for meaning is not frequent in classrooms and that it can be inexact in terms of focus. As such, it might not be able to alert learners to form and meaning relationship.

Gass, Mackey and Pica (1998, p. 302) cited two studies by Holliday (1995) and Linnell (1995) on learners' output through their participation on interactive computer tasks.

These studies show that interactional modifications through the negotiation for meaning, even when they occur on computer can have a positive effect on the quality of learners' immediate production, resulting in more target-like output.

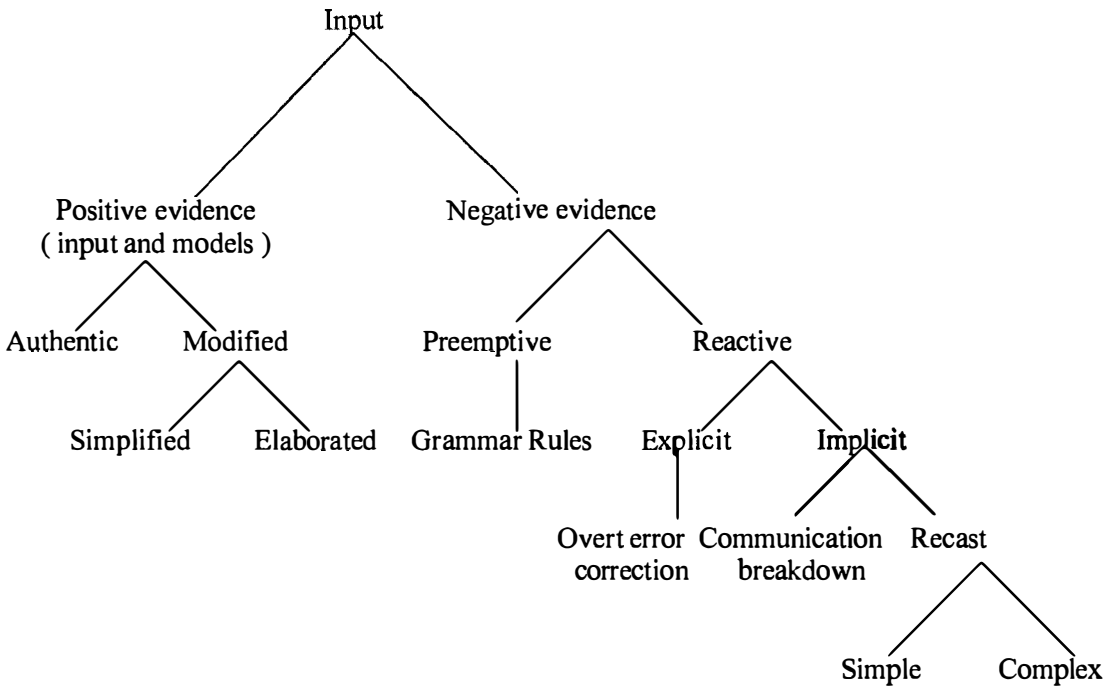
As the use of CMC is becoming increasingly popular as a medium of interaction, an examination of the nature of modified output in this medium of interaction could provide important insights into the potential of using this medium to promote the production of more target-like output. It is thus the purpose of this study to examine whether this is the case in the CMC setting in the ECE context.

2.5 Feedback

The utility of feedback for promoting language learning is based on theories of SLA within the Interactionist paradigm. In his updated version of the Interactionist Theory of language acquisition, Long (1996) maintains that data for SLA consist of positive and negative evidence. As mentioned earlier, positive evidence is information provided to the learner about what is grammatical and acceptable in the target language. Negative evidence is direct or indirect information given to learners about what is unacceptable or ungrammatical. Figure 1 illustrates a more detailed representation of Long's (1996) concept of data for language learning.

Figure 1

Data for second language acquisition



From “Focus on form: Theory, research and practice by M. Long & P. Robinson

(1998:19)

Positive evidence can be provided in authentic contexts during natural conversations. It can also occur in speech registers such as child-directed speech in first language acquisition (FLA), foreigner talk discourse or classroom teacher talk in SLA.

Negative evidence can be provided pre-emptively to prevent learner error (for example, by providing grammar rules) or reactively to repair errors after they occur. Reactive negative evidence emphasizes on differences between the target language and a learner’s

output. As such, it is often referred to as negative feedback. Negative feedback may be either explicit or implicit (Long, 1996).

Explicit negative feedback is in the form of overt error correction or grammatical explanation, where there is explicit indication that the learner has produced non-target-like usage. It may also include provision of a target-like model of the incorrect form.

Implicit negative feedback is an indirect indication of non-target-like usage, where the unacceptability of the incorrect utterance is implied (Long, 1996; Gass, 1997). This type of feedback provides learners with information related to an incorrect utterance without disrupting the flow of conversation. Long (1996) claims that implicit feedback in the form of negotiation strategies and recasts provides learners with data that promote acquisition. Mackey (2000) refers to negotiation moves and recasts as ‘interactional feedback’.

The contributive role of implicit feedback through the negotiation of meaning is highlighted by Long (1996):

“Negative feedback obtained in negotiation work or elsewhere may be facilitative of SL development, at least for vocabulary, morphology and language-specific syntax, and essential for learning certain specifiable L1-L2 contrasts” (p. 414)

This is because when their interlocutors indicate that they have not understood what the learners are trying to convey, they may model the correct target language forms. When this happens, learners may receive input on relevant aspects of grammar that are still

problematic to them, which could be lexical, syntactical, morphological, phonological or semantic in nature. This includes various kinds of reformulations and adjustments, apart from input modifications, which serve to make the L2 forms salient to the learners.

At the same time, when interlocutors express a lack of understanding, learners are impelled to clarify what has been said. In doing so, they might be pushed to attend to the form of their message meaning, attempting to make it clearer and more coherent. Nevertheless, awareness of learners' errors can also be realized through self-reflection or self-monitoring, which can then lead to self-correction or repair of the earlier error sequence.

There are many claims regarding the beneficial role of feedback in promoting L2 development. Studies by Mackey and Philp (1998), Long, Inagaki and Ortega (1998), and Oliver (1995, 2000) have shown that feedback, particularly that which is implicit, provides learners with data about semantic and syntactic relationships of the target language, which would be facilitative of interlanguage development.

The study by Oliver (1995), for example, investigated the role of implicit negative feedback in NS-NNS interactions. She examined pairs of NS and NNS children carrying out one-way and two-way problem-solving tasks in English involving picture completion to determine whether or not negative feedback existed, and if it existed, whether or not it was incorporated in the learners' subsequent output. Both forms of implicit feedback, i.e. negotiation strategies and recasts were examined. The results showed that child NS-NNS

dyads interacted in a variety of ways and over 60% of NNS errors received some form of negative feedback from the NS children. Negotiation strategies were mostly provided in response to multiple errors or when the utterances were semantically ambiguous. Recasts, on the other hand, usually occurred in response to utterances containing single errors and also in association with particular types of grammar mistakes. Thus, negotiations occurred for the purpose of clarifying meaning, and recasts for correcting forms. This study therefore supports the facilitative role of negative feedback in SLA.

Studies by Pica, Holliday, Lewis and Morgenthaler (1989), Oliver (1995, 2000) and Lyster and Ranta (1997) show that interactional feedback can lead to modification of output toward more target-like features. For example, the study by Pica et al. (1989) found that irrespective of the task type employed in their study (that is, information-gap, jigsaw and discussion tasks), the negotiation signals addressed to learners during interactional feedback affected their production of modified output. Their findings show that learners were more likely to modify their output by making it more grammatical in response to requests for clarification, rather than when a model form was provided in the form of a confirmation check of their earlier non-target-like sequence. Thus, negotiation moves such as clarification requests push learners to attend to linguistic features, leading to modification of output toward more target-like forms.

In another study, Carroll and Swain (1993) lend support to the view that implicit, as well as explicit types of feedback were beneficial for acquisition of specific linguistic features. The study investigated the effects of different types of negative feedback on SLA, in

particular, the acquisition of English dative alternation. The subjects were divided into groups based on the type of feedback they would receive upon making an error. The results of the study provided evidence that both implicit and explicit types of feedback led to positive results, assisting adult second language learners to learn specific and abstract linguistic generalizations. It was also found that giving explicit metalinguistic information was more helpful than merely informing the learner that a mistake had been made.

There are various other benefits of providing feedback. For example, the study by Robinson (1996) argued that feedback may be able to promote noticing of L2 forms. Drawing learners' attention to the deviations in their output through the use of implicit negative feedback can trigger learner internal mechanisms with regard to their hypothesis about the language, which could lead to immediate output change (Gass et al., 1998). Schachter (1991) stresses that feedback, particularly, that deemed to be negative feedback, is needed to provide learners with useful metalinguistic information on the clarity, accuracy and/or comprehensibility of their interlanguage production.

From a different perspective, the study by Mackey, Gass and McDonough (2000) explored the perceptions of seventeen adult learners about the feedback they received. They investigated whether learners perceived feedback as feedback per se, whether they recognized the target of the feedback, and whether there was uptake of feedback. The findings show that recasts were perceived not as corrective feedback but as another way of saying the same thing. In cases where uptake occurs, learners reported that they

perceived exactly the target of the feedback, and when feedback did not result in uptake, learners did not perceive feedback as such. Nevertheless, they caution that perception does not necessarily lead to L2 development.

Despite the many benefits of negative feedback reported, it is important to note that generalisations from these studies are difficult. For example, Nicholas, Lightbown and Spada (2001) in their comprehensive review of the literature on recasts highlighted that it is difficult to draw general conclusions about the contribution of recasts in language development. Factors that contributed to different findings could be the inconsistency in the operational definitions used. For example, one of the difficulties is due to the differences in the coding of forms of negative feedback. It has been highlighted by Oliver (2000) and Leeman (2000) that some forms of negative feedback can overlap. For example, recasts may be incorporated as part of a confirmation check. In the following example taken from this study, a recast and a confirmation check co-occur, constituting negative feedback to the learner:

Student: *... If the students given more practical, they can know some other information which is not given in theoretical ...*

Teacher: *I suppose you mean, through practical training, students will be able to gain knowledge which they can't get from theory in the class.*

Another example shows the co-occurrence of a recast and a clarification request:

Student: *...As we know a man is the people who conquer in civil engineering industry...*

Teacher: *What do you mean by the above? Are you saying that men are dominating the civil engineering industry?*

Another difficulty in making generalizations from studies on negative feedback is the differences that may occur in different contexts, which might impact differently on the learners. Some studies are conducted in laboratory settings, some take place in immersion or ESL classes and some in mainstream classroom settings. For example, it has been found in the L2 research that recasts appear to provide useful input to learners in the laboratory setting than in the classroom setting (Nicholas, Lightbown and Spada, 2001).

Grimshaw and Pinker (1989) have pointed out that in order to establish that negative evidence is essential for L2 acquisition, it is necessary to demonstrate its universality in all L2 contexts. At present, various studies have shown that implicit negative feedback is provided and sometimes used by child and adult L2 learners in various contexts.

Studies that have looked into NNS-NNS teacher-learner and learner-learner interactional context are still very limited. Some examples are learners of Thai in NNS-NNS context (Mc Donough and Mackey, 2000) and learners of Japanese in a teacher-learner context (Muranoi, 2000).

The empirical study by Mc Donough and Mackey (2000) illustrates how a series of communicative tasks designed for learners of Thai could promote interactional features such as negotiation and recasts. The tasks were designed to provide learners with opportunities to pay attention to morphosyntactic structures such as 'noun classifiers' and 'question forms' while engaged in meaning-based communication. The tasks include an information gap activity, a story sequencing task working towards a convergent goal and a jigsaw spot the difference task. The result of this small-scale study shows that the tasks

were effective at promoting negotiation and recasts that involved noun classifiers but not question forms. The study also acknowledges the fact that the active role of the instructor in monitoring the learners' performance and providing 'judicious' feedback would be beneficial for L2 development.

The study by Muranoi (2000) shows the benefit of teacher feedback in form-focused L2 instruction. The study examines how a communicative instructional technique, which she referred to as Interaction Enhancement (IE), affected the learning of English articles. IE is a treatment that "guides learners to focus on form by providing interactional modification and leads L2 learners to produce modified output" (p. 617). Muranoi concludes that teacher feedback which provided corrective treatments in an 'appropriate and timely manner' led learners to attend to form, which positively affected their learning of particular language structures.

The current study focuses on interaction occurring in a tertiary level, NNS-NNS teacher-learner and learner-learner context in a foreign language setting using CMC. The nature of feedback responses, as well as the conditions under which the different types of feedback occurred are examined for evidence of feedback which is facilitative of acquisition.

The next sections will look into two forms of implicit negative feedback in more detail, namely negotiation for meaning and recasts. There is currently a growing body of research exploring the use of negotiation for meaning and recasts for promoting SLA.

Their primacy in interactional research and the increasing interest in both forms of feedback merit examination and observation.

2.5.1 Negotiation for meaning

Negotiation for meaning is the term used to characterize the modification and restructuring of interaction that occurs when learners and their interlocutors anticipate, perceive or experience difficulties in message comprehensibility (Pica, 1994, p. 494).

Long (1996) redefines negotiation for meaning in his updated version of the Interaction Hypothesis as:

“... the process in which, in an effort to communicate, learners and competent speakers provide and interpret signals of their own and their interlocutor's perceived comprehension, thus provoking adjustments to linguistic form, conversational structure, message content or all three, until an acceptable level of understanding is achieved” (p. 418).

Many researchers have called attention to the importance of negotiation of meaning in second language development (see Long 1980, 1983a, b, 1985, 1996; Pica, 1993, 1994; Pica et al., 1987; Varonis and Gass, 1985; Gass and Varonis, 1994; Pica et al., 1989). The underlying assumption in this type of research is that the language used in the process of negotiation will benefit learners' interlanguage development. This is due to the fact that negotiation can bring about conditions claimed to be facilitative of SLA, namely, learners' comprehension of L2 input, their production of modified output, and their attention to L2 forms through the provision of feedback (Pica, 1993, 1994; Pica et al., 1987). This is further articulated by Long (1996):

“...negotiation for meaning..., facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways”(pp 451-452).

When a communicative problem arises, at the root of the problem is some aspect of the L2 form, either in terms of syntax, semantics or lexis. Through negotiation for meaning, particular forms can be brought to the learners’ attention, which might otherwise be left unnoticed. This ‘selective attention’ to form within the context of meaning construction has been claimed to enhance the input and facilitate grammatical development in a second language (Long, 1996; Gass and Varonis, 1994). When learners incorporate a form, this is evidence of intake.

Long (1983b) claims that modifications that occur in the process of negotiation for meaning are crucial to language acquisition. Three strategies most often described in research about negotiation for meaning are comprehension checks, confirmation checks and clarification requests (Long, 1983b). The following is a more detailed explanation of each of these, with examples taken from the transcripts of this study:

1) A comprehension check is the speaker’s/writer’s query of the interlocutor to see if he/she has understood what was said/written:

a) Are you clear?

b) Do you get what I mean?

2) A confirmation check is the speaker’s/writer’s query as to whether or not his/her (expressed) understanding of the interlocutor’s meaning is correct:

a) I suppose you mean, ... through practical training, students will be able to gain knowledge, which they can’t get from theory in class.

b) Am I correct to say that you disagree with the statement... simply because there are many female civil engineers nowadays.

3) A clarification request is a request for further information or help in understanding something the interlocutor has previously said:

a) What do you mean by "conquer the civil engineering industry?"

b) I'm not sure what your stand is... Please clarify.

It has been claimed that negotiation for meaning has a number of benefits including optimizing input, pushing output production and providing a source of negative evidence. Negotiation for meaning provides learners with the opportunity to be exposed to optimal input and output conditions that will be facilitative of language learning. The study by Pica et al. (1989) reveals that when learners show difficulty in understanding, the native speakers provide linguistic modifications in the input, such as repeating and reformulating their original utterance for the learners. At the same time, learners make reformulations of their own interlanguage output based on the feedback they get, leading to the production of modified output towards more target-like forms.

Gass (1997) describes negotiation as a 'facilitator of learning' because it is "a means of drawing attention to form, making it salient and thereby creating readiness for learning" (p. 131). As pointed out by Gass and Varonis (1994), the interactive nature of negotiation helps learners to focus their attention on form, especially the problematic parts of the learners' discourse. This is due to the fact that negotiation creates a context in which learners receive feedback of their earlier non-target like utterances through positive or negative evidence. For example, from the negative evidence provided during negotiation

for meaning, learners are provided with valuable information regarding the grammatical accuracy and social appropriateness of their utterance (Long, 1996).

The negotiation for meaning also pushes learners to produce modified L2 output, bringing their interlanguage system closer to the target-like system (Swain, 1985). Pica (1994) states that through negotiation for meaning, learners can be forced to modify their output of the L2 forms and attend to the form of L2 grammar. She outlines the ways in which interaction modified through negotiation brings about reformulations, segmentations and movement of constituents that provide lexical and grammatical information about the L2.

As indicated earlier, research has also shown that the provision of explicit and implicit feedback during negotiation for meaning may lead the L2 learners to incorporate the target-like forms into their subsequent output (Oliver, 1995, 2000). For example, as part of the negotiation strategies (i.e. confirmation checks), target-like restatements of their earlier incorrect sequences are also provided in the form of recasts, and learners can and sometimes do integrate these into their succeeding language production.

The importance of negotiation for meaning in a content-based classroom has been reported by Musumeci (1996). She emphasizes that negotiation is an important component in the language learners' learning experience as it can lead to comprehensible input and output. Musumeci argues that mere exposure to English input in the content-

based classroom without negotiated interaction for comprehension of meaning is insufficient for promoting second language acquisition.

Investigation into negotiation for meaning in computer-based interaction is still in its infancy. Some of the findings regarding the utility of negotiation for meaning in promoting interlanguage development in a CMC environment will be reported later (see Section 2.9.3).

It is important to note that despite the benefits reported in the literature on negotiation for meaning in facilitating language learning, researchers have also emphasized the limitation of negotiation when drawing learners' attention to form and meaning (Long, 1996; Pica, 1994, 2002). It has been highlighted that although negotiation moves may signal a lack of comprehensibility or clarity in message meaning, they may not be able to target exactly learners' linguistic needs in terms of form-meaning relationships. As such, Pica (2002) asserts that "it is the inexactness of negotiation, when drawing learners' attention to form and meaning, that limits its sufficiency as a condition for L2 learning" (p. 6). Nevertheless, there is evidence so far of the positive effects of negotiation in addressing learners' linguistic and interactional needs, and this is worthy of further investigation. This study aims to examine whether negotiation for meaning occurs in the CMC on-line interaction in the ECE context to determine whether it is facilitative of learning and interlanguage development.

2.5.2 Recasts

Long (1996) defines recasts as utterances which rephrase the learners' production by changing one or more sentence components (subject, verb or object) while still maintaining the central meaning of the message (p. 434). Another property of recasts noted by Long is that they are reactive, given in response to a non-target-like utterance first formulated by the learner and immediately follow the incorrect sequence. They can be given in response to one or more ill-formed sequences, and as such, recasts can be total or partial (Oliver, 1995). They may be provided in response to an utterance in which the meaning is clear but the form is incorrect, or they may be in response to a lack of clarity of meaning as well as to a non-target-like form. In whatever context, the learner is provided with correct restatements of the erroneous utterance produced earlier. Although the reformulated utterance is expanded in some way, the intended meaning is preserved, as perceived by the interlocutor (Long, 1996).

The benefits derived from recasts have earlier been shown in first language acquisition studies. For example, Farrar (1992) believes that children do not merely imitate the recast made by their parents but they actually respond to the negative evidence provided. He asserts that the recast utterance triggered children to attend to form and they noticed incorrect structures due to the increased salience.

There has been a growing body of research on interactional work in SLA that has looked into recasts (Long et al., 1998; Mackey and Philp, 1998; Lyster and Ranta, 1997; Lyster, 1998; Oliver, 1995, 2000), with an increasing support for their utility in SLA. The

interest in recasts could have developed as a result of the influence of FLA research or could be due to the relative ubiquity of recasts in classrooms. It could also be attributed to the fact that recasts can be provided simultaneously in meaning-oriented interaction due to their unobtrusive nature.

Experimental L2 research provides empirical support for the existence of recasts and the benefits of recasts for L2 development. These studies have shown that the use of recasts as interactional feedback can provide significant advantages for learners who were exposed to them compared to those who were not (Mackey and Philp, 1998; Long, Inagaki and Ortega, 1998; Mackey and Oliver, 2002).

Mackey and Philp (1998) investigated the effect of conversational interaction with intensive recasts on the production and development of question forms in English as a second language (ESL). Two groups of learners were compared, one receiving interactionally modified input and another receiving the same input containing intensive recasts of the non-target-like utterances. The results suggest that interaction with recasts was more beneficial than interaction alone in facilitating the production of structures at higher developmental levels. The overall findings indicate that although recasts were not always incorporated into the learners' immediate responses, they may be beneficial for short-term interlanguage development. Mackey and Philp however caution that immediate uptake of feedback should not be interpreted as the only evidence of learning and development.

Long et al. (1998) conducted two experiments to assess the relative utility of models (preemptive negative evidence) and recasts (reactive negative feedback) in L2 Japanese and Spanish adult learners. Both studies utilized a pretest, posttest and control group design, where the subjects were randomly assigned to five groups. The four experimental groups were further collapsed into two groups, recasts and models. For both groups, it was ensured that both the model and recast condition involved equal input and output opportunities. The results indicate that learners were able to learn from implicit negative feedback in the Spanish L2 study group. The use of recasts as implicit negative feedback was more effective than positive input or models in achieving at least short-term improvements on L2 structures not known before.

In the Japanese experiment, the target structures were adjective ordering and the locative construction. The results showed that the effects of models and recasts were comparable in the adjective ordering construction, but there was no apparent advantage for either kind of input over the control condition with locatives. The results of this experiment should be interpreted cautiously. Firstly, almost 50% of the participants in the treatment groups found the test instructions for eliciting the locative to be unclear. Another problem related to the fact that some of the participants had prior knowledge of Japanese. These two problems might have affected results.

Various other studies have also examined the existence and use of recasts. For example, Lyster and Ranta (1997) and Oliver (1995, 2000) examine the effects of recasts by

focusing on the responses of learners in the third turn sequence, through the analysis of repetition or incorporation of recasts.

Lyster and Ranta (1997) observed L2 learners of French in communicative classrooms. They acknowledge that recasts are both frequently used and consistently provided by teachers to their students. However, they suggest that recasts rarely result in ‘uptake’ that leads to student-generated repair of incorrect utterance. Uptake is “ a student’s utterance that immediately follows the teacher’s feedback ... a reaction in some way to the teacher’s intention to draw attention to some aspect of the student’s initial utterance” (Lyster & Ranta, 1997, p. 49). They suggest that this could be due to the ambiguous nature of recasts, in the sense that “students are expected to sort out whether the teacher’s intentions are concerned with form or meaning” (p. 57). They also claim that feedback types other than recasts like metalinguistic feedback, elicitation, clarification requests, and teacher repetition of error, lead to more repair of erroneous utterance.

Another study by Lyster (1998) also shows a lower rate of repair by students in response to recasts. Lyster reported that recasts made in response to grammatical errors were not salient enough for the young learners to draw their attention to the non-target-like output and lead to uptake or more target-like output. A possible explanation given by Lyster was that young learners might not have perceived recasts as corrective moves by the teacher. Instead, they could be viewed as fulfilling discourse functions while providing alternative or identical forms of the earlier output. In addition, Lyster reported that some types of

errors, such as phonological errors, benefited more from recasts than lexical and morphosyntactic errors.

Oliver's (1995, 2000) studies, on the other hand, lend more favourable support to corrective recasts. Oliver eliminates all instances of 'no opportunity' for production, where the chance to repeat or incorporate the recast does not exist. This occurs during topic-continuation moves or topic changes (Oliver, 1995, 2000). Oliver (1995) shows that although her NNS subjects incorporated a low percentage of recasts (just under 10%) into their subsequent output, she argues that it was not conversationally appropriate or possible to do so on many occasions. She also points out that there were other factors that might have come into play and that learners were operating under developmental constraints. As such, the structures might not be incorporated because they were not within the learners' current 'L2 processing ability' or 'learnability range' (Oliver, 1995, p. 476). Research findings on learnability of forms have shown that for learners to be able to process feedback and acquire a new structure, they need to be sufficiently ready to do so at an appropriate developmental level (Pienemann and Johnson, 1987; Pienemann, Johnson and Brindley, 1988).

In this study, the effect of recasts as a form of negative feedback on learners' language in the on-line CMC environment in the ECE context is also examined. The aim is to determine the existence and provision of recasts in this CMC context, examine the kinds of error that have triggered the use of recasts, the nature of recasts provided and use or uptake of recasts in the third turn sequence.

2.6 Focus on form

Closely related to the provision of feedback is the notion of focus on form. One of the main challenges in the field of second language teaching and acquisition is to find the best way to strike a balance between emphasizing accurate production of L2 forms and promoting meaningful communication. Long (1991) introduced the term ‘focus on form’ to reflect the approach that induces a learner to attend to linguistic form while maintaining an overall emphasis on communication within a meaningful context. He contrasts this with ‘focus on forms’, which refers to the synthetic traditional grammar instruction approach involving the teaching of linguistic forms or structures exclusively or in isolation. As articulated by Long (1991),

“Whereas the content of lessons with a focus on forms is the forms themselves, a syllabus with a focus on form teaches something else - biology, mathematics, workshop practice... - and overtly draws students’ attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning or communication (Long, 1991, pp. 45-46).

Which forms to focus on and when to do so is not based on a predetermined linguistic plan or syllabus, rather the optimal condition for focus on form is when learners experience a communication problem. As pointed out by Long and Robinson (1998),

“... focus on form often consists of an occasional shift of attention to linguistic code features -- by the teacher and/or one or more students - triggered by perceived problems with comprehension or production” (p. 23).

Long’s conceptualization of focus on form thus entails a prior engagement in meaning before attention to linguistic features can be made effective. Learners’ attention is drawn precisely to linguistic features (e.g., words, grammatical structures, etc.), as necessitated by a communicative demand (Doughty and Williams, 1998, p. 3). For example, this

could happen during interaction tasks that promote negotiation work. As learners are aware of the meaning they want to convey, attentional space is available for them to focus on form (Long, 1996; Tomlin and Villa, 1994). As highlighted by Doughty and Williams (1998):

“... the fundamental assumption of focus on form instruction is that meaning and use must already be evident to the learner at the time that the attention is drawn to the linguistic apparatus needed to get the meaning across.”(p. 4)

The positive effect of focus on form in facilitating L2 acquisition has been highlighted by Long (1991) and Long and Robinson (1998). Long argues that instruction that specifically draws learners' attention to linguistic form in some meaningful contexts has a more positive effect on the level of attainment and ultimately, on the rate of acquisition. Focusing on form can speed up the rate of learning and facilitate the acquisition process.

Doughty and Varela (1998) carried out a study which examined focus on form in a content-based ESL classroom. The treatment group received focus on form instruction, in the form of corrective recasting, in addition to science instruction, whereas the control group received only the science content. Only errors related to the past and conditional forms were addressed. The results show that the progress made by the treatment group of past time reference was much more substantial. This study provides evidence that corrective feedback in focus on form instruction was more effective to develop ability in specific language items.

Long (1991) also argues that attention to L2 form has been claimed to be necessary for the restructuring of the interlanguage grammar. Nevertheless, although studies have

shown that focus on form might lead to restructuring or reformulation of interlanguage toward a more target-like form, it might not always immediately lead to increased accuracy in interlanguage form (see, for example, studies by Doughty and Varela, 1998; Leeman, Arteagoitia, Fridman and Doughty, 1995). Doughty and Varela (1998) show that although learners in their study noticed the function of past conditionals in their production, and tried to mark it in a variety of ways, it did not always lead to a fully target-like form. Similarly, in the study by Leeman, et al. (1995), learners who received focus on form instruction increased their marking of tense, but did not always manage to mark aspect in a target-like manner.

Nevertheless, it is apparent that focus on form triggers learners' attention and creates a learning opportunity for more target-like production, although not necessarily wholly accurate. This can be viewed as a stepping stone in the right direction, as learners continuously refine and adjust their interlanguage towards a more target-like form.

Studies have also shown that focus on form techniques that are provided in combination rather than individually are likely to be most useful. The study by Muranoi (2000) shows that the learning of complex rules can be facilitated by explicit instruction provided along with implicit instruction. Doughty and Williams (1998) suggest some proven combinations which include intonational focus combined with corrective recasts or other such interactional enhancements that can promote perceptual salience. This is because they direct learner attention to salient or frequent linguistic features. In Doughty and Varela's (1998) study, the saliency of recasts was much more apparent when delivered

with falling intonation and proceeded by repetition of the learner's error with rising intonation.

Despite the benefits in favour of a focus on form approach, it is important to note that focus on form does not, in itself, cause SLA, but rather that, tasks that promote focus on form create a fertile environment for interlanguage development to occur (Long, 1991). This study also examines whether focus on form does exist in the CMC environment to facilitate interlanguage development in this ECE setting.

2.7 The role of attention and noticing

Integral to focus-on-form are the notions of 'noticing' and 'attending to form'. These developed from the Noticing Hypothesis advocated by Schmidt (1983, 1990). This hypothesis states that 'noticing', which refers to the process by which learners pay conscious attention to linguistic features in the input, is necessary for language learning. Schmidt (1990, 1993, 1995) further argues that noticing of the correct form is not only necessary but also sufficient for input to become intake, which in turn, is an integral part of language acquisition. Noticing forms in the input is thus proposed as a prerequisite for acquisition because it accounts for which features in the input are attended to and so become intake.

Attention is important because it is the mechanism that allows a learner to notice a disparity between what he or she knows about the second language and what is the acceptable target-like form. The conviction is that grammatical forms must be noticed

before they can be subsequently incorporated into the learners' interlanguage system. For this to happen, learners must 'notice the gap' between their current interlanguage and the target language (Schmidt and Frota, 1986). When this happens, learners' innate mechanisms and cognitive capacities are geared to attend to form. However, closely related to this is the capacity notion of attention, which states that attention is limited and there is a limit to what language learners can actually notice.

Schmidt and Frota (1986) suggest that the target language input can only be acquired "if it is present in comprehended input and consciously 'noticed' ..." (p.311). Citing Schmidt's own diary study in which they analyzed his acquisition of Brazilian Portuguese, they noted, among other things, that the emergence of new forms in speech matched up with journal comments relating to noticing something in the input. The learner must also realize when he or she is being corrected. This is necessary in order to make unfamiliar target language forms into known and used forms (Schmidt and Frota, 1986).

Tomlin and Villa (1994) argued that a fine-grained analysis of the process of detection is necessary, distinguishing between alerting, orienting and detection within 'selective attention' for noticing to happen. They propose that learners must align available attentional resources, in the sense that they must be alert, must be oriented towards the input and must detect the information so that the input can become intake that is then available for further mental processing (Tomlin and Villa, 1994, p. 199).

Other researchers such as Schmidt (1990), Sharwood-Smith (1993) and Doughty (1991) have also highlighted the link between noticing and learning. Their studies reveal that calling learners' attention to certain linguistic forms proves beneficial for language learning. This is because noticing pushes learners into a more syntactic processing mode, increasing the possibility that they will be able to internalize new forms and/or improve the accuracy of their existing grammatical knowledge.

Schmidt (1990) stresses that a certain degree of conscious awareness is necessary for 'noticing' to take place. This noticing can happen when learners focus on their linguistic deficiency or problematic aspects in the target language (Gass, 1997, p. 4). For example, when learners are faced with difficulty in getting their message across, they might become more aware of their linguistic deficiency, which in turn, may result in restructuring of their linguistic knowledge (White, 1987).

The study by Sharwood-Smith (1993) reveals that calling learners' attention to certain linguistic forms is beneficial for language learning. Focus on formal properties of the language can be initiated not only by providing negative feedback on non-target-like forms in the learner output, but also by making more salient certain well-formed structures in the input. If the input can be manipulated or enhanced in some way to draw learners' attention to specific forms, this will facilitate learning.

The use of devices to increase the perceptual salience of target items is what Sharwood-Smith refers to as input enhancement. Various techniques can be employed to enhance

input in written text such as manipulation of typography (i.e. larger type size or different typefaces) and use of typographic cues (i.e. CAPITAL LETTERS, underlining, colour coding or bold face). Through input enhancement, learners' attention can be focused on the linguistic items that have been targetted. This focus on form may increase noticing as learners are made more aware of the use of the linguistic elements.

Experimental research has shown that highlighting input in materials to prompt learners to notice particular syntactic forms positively influenced their acquisition (see, for example, Doughty, 1991). Doughty examined the effect of computer-based instruction on the learning of relativization by university ESL students. In Doughty's study, both saliency and frequency were built into the tasks of the meaning-oriented treatment group. This group saw reading passages with certain features, namely, head nouns and relative clause markers highlighted on the screen. Doughty's results suggest that what is important for acquisition is the drawing of learners' attention to particular forms, such as more salient text manipulations which will increase noticing of target structures. If learners notice certain forms or constructions, they are more likely to acquire them than they are to acquire forms they have not noticed in any way.

Although there are many possible ways in which input can be manipulated and enhanced, Sharwood-Smith (1993) cautions that it would be wrong to assume that external manipulation of the input is the only mechanism that will increase learners' attention.

It can thus be concluded that the ability to focus attention on form is a complex mechanism involving the internal mechanism and cognitive capacity of learners in the process of interlanguage development. Evidence of this happening can be quite difficult to measure objectively. As such, this study aims to look for evidence of data in which the researcher can infer that noticing has occurred. For example, this can be reflected in the students' admission that they have noticed the mismatches between their output and that of the target form provided. Alternatively, it could also be inferred from the learners' own initiative in their attempts at making their output more comprehensible in response to the teacher's negative feedback during the negotiation for meaning.

2.8 Learner interaction

Interaction in the classroom consists of

1. learner-learner interaction
2. teacher-learner interaction

Studies on both forms of interaction (i.e. learner-learner and teacher-learner) are examined to explore their potential contribution to the learning process and to determine whether they are facilitative of learners' interlanguage development.

2.8.1 Learner-learner interaction

While research has shown that NS-NNS classroom interaction is more productive and beneficial for learning, studies of NNS-NNS interaction indicate that there may be advantages for NNSs from engaging in conversation with their peers (see, for example, reviews conducted by Long and Porter, 1985). Studies have shown that learner-learner

interaction provides opportunities for negotiation of meaning, for receiving comprehensible input, producing comprehensible output and obtaining feedback on errors made as they engage in interaction towards message comprehensibility.

In L2 contexts, the study by Varonis and Gass (1985) shows that when NNSs engage in genuine conversations with each other as opposed to native speaker interlocutors, they appear to experience greater opportunity for negotiation for meaning. This is due to the fact that communication breakdowns were more frequent between NNSs, and they felt freer to indicate non-comprehension and negotiate for meaning because they recognized their 'shared incompetence', and as a consequence, NNS-NNS interaction "serves the function of providing the participants with a greater amount of comprehensible input" (p. 84). Learner-learner interaction can thus be a valuable platform for negotiation of meaning to achieve message comprehensibility.

Gass and Varonis (1985) also conclude that interaction between NNS-NNS offers learners the greatest opportunity to receive comprehensible input and produce comprehensible output through negotiation. They argue that although signals of non-understanding of input disrupted the main flow of the discourse, they were a very important aspect of non-native conversation because they made unaccepted input comprehensible. This is because the negotiation routines compelled NNSs to work actively to 'manipulate input' to ensure that the conversation flows with minimal confusion. At the same time, they can gain practice in manipulating their output to restore comprehensibility.

In another study, Pica, Lincoln-Porter, Paninos and Linnel (1996) investigated the difference between NS-NNS and NNS-NNS dyads in terms of negotiation, to examine how language learners' interactions address the input, output and feedback needs of L2 learners. This study reveals that NNS-NNS interaction does not provide the same quantity and quality of modified input and modified output compared to NS-NNS interaction. However, Pica et al. assert that the quality and quantity of feedback provided by NNS through negotiation signals could provide morphosyntactic adjustments of the segmentation type. They thus conclude that learners "can be a limited source of modified input and modified output and can provide opportunities for feedback, albeit in a simplified form" (p. 79).

Reviews by Long and Porter (1985) reveal that NNS-NNS groups gained benefit from conversational modification. As there were more language practice opportunities provided in group interaction, learners were found to produce more language, characterized by a wider range of sociolinguistic functions and features believed to assist message comprehensibility. Learners were also found to experience less anxiety in learning, leading to greater motivation and initiative.

Although interaction among learners provides practice in terms of meaning negotiation, studies by Porter (1983) and Lightbown and Spada (1990) found that learners were not able to provide each other with accurate grammatical and sociolinguistic input of the kind that NSs can. In another study, Holliday (1993) questions the validity of NNS-NNS pairwork as a source for input of L2 forms. He compared five NS-NNS and five NNS-

NNS dyads to examine whether there was provision of target-like input while practising typical communicative language pairwork tasks. Holliday found that NNS-NNS interactions contained few grammatically correct, target-like cues for potential L2 syntactic acquisition.

Nevertheless, interaction between NNS-NNS does not necessarily lead to the development of bad linguistic habits. For example, previous empirical research found that NNS rarely incorporate each others's errors into their subsequent production (Bruton and Samuda, 1980; Porter, 1986; Gass and Varonis, 1989). In fact, Gass and Varonis (1989) provide evidence that learners negotiate toward more target-like forms, not away from them. In addition, it has been found that NNSs incorporate a correctly modelled form produced by their peers, although the changes may not be made immediately.

Another important finding from the studies of conversations of L2 learners is that learners are providers of feedback for each other. Studies by Pica and Doughty (1985), Gass and Varonis (1985, 1989), Bruton and Samuda (1980) and Pica et al. (1996) reveal that learners called attention to each other's non-target-like forms and made numerous correction moves as they negotiated towards message comprehensibility. Feedback moves can thus serve to alert learners of the comprehensibility of their message as well as the grammaticality of their utterance.

The studies reported above focus on oral interaction and reveal positive findings on the benefits of learner interaction. This is particularly important for learners in foreign

language contexts who are deprived of interaction with native speakers of the language. In these contexts, particularly in foreign language classrooms, in addition to the other L2 learners, many of the teachers are also NNSs. Thus, learners are increasingly becoming each other's resource for language learning in the foreign language classrooms (Pica et al., 1996).

This study also examines the potential of CMC on-line interaction among learners to identify whether learner interaction in the ECE context provides input, output and interactional opportunities for interlanguage development. In addition, the extent to which this interactional context is similar to or different from the teacher-learner interaction will be examined, studies of which will be discussed next.

2.8.2 Teacher-learner interaction

Studies have shown that the input and interactional features of teacher-learner interaction in L2 classroom contexts positively affect learners' interlanguage development, which in turn, is facilitative of language acquisition. Teachers are seen as active providers of target-like input and feedback to the learners, which provides opportunities for learners to attend to form. They also encourage their students to produce more target-like output. Pica and Doughty (1985) compared teacher-fronted and group activities in a communicative language classroom. They examined the similarities and differences in the two contexts in a decision-making communicative activity. The results show that there was more grammatical input provided by the teacher than by the students. In addition, features of negotiation which are claimed to assist comprehensibility of input

such as comprehension and confirmation checks as well as clarification requests, were more commonly available during teacher-learner interaction. This shows that teacher-learner interaction is facilitative of learners' interlanguage development.

Some preliminary classroom research findings have also shown that feedback is both frequently and consistently provided by the teacher to their students (see Lyster and Ranta, 1997; Lyster, 1998). The study by Lyster and Ranta (1997) shows that during classroom interaction, corrective feedback provided by the teacher leads to negotiation of form and fosters self-repair of language forms by learners. As such, the teacher's corrective feedback encourages learners to confront their non-target-like production, which triggered a revision to their hypothesis about the target language.

Lyster (1998) also reveals that teachers were more systematic and consistent in their provision of feedback. Lyster examined error types and corrective feedback in relation to immediate learner repair. Learners' errors were coded as grammatical, lexical, phonological or as unsolicited use of L1 (English). The teacher's corrective feedback moves were coded as recasts, negotiation of form (repetition of errors, elicitation, metalinguistic clues or clarification requests), and explicit correction. The analysis of data showed that 61% of learners' errors led to teacher's corrective feedback. The choice of feedback, however, depended on error type. For example, lexical errors triggered negotiation of form, while errors related to grammar and phonology elicited recasts. Thus, form is attended to when feedback is provided to learners, which could facilitate learners' interlanguage development.

Studies by Lightbown and Spada (1990) and Spada and Lightbown (1993) show positive effects of focus on form instruction and corrective feedback by teachers within a communicative language teaching framework. Lightbown and Spada (1990) investigated relationships between instruction, interaction and acquisition and found that form-focused instruction provided in a communicative ESL program contributed positively to higher level linguistic development and increased performance in the acquisition of progressive-ing and adjective-noun order in noun phrases.

In a quasi-experimental study, Spada and Lightbown (1993) examined the development of interrogative constructions in the oral performance of ESL learners within the context of form-focused instruction and provision of corrective feedback. As in their earlier findings in Lightbown and Spada (1990), they conclude that language skills are best developed through meaning-based instruction in which form-focused activities and corrective feedback are provided.

White, Spada, Lightbown and Ranta (1991) investigated the role of formal instruction and teacher's feedback on learners' accuracy in asking questions. The results of their study showed that exposure to and corrective feedback on grammar-related forms can lead to input enhancement, bringing about genuine changes in the learners' interlanguage systems.

The study by Pica (2002) examined the role of subject-matter content to identify ways in which teachers in this context can assist learners in meeting their input, feedback and

production needs. The analysis of teacher-led discussions shows that subject-matter content provided a meaningful context for students' exposure to the form and meaning relationships but their findings revealed relatively few instances in which the discussion interaction led to modified interaction and attention to form and meaning. Pica proposed that the use of subject-matter content to support L2 learning would be more effective if opportunities existed for 'planned form-focused intervention' in interactive tasks to promote opportunities for more targeted input, feedback and student production of modified output.

Thus, in the context of the ECE content-based classroom, this study also examines the features of teacher-learner interactional exchange to determine whether there are input, output and interactional opportunities afforded to learners in this context when using CMC, which could be facilitative of interlanguage development.

2.9 Computers for language learning

Levy (1997) defines 'computer-assisted language learning' (CALL) as "the search for and study of applications of the computer in language teaching and learning" (p. 1). In their overview article on computers and language learning, Warschauer and Healey (1998) have highlighted the significant change in the role of computers in language teaching and learning over the last thirty years or more. They characterize the development of computer use into three main stages:

1. Behavioristic CALL, where computers are used mainly for repetitive language drills and exercises

2. Communicative CALL, where computer-based activities focus more on using forms, and learners are encouraged to produce language rather than just manipulate prescribed language. In this approach, grammar is being taught implicitly.
3. Integrative CALL, a perspective that integrates technology more fully into the language learning process through the integration of various skills of the language. In this approach, students use a variety of technological tools in an ongoing process of language learning and use (Warschauer, 1996b).

There are no definite timelines for each of the stages above, with each new stage emerging and previous ones continuing. Further technological and pedagogical developments now provide us with opportunities to integrate computer technology into the language learning process more effectively and efficiently. At present, multimedia programs and the Internet offer a myriad of opportunities to immerse students into rich learning environments for language practice. Thus, computer technology has taken its rightful place as an important element of language teaching and learning.

It has been reported in the literature that there are many advantages for the application of CALL in language learning. Further, it has been suggested that CALL activities can be created in ways that may extend the potential of the computer beyond just a 'tool' to facilitate the language learning process. Warschauer and Healey (1998, p. 60) have highlighted the benefits of incorporating a computer component into language instruction, which include:

1. multimodal practice with feedback;
2. individualization in a large class;
3. pair and small group work on projects, either collaboratively or competitively;
4. the fun factor;
5. variety in the resources available and learning styles used;
6. exploratory learning with large amounts of data;
7. real-life skill-building in computer use.

Findings of studies done so far have shown that the use of CALL can provide instructional contexts that generate opportunities for communicative practice of the target language and opportunities for meaningful learner output (Ortega, 1997). Armstrong and Yetter-Vassot (1994) add that it is the creative, innovative and sound integration of technology in the language class that engages students in interactive and cooperative learning projects that can enhance language learning. In addition, CALL promotes activities that engage learners as active participants in the learning process and thus encourage learners to explore and exploit language in creative ways, rather than just being passive recipients of learning. This potential of using technology has been described by Hunt (1993) in the following way, “Newer technologies ... can be used to shift the role of the learner from that of a passive receiver of information to that of an active learner experimenting with language” (p. 9).

In addition, Garton (1991) asserts that “CALL is the epitome of learner-centred language learning activity” (p. 2). This is further supported by Levy and Farrugia (1988):

“Computers can, inter alia, provide the basis for group work and pair work activities, and provide interactive activities with feedback when the teacher is not available, with greater learner control over materials. Student motivation is also enhanced” (p. 3).

In terms of general education, using computer technology can provoke students to become more inquisitive, enter debates, formulate opinions, engage in discussions, solve problems and think critically (Peck and Dorricot, 1994). In addition, technological tools when used appropriately have the potential to empower learners. For example, Warschauer, Turbee and Roberts (1996) show in their study that computer networking can be used effectively to promote autonomy, increase classroom equality and help develop students’ learning perspective. Armstrong and Yetter-Vassot (1994) suggest that this empowerment occurs because of the equal learning partnership that is an integral part of the computer-supported learning environment, where the role of the teacher is less dominant, and where learners are encouraged to work responsibly and independently. In addition, Warschauer and Healey (1998) also emphasize the real-world benefits of collaborative language learning with computers. This provides practice for students to be engaged in a cooperative, team approach to work projects, which is a dominant feature of the present and future work environment.

The application of CALL in this study is for an ESP learning context, specifically for civil engineering students. Studies that have reported the application of CALL in ESP learning settings are still very limited. Those that do appear in the literature will be discussed next.

2.9.1 CALL and ESP

Studies that have incorporated the use of CALL in ESP environments have reported the advantages of computer application in these contexts. Based on sound integration of technology and pedagogical principles, learning opportunities can be created to cater for specific needs of learners, with exposure to lexis, grammar and subject-matter relevant to their target needs and specialized discipline.

For instance, Flowerdew (1995) reports on a case study that adopted a principled ESP approach in the courseware design of a job-seeking skills package designed for both undergraduate and postgraduate students at the Hong Kong University of Science and Technology. The design of the self-access CALL material was based on an eclectic needs analysis model, which incorporated elements of the language-centred and learning-centred approaches. In the construction of exercises, the target situation needs and expectations, as well as the students' existing language proficiency level or 'lacks' (Hutchinson and Waters, 1987) were also taken into consideration. In addition, this self-access CALL material made optimal use of the authoring facilities for giving feedback messages and built in all possible alternative answers. The only drawback was the synthetic nature of the CALL program used, resulting in the target language being broken up into 'move structures' and discrete items. This limited approach focuses on what is to be learned rather than how the language is to be learned.

Vallance (1997) reports on another study in which a unique Internet Aided Language Learning (INTALL) resource entitled "Business Meetings" was developed for Business English learners wishing to review vocabulary and language expressions associated with

conducting business meetings. The study shows that hypertext activities available on the Internet that incorporated problem-solving and decision-making tasks were able to provide opportunities for sustained communication and linguistic development. In addition, a questionnaire survey of students' perception regarding the Internet resource indicated a favourable response, with them reporting that it provided a valuable resource that they could refer to at anytime, and that could be used either as a group activity or for individual self-study.

Another Internet-based ESP language acquisition program is the Language Learning Network project reported by Fox (1997), which was designed specifically for a distance learning Vocational Language course. Fox demonstrated how a range of learning and technological devices consisting of a mix of media, including the Internet and video conferencing could be combined to create a rich and communicative content-driven learning experience. The 'pragmatic CALL' approach was employed, tailored to the specific needs of the distance mode of learning. The focus on content-based materials enabled the introduction of relevant lexis for the vocational user. The pedagogical framework reflected a humanistic approach to technology-mediated language acquisition with the incorporation of irony, humour and imagination in the situational dialogues to enhance the learning experience. This Internet-based language programme is one approach in which the multimedia is harnessed to produce a rich hypermedia learning resource and integrated into a pedagogical framework where learner-tutor and learner-learner interaction was given primacy.

In another study on CALL application in an ESP context, Kimball (1998) reports on a syllabus designed using a needs analysis approach for second year medical students in a Japanese college. The study focused on discipline specific language learning that incorporated concepts and tasks in the form of contextualised problem sets that were inquiry-driven, and which simulated real-world clinical thinking. Through collaborative enquiry, students read, discussed and wrote in response to medical case studies accessed and mediated through the Internet. In this way, lessons for the ESP context were structured around important concepts and ideas relevant to the authentic disciplinary practice and clinical thinking of the medical field. This was extremely motivating for the students and provided relevance to language learning as it created a context for learners to be engaged within the lexical and grammatical features that were contextualised within socio-cognitive frames that captured the real-world disciplinary practice of the medical field.

Another study that emphasizes the need to devise subject-specific language courses and materials, this time for students of engineering and science, is reported by Dłaska (1999). Dłaska argues that Language for Specific Purposes (LSP) courses offered in Higher Education need to assess the situation and needs of learners. LSP courses should be subject-based and the focus should not only be on the lexical and morphosyntactic level but should take into account the levels of text, content, context and the communicative characteristics of a specialist subject area. Thus, on the language level, grammar and the four core skills should always be practised within the context of the subject matter.

Apart from that, this study also stressed the need for language skills that enhanced students' job prospects rather than just their general communicative competence. As such, the study emphasizes that CALL materials in LSP teaching should be designed in collaboration between language teachers and subject specialists so that CALL materials would have more motivational value. At the same time, teachers in LSP contexts should not ignore the technical expertise and creative potential of technical students as they have a certain level of content knowledge and skills based on their exposure to the subject matter of the specialized discipline. These issues are common to the participants in the current study and provide valuable insights for this ECE context.

Another study which stresses the importance of exposing students to the subject matter of their specialized discipline is by Leahy (1998). The study reports on a self-study program for German students studying law. It incorporated the use of CALL and satellite television. The program was designed in preparation for the students' study year abroad. Through collaboration between the content lecturer in the law department and the language experts, the students were able to deal with specific language elements as well as information on the subject matter during the self-study program. This dual approach provided opportunities for the provision of legal information, relevant and authentic reading materials and legal concepts, without which the language work would have been difficult. This study also acknowledged the fact that students were developing specialist knowledge of the content, while the language tutor had the specialist knowledge of language study techniques.

As mentioned earlier, there appears to be little, if any research examining the application of CALL in the civil engineering discipline in particular. The purpose of this study is to examine the application of CMC in the civil engineering context for the purpose of language learning. To do this, an ECE on-line community was created using a leading web-based bulletin board service available on the Internet. The Internet is now becoming one of the primary media of literacy and communication practices, opening up multiple communication channels for interpersonal communication, group discussion and information sharing (Shetzer and Warschauer, 2000, p. 171).

The students were required to engage in a discussion forum on social, economic and environmental issues related to the civil engineering field and profession. This was part of a wider task for the civil engineering students to gain useful insights into the civil engineering field or profession, in preparation to be effective members of the civil engineering community.

In the next section, studies reported in the literature on the use of CMC for language learning will be presented. In addition, the findings from studies conducted in contexts outside of the language learning setting will be included to supplement the discussion.

2.9.2 Computer-Mediated Communication (CMC)

CMC has been employed in language learning classrooms in various forms. Levy (1997) identifies some of the technological platforms currently in use for CMC from the CALL

literature. These include the e-mail, listservers, newsgroups, bulletin boards, internet relay chat and computer conferencing.

Communication in a CMC environment can be real time (synchronous) or at different times (asynchronous) with learners situated in the same venue or at different geographical locations (Levy, 1997). Most of the studies reported employ the use of the asynchronous mode of communication. Studies conducted into the use of CMC in education describe its capacity to transform the learning environment in various ways in terms of social dynamics, participation patterns, language output and other features, potentially leading to greater productivity, greater collaboration and equalization of participation in the classroom. Furthermore, Warschauer (1999) highlights the fact that CMC combines several features that make it a powerful new medium of human interaction. As he asserts, the computer-mediated feature of on-line writing has finally “unleashed the interactive power of text-based communication” (Warschauer, 1997, p. 472)

CMC results in communication that is more equal and democratic in participation than face-to-face discussion (for reviews, see Warschauer, 1997). For example, studies by Kem (1995), Kelm (1992) and Beauvois (1992) report a greater degree of student participation in terms of equality of participation and percentage of student talk versus teacher talk. Kem (1995) provides quantitative evidence that students participated more frequently in CMC as compared to traditional oral classroom discussions, which tended to be teacher-dominated. He concludes that electronic discussions resulted in a radical change in the proportion of student versus teacher language production where students

had more turns and produced more words and sentences in the computer-mediated discussion than in the oral discussion.

One of the benefits of CMC is that it allows for individual differences, and students with diverse abilities, learning styles, proficiency and confidence can participate at levels and in amounts suitable for them. As a consequence, they are more willing to express themselves electronically at their own pace and time rather than contributing spontaneously in oral interactions. In addition, there is more balanced student participation, with shy and more reticent students participating more than in face-to-face discussion (see, for example, Sullivan and Pratt, 1996; Kroonenberg, 1994/1995).

Similarly, Kelm (1992) and Beauvois (1992) report increases in the participation pattern of shy, low-motivated and unsuccessful language learners in electronic discussions who were less willing to participate in teacher-led discussions. This could be due to their lessened apprehension about being evaluated by interlocutors and not being concerned with issues such as pronunciation, hesitations and loss for words. Moreover, Hartman, Neuwirth, Keisler, Sproull, Cochran, Palmquist and Zubrow (1991) reported that in networked classrooms, teachers can provide a more equitable distribution of attention to students, and this, in turn, encourages 'less talented' students to interact more with the teacher. Thus, even those who are not fluent or articulate can still participate and make a useful contribution to an electronic interaction, discussion or conference (Steeple et al., 1994).

Studies on the social dynamics of the CMC environment have shown that CMC provides a more equitable platform and a less threatening forum for L2 discussion (Warschauer, 1996a). This is because in CMC text-based interaction, there is a reduction of social context cues (Hartman et al., 1991; Warschauer, 1997). Moreover, asynchronous interaction using CMC enables learners to contribute at their own time and pace (Sproull and Kiesler, 1991 cited in Warschauer, 1997). This benefit of CMC neutralises the effect of those who tend to dominate oral discussion because in this context, they cannot interrupt. Therefore, as highlighted by Beauvois & Eledge (1996), the use of CMC may bring about equality of exchanges and reduce individual domination of classroom discussion. Learners can also be less affected by constraints of oral interaction such as wait time, turn taking, spontaneous articulation of ideas or opinion, maintaining the flow of conversation and fear to interrupt or of being interrupted.

There is also a more decentralized role for the teacher in a CMC environment. The role of the teacher as an authoritative source of knowledge and expertise is transformed to that of a facilitator of learning or mere participant engaged in equal learning partnerships with the learners as part of an electronic discussion (Kern, 1995; Warschauer, 1997). The shift in the teacher's role affords more control, responsibility and initiative on the part of learner in the electronic environment, providing a wider opportunity for learners to be engaged in self-generated and meaningful communication activities involving a wider range of functions and meanings.

Computers are changing the way that learners can use language in interaction. Chun (1998) reports on how interactive competence was enhanced by networking. Similarly, in a study by Kroonenberg (1994/1995), students of French who worked in pairs to discuss and debate ideas in a computer-mediated synchronous chat mode were able to practise rapid interaction, something which was more difficult to do in the oral mode. This is also supported by the finding in a study conducted by Kelm (1992) who reports that the simultaneous participation offered by Interchange, a CMC platform, led to a much quicker paced interaction than occurs in oral discussion.

Computer networks, both local and worldwide provide possibilities for new interpersonal contacts and communicative engagements. As reported by Beauvois & Eledge (1996), CMC is a channel for synchronous or asynchronous written exchanges and an excellent facilitator of communicative activities. In addition, Swaffar (1998) asserts that network exchanges in CMC engage learners more frequently, with greater confidence and with greater enthusiasm in the communicative process.

Blake (2000) points out that the text-based nature of network exchanges 'pushes' learners to type out or produce linguistic structures and this constitutes an example of comprehensible output (Swain, 1985), which has been identified as a crucial element in facilitating SLA. Producing linguistic output was able to contribute to linguistic development as learners were pushed to use the syntactic elements, thus creating more awareness of the linguistic forms of the language.

On-line studies by Kern (1995), Warschauer (1996a) and Chun (1994) have reported on the quality of learner output, which seems to show favourable results. Kern reports that there was a greater level of sophistication in the students' overall language output in her French language classroom than in oral discussions. This was evident in terms of the range of morphosyntactic features and the variety of discourse functions used.

Warschauer (1996a) reports that his students of German produced more complex language in terms of lexis and syntax than that which they produced in oral interaction. Chun (1994) shows that students of German tended to play a greater role in discourse management in on-line discussions, generating language that covered a wide range of communicative and discourse functions than in normal classroom discussions.

In another study, Sotillo (2000) investigates discourse functions and syntactic complexities in ESL learner output via both the synchronous and asynchronous modes of CMC. Sotillo reports that the use of the asynchronous mode of discussion allowed learners more time to plan their writing and edit their spelling, grammar and punctuation when paying attention to form. Student output in the asynchronous discussion was also more lengthy and syntactically complex than the language produced during synchronous discussion. She concludes that learners were able to focus on both form and meaning to a greater extent in asynchronous exchanges than when they were engaged in rapid exchanges via a synchronous discussion mode.

There have also been reports on the benefits of CMC as a text-based medium for increasing learners' attention to linguistic form through the negotiation of meaning. The study by Blake (2000) of Spanish learners in networked discussions using the

synchronous chat programme (RTA) suggests that CMC stimulated L2 learners to negotiate meaning, which generated language modifications and focus on linguistic forms as they exchanged information and resolved communication breakdowns. Blake also demonstrated that the most common occurrence of 'incidental negotiations' related to lexical confusions.

Studies by Beauvois (1992) and Meskill (1993) also suggest that synchronous networked environments are ideal for negotiation of meaning and sites for peer feedback. Beauvois (1992) hypothesized that reading, writing and speaking abilities might consequently improve as a direct effect of student interaction using CMC.

Similarly, the study by Pellettieri (2000) also demonstrates the advantages of using CMC. He found that the language data generated across five communication tasks, which ranged in type from focused open conversation to more closed tasks, confirmed the potential of network-based communication's (NBC) potential for fostering the negotiation of meaning and form-focused interaction in task-based interaction. Pellettieri reports that through this medium, students had more time to process and monitor the interlanguage and negotiated over all aspects of the discourse, including both form and meaning. He concludes that NBC chatting could play a significant role in the development of grammatical competence among classroom language learners.

A case study by St. John and Cash (1995) illustrates how CMC can help a learner to notice the 'gap'. The e-mail exchange between a high-intermediate learner of German and a German native speaker revealed that the learner systematically studied the

vocabulary and phrases in his in-coming e-mail and subsequently incorporated the new vocabulary and phrases into his own writing. They claim that although no explicit linguistic feedback was offered by the native speaker in the six-month e-mail exchange, the learner was able to make many corrections, especially at the lexical level, by noticing the difference between his usage and the usage of his partner. The learner was also making 'striking' progress at the syntactic level, using more complex structures, longer sentences, more correct word order, and "more natural German" (p. 193). Thus, well-designed network tasks that encourage learners to notice the 'gaps' in their lexical and grammatical interlanguage in activities like communication exchanges and negotiation of meaning in the construction of knowledge and understanding provide a fertile learning environment for SLA. However, studies that have documented how students negotiate meaning on-line are still very limited.

In another study, Kelm (1992) highlights that synchronous CMC for learners of Portuguese was useful in providing personalized identification of target language errors, thus developing students' linguistic accuracy. Kelm reviewed the grammar of students' computer-mediated messages in an intermediate Portuguese course and noted an eighty percent reduction in certain grammatical errors after prolonged use of CMC in the course. However, Kelm observed that students were unlikely to give feedback to each other on language related errors.

Another advantage of using CMC is the affective and cognitive benefits related to reduced anxiety and opportunities for reflective thinking. In one study, Olaniran, Savage

and Sorenson (1996) highlight the advantages of using asynchronous tools in CMC in their communication class. The time lag between transmission and reception of messages in asynchronous mode allowed users the opportunity to reflect upon issues raised in on-line discussions, formulate a considered response and organize their thoughts coherently before making any contribution. These results are also supported by Kroonenberg (1994/1995) who reports that composing on a keyboard gave students the opportunity to pause and pay closer attention to what they had written. Through this, learners had more opportunities to reflect on form and content or even consult resources before sending a reply, something more difficult, if not impossible in spontaneous oral interaction.

In addition, it has been found that the use of the asynchronous mode in CMC provides authentic communication without some of the stresses associated with spontaneous oral communication (Sotillo, 2000). After participating in this mode, students seem to gain more confidence and can more readily participate in oral discussions. Specifically, through their engagement in written language, they acquired certain language structures which they could transfer and use to express themselves in oral interactions.

Computer learning networks also afford students a much better opportunity for control and initiative in language learning offering an effective tool for empowering second language learners (Warschauer et al., 1996). This is because computer networking can be used to promote autonomy and help develop students' learning perspective. They highlight that the engagement of students in meaningful and authentic exercises in collaborative learning projects in CMC learning networks in a single classroom, or in

various classrooms around the world, promoted enthusiasm and initiative in learners, leading toward increased autonomy.

Along with the many and various advantages, the negative impact of CMC use has also been reported within several studies. Meskill (1993), for example, reports student isolation and low levels of on-line negotiation. Kern (1995) observes that the only drawback in the Interchange discussion in her French language class was that it seemed to take a toll on grammatical accuracy and as such, learners consequently read 'defective' French. In addition, discussions often lacked coherence and continuity. Dubiousky, Kiesler and Sethna (1991) report that students collaborating during CMC often failed to reach consensus, and this ultimately led to more extreme suggestions being made. In addition, Warschauer (1997) points out that the use of CMC could hinder cooperative learning. This is particularly the case when hostile language, known as 'flaming', occurs. When used within the classroom, this has negative consequences on classroom dynamics. A further problem is information overload, which refers to the situation where learners became too overwhelmed with messages during discussions in a CMC environment (Moran, 1991 cited in Warschauer, 1997). This results in discussants ignoring what others write, and conversations are replaced with monologues.

Despite these drawbacks, the advantages of using CMC would appear to far outweigh the disadvantages. Therefore, this study examines how the use of CMC can assist language learning through interaction fostered in the ECE learning setting. Specifically, it

examines the nature of the interactions for evidence of conditions that are deemed to be facilitative of SLA.

2.10 Summary

The review of literature has highlighted the contribution of the linguistic environment, in particular, linguistic input and modified interaction (also referred to as negotiation for meaning), in facilitating the process of language learning and acquisition. Advocates of the Interactionist Theory of language acquisition assert that if interlanguage development is to occur, learners need to interact to provide opportunities for them to negotiate for comprehensible input, test hypotheses related to their developing interlanguage system, produce comprehensible output and have access to feedback - elements which are crucial for L2 acquisition (Long, 1996; Pica, 1994; Swain and Lapkin, 1995).

Studies related to the Interactionist perspective have primarily focused on oral interaction. However, reports of student interaction within CMC environments lend support for this medium as a viable tool for promoting opportunities claimed to be facilitative of acquisition based on the tenets prescribed by the Interactionist perspective of language acquisition. Therefore, the purpose of this study is to gain insights into how the use of CMC can help to facilitate and support the language learning process in the ECE learning environment. The study examines observable features of interaction and interactional opportunities present in the CMC environment for evidence of conditions deemed facilitative of language acquisition based on the Interactionist Theory of language acquisition.

2.11 Research questions

This study therefore seeks to find answers to the following research questions:

1. Does CMC in the ECE context provide opportunities that facilitate SLA?
2. What input, output and interactional opportunities are afforded learners in ECE when using CMC?
3. What are the patterns of interaction and interactional features of CMC present in the ECE context?
4. Are there differences in the features of interaction in terms of input, feedback and output in the student-to-teacher, as compared to student-to-student interactional exchanges?

To achieve this, the following will be examined in both student-to-teacher and student-to-student interactional exchanges:

1. Features of modified input
2. Nature of modified output
3. Nature of feedback responses
4. Evidence of negotiation for meaning
5. Nature of recasts
6. Instances of focus on form
7. Evidence of noticing

The next chapter will present the Methodology adopted for this study.

CHAPTER THREE

Methodology

3.1 Overview

This chapter reviews the methodology used for this study. It includes a description of: the participants, the procedure used to collect the data, the tasks employed for this purpose, and the quantitative and qualitative analysis procedures. An explanation of the coding categories, the statistical procedures and the reliability measure is also given.

3.2 Participants

The participants in this study consisted of one English language teacher and a group of students from one of his English for Civil Engineering (ECE) classes at the University of Technology Malaysia (UTM). The ECE group comprised seventy-three male ($n = 38$) and female ($n = 35$) students of Malay, Chinese and Indian ethnic backgrounds. The number of students in the class was unusually large. This situation was due to an influx in the student intake, compounded by the fact that there were insufficient English language teachers at the time to cater for the increased student population.

All the participants were non-native speakers of English and, depending on their ethnic origin, they were either bilingual Malay or English speakers, trilingual Chinese, Malay and English speakers or trilingual Indian, Malay and English speakers (see Figure 1 for the distribution of languages spoken according to ethnic background).

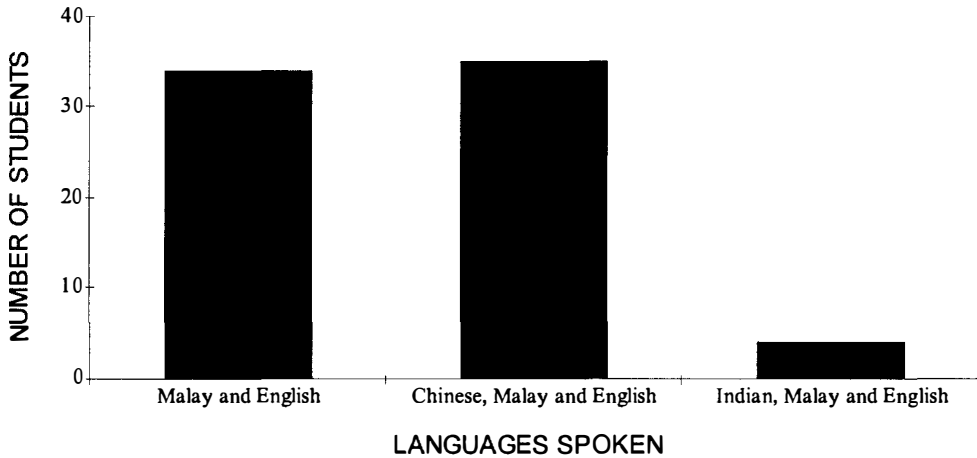


Figure 2: Languages spoken based on ethnic origin

The ECE program is offered for three semesters, but not all students are required to attend the full program. Depending on their English language results in the Malaysia Certificate of Education (MCE) examination (TEE equivalent), the least proficient students participating in this study were required to undergo all three semesters. Those with credits in English were required to do two semesters and those with distinctions needed to do only one semester (see Figure 2 for the students' MCE examination English results based on performance).

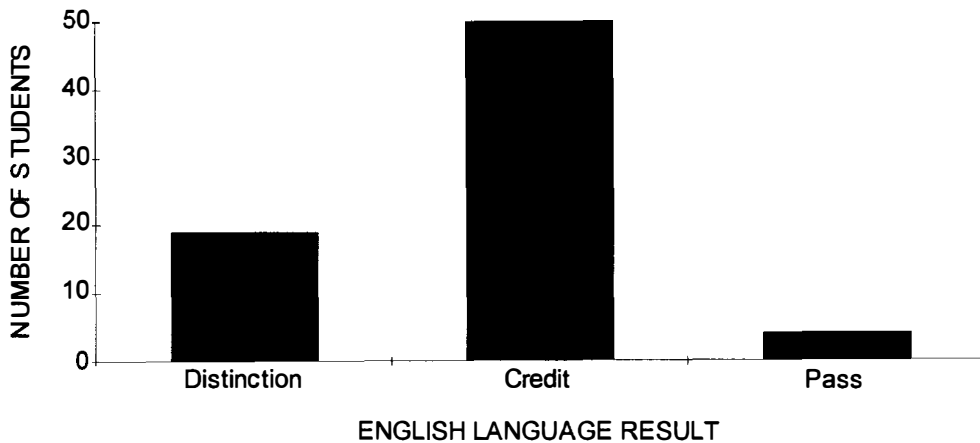


Figure 3: Students' performance in English in the MCE examination

The English language teacher had over eighteen years of teaching experience in English language courses and Teaching of English as a Second Language (TESL) courses. The students were in their second year of the civil engineering course and in their final semester of the ECE program at the university.

The medium of instruction at the university is Malay, which is the national language. English is taught as a compulsory second language subject. Since English is neither the medium of instruction, nor used for most communication at university, the students' ability to use English depends on the exposure they have to the language and the practice they have in using the language, either at home, or incidentally while at the university.

Due to the important role of English for the students' academic needs and their future professional needs in the scientific and technical fields, UTM has made it compulsory for all their students to obtain a pass in English in order for them to graduate; failing

means they have to repeat the English course until they do obtain a pass. The university has done this to ensure that the students are aware of the importance of English for their academic work, as well as for their future vocation in the scientific and technical fields.

It was assumed that the students participating in this study would have attained a certain level of confidence and skill in using English since this was their final course in English at the university. Moreover, all the students would have studied English as one of the compulsory school subjects since kindergarten or their first year at primary school. As part of their secondary education, they would have been taught using a Communicative English language syllabus, with the emphasis, as the name implies, on developing the students' communicative competence.

3.3 Procedure

The researcher was a non-participant observer in this study, assisting the language teacher during the earlier preparation of the task requirement and whenever there was a need to attend to technical matters related to the implementation of the task. However, the researcher was not present for any of the task exercises so that the data could be collected as unobtrusively as possible.

The students were required to conduct an asynchronous on-line discussion forum using the CMC bulletin board technological platform (see Appendix A for details of the task). The duration of the task covered a period of ten weeks, with one hour per week allocated for task implementation.

However, due to the large group of students and a limited number of computers, and limited Internet access available for all students' use at one time, the students were given the flexibility to conduct the task as a self-access activity. The benefits of the computer as an ideal instructional tool for self-access purposes have been highlighted by Phillips (1986):

“One of the conventional rationales for the computer in language learning is the justification that it offers as a powerful self-access facility. It can easily generate learner-centred, self-pacing activity”. (p. 7)

The self-access alternative was a practical solution to resolve the problems outlined above. In particular, those students who could not conduct the task during the allocated class period could do so at a time convenient to them. Due to the asynchronous nature of the task, both the language teacher and students could read and respond to the postings at any time. Moreover, there were occasional instances of power failure during task implementation, making access impossible. The asynchronous mode of on-line discussion thus made it less vulnerable to problems related to networking conditions and system crashes due to power breakdown.

As an incentive to the students, the class teacher allocated fifteen marks for this task under ‘Enrichment activity’. This was to encourage students to participate more actively in the activity and be rewarded for their efforts.

For the purpose of this study, an ECE on-line community was created for the civil engineering students using a leading web-based bulletin board service available on the

Internet. The web-based bulletin board digital community served as the platform for the students to conduct the on-line discussion forum. The aims of this on-line community were to:

- a) give students the opportunity to interact on-line in English;
- b) have students engage in discussion forums through the exchange of views and insights on relevant issues related to the civil engineering field and profession;
and
- c) give students exposure to the use of the bulletin board technological platform for on-line interaction

Prior to task implementation, students were given some hands-on practice with discussion forums to familiarize them with the use of the web-based bulletin board. This was deemed necessary because a number of students did not have any prior experience. This practice reduced the students' anxiety and ensured that the students could participate in the intended task.

Students were first given a briefing on the aim of the task and they were guided through the procedure for registration to become members of the on-line civil engineering student community.

In preparation for the on-line discussion forum, students were given samples of on-line discussions carried out on a particular topic, which they could access prior to the task. The purpose of giving students this exposure was to provide them with some insights on

how the discussions could be conducted, how they could give views and opinions, and, how they might react to the different views posted on the bulletin board. With this students could study the examples and develop their own way of conducting on-line discussions.

The students were then given a practice topic entitled "Paper qualification is a better measure of competence than working experience in the civil engineering profession". With this practice topic, students were given the opportunity to practise initiating a response to the discussion topic, responding to views and opinions given by peers and reacting to responses addressed to them.

The students were also reminded of the need to observe proper on-line behaviour or 'netiquette' during the on-line discussions. This reminder was considered important, as electronic messages sent to on-line forums are permanently made available for public access. Thus, adherence to proper netiquette was necessary to prevent any untoward on-line behaviour.

3.4 Task

The task for this study was based on one of the requirements of the ECE program for the final semester, specifically for the students to engage in a discussion forum on current and relevant social, economic and environmental issues related to the civil engineering field or profession (again, refer to Appendix A).

Prior to task implementation, the students were required to read relevant articles on current issues and challenges, from newspapers, magazines or the Internet. The students were also required to explore and deliberate on the topic under discussion deeply by providing relevant supporting arguments to justify the stand they took on the issue(s) discussed.

The topics were chosen after consultation and collaboration with the civil engineering lecturers who were content experts and subject specialists in the Civil Engineering field. This was done to ensure that only current and relevant topics of discussion were given to the students for the purpose of the on-line interaction.

The discussion forum was intended to provide a context for students to be involved in authentic interactions, and consequently, in the negotiation of meaning (and possibly form) through peer discussion as they engaged in the exchange of views. Since the students were required to express and argue their discussion points in a sound, convincing and articulate manner, the task would provide an opportunity for them to make their contributions both meaningful and purposeful.

3.5 Analysis

For a more in-depth and thorough understanding of the entire perspective in the application of CMC in this ECE learning setting, both quantitative and qualitative procedures were adopted for the purpose of data analysis. This multiple approach to data analysis was chosen as it would provide a richer and more encompassing description of

the on-line interaction. Moreover, the notion of multiple perspectives is important for the purpose of ‘triangulation’, a strategy for arriving at valid and ‘dependable’ findings (Diesing, 1971).

The strength of the quantitative procedure lies in the precise, logical and structured analysis of the data through a reliable, statistical measurement. This procedure will provide answers to questions relating to measurable aspects of the students’ behaviour, leading towards a more objective understanding of the findings (Bryman and Cramer, 1990). In contrast, the qualitative procedure is concerned with socially constructed meaning structures and holistic analysis, derived from the context of direct experiences, perceptions and interpretations of the participants as part of the learning process (Patton, 1990). The subjective and intuitive nature of this method of analysis helps to cultivate a better understanding of the experiences that have taken place, leading toward relevant insights that would otherwise be missed through a quantitative procedure alone.

Below is a detailed explanation of both procedures and methods of analysis. Firstly, the coding and analysis for the interactional exchanges is presented, then the description of the analysis of the interview data is described.

3.6 Analysis of the interactional exchanges

Both quantitative and qualitative procedures were used to analyse the text-based discourse of the students’ on-line interaction. The database for this analysis consisted of two sets of text-based transcripts from the student-to-teacher and student-to-student

interactional exchanges in the on-line discussion forum. For the purpose of analyses, the text-based transcripts of the postings were printed off to examine and analyse the written discourse. In terms of the quantitative analysis, seventy-five student-to-teacher interactional exchanges and a further seventy-five of the student-to-student interactions were arranged sequentially to reflect the overall interactive nature of the exchanges, organized into the following parts:

1. student initial turn
2. teacher or second student response
3. student reaction (although this did not occur at all times)

This is a cyclical pattern and the student's reaction could become the initial turn in another three-part exchange.

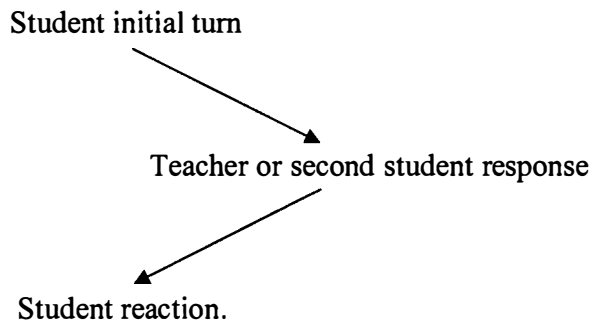


Figure 4: The three-part interactional exchange of this study

An example of a three-part interactional exchange is as follows:

Table 1

An example of a three-part interactional exchange

- Student: *Re: The civil engineering profession is a male domain*
I disagree about the statement because as you can see, there are many female engineers now days. This scenario can also be seen in most tertiary education where there are many female engineering students. It is undeniable that in this 21st century, many male- dominated jobs are invaded by women as well. For instance, women are ruling a country and also becoming pilots which were once believed only man could serve in those kind of jobs. Even though some may argue that engineering involves a lot of 'manly' work, this should not be a barrier for women. Society at first should be a great source of encouragement and not discourage them. We should believe that everything could be made possible if we have a strong belief in ourselves, when there is a will, there is a way.
- Teacher: *Am I correct to say that you disagree with the statement (that the civil engineering profession is a male domain) simply because there are many female engineers nowadays? But the real issue here is whether the female civil engineers can perform as effectively as their male counterparts in carrying out their duties and responsibilities. In other words, while there may be more female engineers nowadays, the fact remains that they are not as capable as male engineers. Do you agree?*
- Student: *Thanks for your reply. I disagree with this statement because not just there are many female engineers nowadays but they are as capable as male engineers. In my point of view, I think that female engineers can perform as effectively as their male counterparts in carrying out their duties, maybe better than them.*

The sequence of exchanges was examined and analysed for evidence of modified input, feedback, including negotiation for meaning, and production of modified output – all

factors considered to be conducive to interlanguage development and facilitative of second language acquisition.

This was done in two ways. Firstly, the written discourse was analysed quantitatively for the following aspects:

- Feedback in response to learners' non-target-like production, which provided opportunities for learners to attend to L2 forms. This included recasts and negotiation for meaning used to enhance message comprehension and avoid communication problems. Negotiation strategies were confirmation checks, comprehension checks and clarification requests;
- Modified output produced by the learners, which consisted of learners' attempts to modify their non-target-like production and/or lack of clarity, which usually occurred in response to feedback, that is, when their attention was drawn to problematic forms or errors in their language production. This included incorporation of any recast made earlier or reformulation of language production towards a more target-like form. However, it may also have occurred as a self-repair.

It was also done by coding the patterns of exchanges (described in the next section).

Secondly, the written transcripts were also examined qualitatively through a fine-grained and detailed examination of the following:

- Nature of non-target-like sequences that had triggered feedback responses

The purpose of this was to identify whether the problems were related to lexis, syntax, semantics, pragmatics, morphology or phonology, or whether the learners' entire sequences were problematic due to lack of clarity with regard to message content or meaning.

- Features of modified input

This examination was undertaken to determine whether or not the input was modified in such a way as to make it more comprehensible, either syntactically or semantically. The input was deemed to be modified if it included such elements as repetitions, simplifications, expansions, elaborations, redundancies, regularizations, extractions, segmentations of prior sequences, or any other features.

- Nature of feedback response

In this part of the qualitative analysis, the feedback response was examined to explore whether it was triggered by a particular type of error, or by other factors such as lack of clarity of meaning or complexity of the error turn. This will provide some insights as to the conditions under which the different types of feedback occurred (that is, negotiation for meaning or recast) or did not (that is, non-target-like production was ignored). It also entailed an examination of whether the recast constituted only segmentations of individual words or phrases from prior sequences, or whether it involved other modifications such as paraphrasing, lexical substitution, structural changes or relocation of prior sentence constituents. In addition, the nature of the negotiation strategies that were used was analysed to ascertain whether they were in

the form of clarification requests, confirmation checks or comprehension checks, and whether or not the negotiation strategies were simultaneously in the form of recasts.

- Nature of modified output

A qualitative examination was also undertaken to determine the effect on the nature of the modified output, particularly on the quality of language production, but also on the quantity of productions (that is, the length of the turns taken). It included an examination of the modifications made, whether they were lexical, semantic or morphosyntactic in nature, and the extent to which they constituted either incorporation of the recast or reformulation of the output toward a more target-like form.

- Interactional context of the exchanges

Finally, the context of the interactional exchanges was examined to see whether the focus was on content and/or language form.

3.6.1 Coding categories

To undertake this analysis, as a first step, each part of the exchange sequence was coded (following Oliver , 2000) as follows:

1) Student initial turn

These were the postings of the student's initial response to the topic of discussion. They were rated as either:

- Target-like

These were grammatical and correct sequences with regard to lexis, syntax, semantics, pragmatics, morphology and phonology, and where the message content was clear and easily understood.

- Non-target-like

These included ungrammatical or incorrect sequences resulting from any lexical, semantic, syntactic, pragmatic, phonological and morphological errors. The message content may have been unclear and problematic, leading to a communication breakdown.

2) Teacher or second student response

These second turns were coded in relation to the student's preceding posting to the discussion topic, and were rated as either providing 'feedback' (implicitly or explicitly) or 'no feedback' in response to a non-target-like sequence, or as a response that simply 'continued' the interaction in response to a target-like sequence. A more detailed explanation is as follows:

a) Responses to non-target-like sequences

With regard to 'feedback', it was further categorized in the following way:

i) As providing explicit negative feedback in response to non-target-like sequences

This occurred when there was explicit correction of non-target-like sequences (see Table 2) where there was an overt indication that a problem existed, as in the following example:

Table 2

An example of an explicit negative feedback and a recast

Student: *Re: The degradation of the environment*
I'm not agreeing with this statement...civil engineering works are just fulfill the
necessarily of human being in the world.

Teacher: *...You should say, "I DO NOT agree" ... I agree with you that civil engineering*
works are initiated to fulfill the needs of human beings in this world

ii) As providing implicit negative feedback in response to non-target-like sequences

through the use of

- recasts, which included a reformulation or rephrasing of the syntactic structure of the student's initial error sequence(s) while still maintaining the central meaning (see Table 3 for an example of a recast); or through the use of
- negotiation strategies, which referred to attempts to repair communication breakdowns by way of clarification requests, confirmation checks or comprehension checks (see Table 4 for an example of a negotiation for meaning, in this case a clarification request).

As noted previously, an overlap can exist between two or more forms of implicit negative feedback. In particular, a response can be both a recast and include negotiation for meaning, as in the following example:

Table 3**An example of a recast and negotiation for meaning (confirmation check)**

- Student: *Re: The degradation of the environment*
I don't agree with this topic. I don't think that civil engineer is the only one who has responsibility to the degradation of the environment. The developer and the contractor have the main responsibility...So, the responsibility for the degradation of the environment should be taken by many sides but not only civil engineering.
- Teacher: *... I suppose you mean that the responsibility for the degradation of the environment be shouldered by all parties involved in a construction project. Why should the contractors and developers shoulder the responsibility since it's the civil engineers who are directly involved in the construction project?*

For coding purposes, if a recast was made in the form of a confirmation check, as in the example above, the whole sequence was coded as a 'recast'.

A negotiation strategy move without any form of recast also being made was coded as 'negotiation for meaning' strategy, as shown in the following example:

Table 4**An example of a negotiation for meaning strategy (clarification request)**

- Student *Re: The civil engineering profession is a male domain*
I do not agree. That's because civil engineering field also separate to many department. So, many of the department of civil engineering field also very suitable for female.
- Teacher *What do you mean by "civil engineering field also separate to many department"? And exactly what field of civil engineering is suitable for female engineers.*

b) Responses to target-like or incomplete sequences

This category included the use of:

- negotiation strategies used to check meaning (when there was target-like production in the initial turn); or
- responses that simply continued the exchange, including comments, questions, repetitions, expansions, elaborations, simplifications, redundancies, segmentations of prior sequences, etc.

c) Responses that ignored the non-target-like production

These were responses which followed the student's error sequence(s), but in which the errors had been ignored.

3) Student reaction

The optional third turn was coded in relation to whether there was 'opportunity' or 'no opportunity' made available to the learner to incorporate any feedback that had been provided (see Oliver, 1995 for discussion).

Next, if an opportunity existed, the learner's reaction was coded in the following manner:

a) Modification of output

The learners' reaction was coded as modifying output when they responded to the negative feedback provided by the teacher or peers either by:

- reformulating their output towards a more target-like form in response to feedback in the preceding move; or
- incorporating the recast

b) No modification of output

This was coded when the students failed to modify their output in response to the feedback given.

c) Continuation of the exchange

This happened when students continued the exchange because their initial turn was target-like or because the teacher or peer had previously ignored their non-target-like production. They did this in several ways:

- answering the question asked of them;
- repeating all or part of their preceding response;
- switching to a new topic;
- inserting brand new information on the present topic;
- expressing difficulty in response to the preceding exchange.

d) Zero response

This was coded when no response was provided, that is, when only two turns (of the usual three-part exchange) occurred in the interaction.

3.6.2 Statistical procedures

To statistically compare each part of the interactional exchange and the patterns of interaction for both forms of interactional exchanges, the non-parametric chi-square procedure was used. This procedure was chosen due to the categorical nature of the data.

By using this procedure, the observed and expected frequencies can be compared objectively to see whether they are different enough to be considered statistically significant. For this study, a chi-square probability of 0.05 was set as the accepted threshold of statistical significance and therefore, values of less than 0.05 are referred to as being 'statistically significant', the belief being that they would be indicative of certain processes at work that might have contributed to cell differences (Rose and Sullivan, 1993).

In order to determine which cells contributed to a significant chi-square, the Haberman (1973) residual procedure was used. Based on this procedure, the standardized residuals were calculated for each cell in the design. A standardized residual which was greater than (the absolute value of) 2.00 or less than -2.00 was considered to be a major contributor to the overall chi-square value.

3.6.3 Patterns of interactional exchange

Once each of the parts of the interactions were coded (both the student-to-teacher interactions and student-to-student interactions) twelve distinct patterns of interaction were identified. These are as follows:

1. Non-target-like > recast > modified output
2. Non-target-like > recast > ignore feedback
3. Non-target-like > recast > zero response
4. Non-target-like > negotiation for meaning > modified output
5. Non-target-like > negotiation for meaning > ignore feedback
6. Non-target-like > negotiation for meaning > no opportunity
7. Non-target-like > negotiation for meaning > zero response
8. Non-target-like > explicit negative feedback > ignore feedback
9. Non-target-like > explicit negative feedback > zero response
10. Non-target-like > ignore error > self- correct
11. Non-target-like > ignore error > continue
12. Target-like > continue > continue

Examples of each of these patterns taken from the transcripts are shown in Appendix B.

In cases where the pattern exists in both student-to-teacher and student-to-student interactions, examples in both contexts are given. This will provide a qualitative indication of features under investigation in both contexts, that is, nature of non-target-like sequences, features of modified input, nature of feedback responses, nature of modified output and the interactional context of the exchanges.

3.6.4 Reliability

A second rater coded 25% of both the student-to-teacher and student-to-student interactional exchanges. The second rater was trained by being given a detailed explanation of how the coding was done for each part of the three-part exchange and the

pattern of interactional exchange, with examples taken from the transcripts of the three-part exchanges.

To ensure reliability of the coding, a simple percentage agreement for inter-rater reliability was calculated. This was done by comparing the coding of both raters and calculating the proportional concordance for each part of the three-part exchange and for the pattern of interactional exchange.

The percentage agreement was as follows:

1. Student's initial posting = 95%
2. Teacher's / peer's response = 90%
3. Student's reaction = 95%
4. Pattern of interaction = 95%

3.7 Semi-structured interview with the students

The semi-structured interview was used to gain insights into the students' perception and overall experience of the on-line interaction task for the discussion forum. It also provided triangulation of the interactional data. A representative sample of thirty students (about one-third of the group) was selected at random for this purpose. The interview was conducted after the ten weeks of on-line discussion was completed.

Before conducting the interview, the researcher gave the participants a briefing and explanation of the purpose of the interview and the research. This session also provided the opportunity for interviewees to pose any questions they might have or seek any clarification they needed about the interview.

The interview questions were first piloted on a small sample of subjects before being used. The purpose of piloting was to find out if the questions asked were yielding the kind of data intended for the study and to eliminate any questions found to be ambiguous or confusing.

Since the interview data were tape recorded, initial permission was sought from the interviewees. The recorded interview was supplemented with written notes taken by the researcher, which were generally descriptive in nature. This was done to capture central issues and relevant information as well as contextual clues that would help to enhance the subsequent task of interpreting the recorded interview.

3.7.1 Interview questions

For this semi-structured interview, topics and issues rather than pre-determined questions determined the course of the interview (see Nunan, 1992). The topics and issues included general aspects of the CMC on-line learning experience and students' perception and overall opinion about the on-line interaction. Therefore, the questions were presented as outlines about areas with which the students were free to report. Students were kept on the topic and were probed to ascertain what they meant and/or to ask for clarification of their ideas.

The following questions were asked of all participants:

1. What do you like most or least about the CMC on-line interaction for the ECE discussion forum?
2. Do you feel that it was easier or more difficult to interact in English using the CMC on-line discussion forum?
3. In what ways was it easier or more difficult?
4. Has the on-line task helped to improve your English?
5. In what ways has it helped to improve your English?
6. What do you think of the responses given by your teacher and friends?
7. Do you have any other comments regarding the ECE on-line discussion forum?

Additional questions, when relevant to the discussion, were asked to probe individuals further.

3.7.2 Analysis

From the taped interview data, the students' answers, comments and opinions were noted.

Any pertinent sentences uttered or significant issues raised were transcribed verbatim.

This was done so that individual insights and perceptions could be included as accurately as possible in the documentation of results. In addition, the important information gathered from the written notes was also summarized.

Once this was done, the information was categorized into relevant topics to reflect the main themes and issues that emerged. The relevant topics were then grouped under suitable subject headings for a more accurate description to reflect the students' overall perception of the CMC on-line interaction learning experience. The subject headings

were colour coded. By doing this, the frequency with which a subject was raised, as well as the nature or pattern of responses that emerged from the findings could be determined. A detailed description of the outcome of the students' perceptions, experiences and insights based on the relevant categories identified will be reported in the findings.

3.8 E-mail interview with the teacher

The e-mail interview was conducted to gain some insights into the teacher's overall perception and opinion of the on-line interaction task. This provides useful insights on the benefits of the CMC discussion forum to the students as perceived by the teacher, and the teacher's perception of the on-line interaction task in facilitating students' interlanguage development. Most importantly, this interview data provides triangulation of the interactional data based on the teacher's perspective.

3.8.1 Interview questions

The questions in the e-mail interview with the teacher were presented more as a guide about possible areas on which the teacher could elaborate further. These were some of the questions asked:

1. What is your opinion of the use of the CMC on-line discussion for the students?
2. What are the advantages / disadvantages for the students?
3. In what way(s) has it helped you as a teacher to help your students?
4. Do you feel that the on-line interaction has helped your students to improve their language proficiency in any way?
5. Do you have any other comments?

When the teacher's response was not clear, further contact with the teacher was made to request clarification and elaboration with more details and explanations.

3.8.2 Analysis

The teacher's responses to the e-mail interview were first printed off. Then, the teacher's responses were categorized into relevant topics, which represented the main themes and issues raised by the teacher. Next, the relevant topics were grouped under suitable headings to reflect a more accurate description of the teacher's overall opinion regarding the on-line interaction task.

In the next chapter, findings of the interactional exchanges will be presented. In Chapter Five, the results of the semi-structured interview with the students, as well as the e-mail interview with the teacher, will be reported. Chapter Six will discuss the findings in relation to the research questions, while simultaneously providing the conclusion to this study.

CHAPTER FOUR

Findings of interactional exchanges

4.1 Overview

This chapter presents the findings of both the qualitative and quantitative analyses of the interactional exchanges. These will provide evidence that conditions deemed conducive to interlanguage development and facilitative of second language acquisition occurred in this on-line discussion platform.

First, the findings from the qualitative analysis of interactional exchanges in both contexts will be presented, particularly pertaining to evidence of the existence of modified input and the nature of the modifications (for example, syntactic and semantic modifications). Next, the results of the statistical analysis for the patterns of interactional exchange for both student-to-teacher and student-to-student interactions will be reported. This will give some indication of whether there exist significant differences between the twelve patterns of interaction and each part of the interaction in both types of exchange (i.e., student-to-teacher and student-to-student). The discussion will include a consideration of the nature of the non-target-like sequences that triggered feedback responses and those that were ignored, and, an analysis of the type of feedback provided and the use of feedback in the important “third turn”. An outline of the types of modifications made and their effect on the quality of the learners’ language production will be presented.

4.2 Features of modified input

The role of comprehensible input has been of prime importance in theories pertaining to SLA. Input must be comprehended by the learner if it is to assist the acquisition process. As pointed out by Long (1996, p. 414) “language acquisition entails not just linguistic input but *comprehensible* (italics original) linguistic input.”

In this study, measures of instances of modified input were taken account of using a qualitative examination of both student-to-teacher and student-to-student interactional exchanges. This was done to provide answers to the first and second research questions, namely to examine whether input and interactional opportunities are afforded learners in this CMC medium. Evidence from this showed that the on-line interactional medium appears to be a suitable context for creating opportunities to make input more comprehensible to the learners. These opportunities occurred in various ways including the negotiation of meaning, which also appeared to trigger learners’ attention to form, collaboration among peers to scaffold meaning and translation of the national language (Bahasa Malaysia) terms used into English.

There were many examples in both types of exchanges of the interlocutors negotiating for meaning. Such negotiations were prompted by a variety of communication difficulties, ranging from the miscomprehension of a single lexical item to the complete breakdown of communication. Learners often requested clarification because of their lack of understanding about the terms used in the discussion topic. For example, the topic ‘The training given to civil engineering undergraduates should be more practical rather than

theoretical' led to a request for clarification by one student. The teacher responded by providing a definition of the term 'training', while simultaneously providing a recast of the wrong spelling of the word 'tranning'.

Student: *I don't understand the statement tranning given should be more practical than theoretical... I don't know how the tranning can be given theoretical? Can somebody answer my question?*

Teacher: *"Training" refers to the training given to students while they are in university. It could be done through lectures, which will be theoretical, or through fieldwork and industrial training, which will then be practical.*
Should UTM reduce the number of subjects taught and increase the duration of the industrial training given to students (say, from six months to one year)?

Student: *Reply to your question ... I think UTM should increase the duration of industrial tranning to at least 6 months without reduce the number of subjects taught. This is because 10 weeks is too short for a student to gain the real experience in work.*

By clarifying the discussion topic, the teacher provided comprehensible input to the learner and assisted his understanding so that he could proceed with the task more effectively. As can be seen, the student responded to the teacher's question, and although he did not incorporate the correct spelling of the word 'training', he was able to give his opinion on the issue.

In the following example, clarification by the teacher seemed to result in increased learner understanding. It can be seen that in response to one of the discussion topics posted by the teacher, namely, 'Civil engineers should take responsibility for the degradation of the environment resulting from civil engineering works', one of the learners indicated a lack of understanding of the word 'degradation' and requested a clarification of its meaning. The teacher, as the more competent language user, responded

to the learner's request and clarified the input both semantically and syntactically. He not only gave a definition of what 'degradation' means, but also recast the non-target-like form of the learner's attempt at a response.

Student: *To be honest, I don't think I understand the word degradation. Somebody may please explain that to me!! Anyway my instinct said the word means destroy or pollution the environment, either air pollution, water pollution or landslide cases. Is that true?*

Teacher: *Degradation comes from the word 'degrade', which means to spoil or destroy the beauty or quality of something. So, you're right to say that the degradation of the environment refers to the act of destroying the quality of the environment through land, air and water pollution.*

Student: *Thank you for your comment. ...*

It could also be speculated that this example seemed to indicate that the student used this on-line platform as a test-bed for her hypotheses about the target language. Although the learner first admitted her lack of understanding of the word 'degradation', she then provided a tentative definition of the word before asking for confirmation of the acceptability of her definition. This could be perceived as the learner attempting to test her instinctive understanding of the word.

This on-line platform could also be seen as providing the opportunity for learners to seek clarification or assistance without loss of face. In the above examples, learners acted as novices, using this medium as an avenue to defer to others who had more expertise.

In the following example, it was the teacher who requested clarification of an earlier non-target-like sequence produced by the learner and by doing so served to make the input

more comprehensible. The teacher first provided a recast of the earlier non-target-like form "... a balancing between practical and theoretical", to a more target-like sequence "... there should be a balance between theoretical knowledge and knowledge gained through practical training". At the same time, the teacher requested clarification on content, asking the student what he meant by "a balance ...". This was done while repeating the correct form made earlier in the recast. That is to say, the teacher enabled a focus on form whilst maintaining and developing meaning-oriented interaction.

Student: *Although theoretical can be considered as a significant element in civil engineering, but practical also playing an equal significant role. That why, there must be a balancing between practical and theoretical.*

Teacher: *You wrote:
"That why there must be a balancing between practical and theoretical."*

I agree with you that there should be a balance between theoretical knowledge and knowledge gained through practical training. What, however, do you mean by "a balance" between theoretical knowledge and practical knowledge. How do we achieve this balance?

Student: *For this matter, we must ensure that the credit we take in a course have a balancing between theoretical and practical. This is because by practical, we can imagine how the work is. So, it will be easier for student to assimilate the real functioning of equipment. When theoretical class, we only learn how to calculate...*

Although the student did not incorporate the correct form as provided in the recast by the teacher, the student attempted to clarify how "the balance" can be achieved in response to the teacher's request for clarification, and therefore worked with the teacher to develop meaning.

In another example, the teacher requested clarification of a learner's non-target-like posting, while at the same time providing a recast of the incorrect form "... more carefull and effisition". In doing so, the teacher not only helped the student develop meaning but also provided understandable input about form.

Student: ... *This gender are more hardworking than the male, they do their job more carefull and effisition.*

Teacher: *You wrote:*
"This gender are more hardworking than the male, they do their job more carefull and effisition."

What do you mean when you say that women do their job more carefully and efficiently than men? Please give some specific examples.

Student: *What I mean by "girls do their work more careful and eficitonly" is that when their doing the work, they give their commitment 100% to it, they always give their best on doing the work ...*

Opportunities for input modification can also be seen in interactions among students.

When learners encountered input that was incomprehensible, they did not hesitate to indicate non-comprehension and to negotiate for meaning. Thus, the interactional modifications in this medium of interactional exchange seem to be facilitative of comprehension and understanding of input.

As can be seen in the following example, a lack of understanding of the meaning of the earlier input compelled Student 2 to seek clarification from his peer. In response, Student 1 clarified what he had said by providing a more elaborate explanation of how the engagement of foreign consultants can help to achieve the country's vision of movement

towards a developed nation. In the process, Student 1 made his meaning more explicit, that is, comprehensibility was attained through modification.

Student 1: *... Our country should engage with foreign consultants to achieve Vision 2020 (Malaysia's vision towards a developed nation).*

Student 2: *Can you please explain what has the engagement of foreign consultants to do with Vision 2020? I am confused.*

Student 1: *If foreign consultants engage with the local ones, we may get extra knowledge and experience, which will be valuable to develop our country. By that way, we may achieve our country's vision, which is Vision 2020.*

The next example shows how a student sought clarification from a peer regarding input that had resulted in confusion. As can be seen, in response to the request for clarification from Student 2, Student 1 clarified his earlier posting by providing more explanation of what he meant by "... people always make comparison ... ignore the bad things". This modified input made the meaning more explicit, and hence more comprehensible, as can be seen in the following:

Student 1: *... Any comparison that we have make is good in term of gaining our knowledge or to enhance our learning skill ... People always make comparison with others for the purpose to learn the good things that had been done by other people and ignore the bad things...*

Student 2: *... You have a brilliant idea and I agree with you. However, I still confused about your point "people always make comparison... ignore bad things." Why should we ignore the bad things and what kind of bad things you mean here?*

Student 1: *... The "bad things" that I mentioned mean the weaknesses that we found whenever we are making comparison with the other people. I believe that we will found the benefit and the weaknesses through the comparison that we had made.*

There were also instances in which learners resorted to the use of Bahasa Malaysia, the national language, when they were unsure of the English equivalent or did not know the English version of what they wanted to say. The following example illustrates this:

- Student: *...That is why, everyone have to go for Latihan Industri as it will show us the real meaning of working as a civil engineer.*
- Teacher: *Would you suggest that the duration for Industrial Training be increased, say, from 3 months to one year?*
- Student: *Of course...the longer , the better. But nowadays, I don't think any student would like to spend years to study or extending their Industrial Training...*

As can be seen, in response to the learner's failure to use the English equivalent of the phrase 'Latihan Industri', the teacher provided the English input, 'Industrial Training', and in her response, the student picked the English translation and used it in her subsequent output. Therefore, in this instance, comprehensible input was achieved through translation.

There was also evidence that opportunities existed for learners to scaffold each other's posting or to clarify input on behalf of peers in this on-line platform. Although learners seemed to interrupt their peers' posting, they made comprehensible input available. In the following example, a third student responded to a clarification request made to another student's earlier posting. It can be seen that Student 3 tried to interpret the meaning of Student 1's posting and in doing so provided a meaningful explanation for his peers.

- Student 1 *I agree with this topic...Training is related closely to experience and vice versa. None the less, paper qualification is almost as important for someone to get a job. This is to*

show that the person has the knowledge in that subject...Both theoretical and practical play important roles.

Rohayu

Student 2 *You said "Paper qualification is almost as important for someone to get a job". Well you have a point... However, if someone good in paper qualification but has only few experience and knowledge in the practical training, how could he or she get a job? Can you please explain to me?*

Tan Wooi Peng

Student 3 *...In my opinion, what Rohayu meant was that whenever you possess paper qualification, you should go into a company and get internship in the company. By doing this, you are familiarize about the environment and the situation of the company... However this is my thinking of Rohayu's comments. Maybe Rohayu can shed some light on this.*

Tan Eng Guan

While acknowledging that the clarification given was reflective of his own view and his interpretation of what Student 1 meant, Student 3 provided an explanation that was useful to his peers because it contained more details, and was much clearer. Although there was non-native like form in his production, "... you are familiarize about the environment...", the supporting arguments provided clarification of the earlier input.

The examples presented above clearly demonstrate that the on-line platform, and both contexts of exchanges, provided many opportunities for comprehensible input to be provided to the learners. Because this input occurred within conversational interactions, be they on-line interactions, the results of the patterns of interactional exchange will be presented next.

4.3 Interactional patterns

The results of the analysis of the patterns of interactional exchange for both the student-to-teacher and student-to-student interactions will be reported first. This will be followed by the results of each part of the exchange in both interactional contexts (i.e., student-to-teacher and student-to-student) including the student initial turn, the teacher or second student response, and, the student reaction turn. These will provide answers to all four research questions in terms of input, output and interactional opportunities available, patterns of interaction and interactional features, and differences in the student-to-teacher and student-to-student interactional exchanges in this CMC context.

From an examination of the data, it was found that there were twelve possible combinations of these three turns (see 3.6.3 for a description of these patterns). The difference between the twelve patterns of interaction in both student-to-teacher and student-to-student interactional exchanges was determined using the chi-square procedure. A cross-tabulation to see the overall distribution of the patterns of interactional exchanges in both forms of interaction is shown in Table 5. The results showing the patterns of interaction indicate that the students interacted in a variety of ways, both with the teacher as well as with their peers. Further, when these two types of interaction (student-to-teacher and student-to-student) were compared, there was a statistically significant difference (see Table 5).

Table 5

Patterns of interaction for student-to-teacher and student-to-student interactional exchanges

	Interactional Exchange	
	Student-to-teacher	Student-to-student
Pattern 1	40.0%*	10.7%*
Pattern 2	25.3%	13.3%
Pattern 3	4.0%	10.7%
Pattern 4	20.0%	14.7%
Pattern 5	4.0%	.0%
Pattern 6	.0%	1.3%
Pattern 7	2.7%	6.7%
Pattern 8	1.3%	.0%
Pattern 9	1.3%	.0%
Pattern 10	.0%	1.3%
Pattern 11	1.3%*	40.0%*
Pattern 12	.0%	1.3%

$$\chi^2 (11, N = 150) = 178.48, p < .0001$$

* Haberman Standardised Residual $2 > \text{or} < -2$

A post-hoc examination of the results using Haberman's (1973) standardized residuals (Table 5) shows that the difference in the patterns of interaction in the two contexts is due to the contribution of results for:

- Pattern 1 (i.e., non-target-like production, followed by implicit negative feedback in the form of a recast and modification of output by student): student-to-teacher (40.0%), versus student-to-student (10.7%);
- Pattern 11 (i.e., when preceding errors in initial non-target-like turn were ignored and the student continued the interaction): student-to-teacher (1.3%), versus student-to-student (40.0%).

The other ten patterns of interaction do not contribute significantly to the difference between the student-to-teacher and student-to-student interactional exchanges. Next, the results of each part of the interactional exchange will be examined to determine the overall distribution within the two contexts. A more detailed explanation of each part of the interactional exchange is as follows:

4.4 Student's initial turn

The initial turn sequences were first analysed to determine whether the initial postings were target-like or non-target-like. The result of the initial turn sequence for both interactional contexts is shown in Table 6.

Table 6

Initial turns of student-to-teacher and student-to-student interactional exchanges

Initial Turn	Interactional Exchange	
	Student-to-teacher	Student-to-student
Target-like	0% (0)	1.33% (1)
Non-target-like	100% (75)	98.66% (74)

Of the 150 interactional exchanges, only one was target-like, and it appeared in the student-to-student interaction. The rest of the initial turn sequences were all non-target-like. The high percentage of non-target-like sequences could be due to the open-ended nature of the on-line discussion task. Students were assigned to deliberate on the discussion topics posted on the bulletin board, without any specific teacher control on the nature of the contributions made in terms of form and/or meaning. Moreover, the flexibility and less threatening nature of this asynchronous, on-line discussion platform seemed to encourage greater risk taking, resulting in a higher percentage of erroneous output produced by the learner in the initial response. The nature of the non-target-like sequences will be presented next.

4.4.1 Nature of non-target-like sequences

A closer examination revealed a wide range of error types, ranging from linguistically incorrect forms related to lexis, syntax, morphology, semantics and phonology, to problems concerning the lack of clarity in expression of meaning. Therefore, these non-target-like sequences are presented under the following subheadings:

- a) Spelling/ phonological errors
- b) Morphological/ syntactic errors
- c) Semantic/ lexical errors
- d) Lack of clarity in content meaning

Whilst these problems are discussed according to these categories, most of the learners' non-target-like sequences were of multiple rather than single error types.

a) Spelling/ phonological errors

Table 7 illustrates some examples of this type of error, and a variety of possible explanation for their occurrence is given. Spelling/phonological errors could be attributable to the influence of the form of spelling used in Bahasa Malaysia (the national language), especially in cases where the English word and Bahasa Malaysia equivalent are similar. In addition, this error type could be due to problems of phonology, or it may simply be the result of lack of knowledge of the correct spelling.

Table 7

Spelling/phonological errors

Possible reasons	Examples
Influence of the Bahasa Malaysia spelling	... to fokus (<i>focus</i>) on three types of pollution in the saintifik (<i>scientific</i>) field ...
Problems of phonology	... <i>only a consevertive people will think</i> <i>civil engineering is too taugh</i> <i>the access water needs to be removed</i> <i>we as the people who leave in this world</i> ...
Lack of knowledge of the correct spelling	futher, altough, develope, constrution, effiently

Although common, spelling/phonological errors did not seem to pose a serious threat to the learners' overall interaction in the on-line discussion forum because in most cases, they did not affect the interlocutors' ability to convey their intended meaning. It was evident that the learners could still proceed with the interactional exchanges without problems of incomprehensibility.

b) Morphological/ syntactic errors

Linguistic errors related to morphology and syntax represented another problematic aspect of the learners' language production. There was a wide range of morphosyntactic errors (see Table 8 for examples), suggesting that learners were still developing their knowledge about the L2 rule system and use of English. The occurrence of these errors also reflects the dynamic nature of the learners' interlanguage development and how there is continuous refinement of their interlanguage system towards a more target-like form.

Table 8

Morphological/ syntactic errors

Error type	Examples
Subject-verb agreement error in the use of:	
Singular/plural nouns	<p><i>... to prevent the degradation of the environment when it occur...</i></p> <p><i>... construction projects is obviously...</i></p>
Abstract nouns	<i>... the involvement are crucial...</i>
Third person subject	<i>...when you has graduated...</i>
Collective nouns	<p><i>... different people has...</i></p> <p><i>... everyone have to go ...</i></p> <p><i>... this gender are ...</i></p>
Structures that involved a relatively wide separation of the subject nominal and the verb	<p><i>... the engagement of foreign consultants in civil engineering are ...</i></p> <p><i>... the number of females in the civil engineering course are ...</i></p>

Wrong verb forms in the use of:

Unmarked verbs instead of the past participle form

... *everything has change* ...
 ... *should be totally blame* ...
 ... *the project will be reject by client* ...

Present continuous and simple present/past instead of the simple present

... *this kind of work is require quality* ...
 ... *the earthquake, which is occurred in Taiwan* ...

Omission of certain grammatical morphemes such as the auxiliary/copula verb

... *it important to know* ...
 ... *this not mean* ...
 ... *I still confused about* ...
 ... *everybody have to responsible* ...

Use of inflected verb after infinitive 'to'

... *up to us to used the knowledge* ...
 ... *we still need them to shared their knowledge*

Redundant inflection of the non-finite forms after the modal verb

... *could not found* ...
 ... *might occurred* ...
 ... *could clearly understanding* ...

Errors in noun-pronoun agreement

... *everybody should play their role* ...
 ... *whether he/she can perform based on their* ...

Misuse of some prepositions or overgeneralization of the use of certain common prepositions

I agree with you that in present, there are many female engineers...
The approval to become a professional engineer depend to...
There are other causes in pollution...
Some graduates have been working in ten years...

Double comparative use

... *more better* ...

Errors in the use of pronoun

... *should we still want to force he/she* ...

c) Semantic/lexical errors

A third problematic aspect of learner language output resulted from deviations in the use of certain lexical items and other semantic errors. These included errors such as incorrect lexical selection or use of lexical items from the wrong word class (see Table 9 for examples). In most cases, semantic or lexical errors that resulted in lack of comprehensibility of content meaning prompted the teacher especially, and also learners, to negotiate for meaning in their effort to restore comprehensibility and resolve breakdowns in communication (A more detailed explanation of this is provided in Sections 4.7.1 and 4.7.2).

Table 9

Semantic/lexical errors

Error type	Examples
Selection of vocabulary from the wrong domain	... <i>male got more durable than female...</i> ... <i>male conquer in civil engineering field...</i>
Overgeneralization of the use of certain words	... <i>we need to fix ourselves to work at least six years...</i> ... <i>the responsibility should be taken by many sides...</i>
Confusion of reciprocal items	... <i>wouldn't it be a kind of waste of money to pay them to consult (advise) us in our project?</i>
Inadequate understanding of word derivation, resulting in the use of items from the wrong word class	... <i>both theoretical and practical play important roles in training...</i> <i>Maybe this is a conservation view...</i> ... <i>those who are capability and confident...</i> <i>I disagree that male domain in civil engineering ...</i>

Confusion of words with phonetic or semantic features in common or almost similar	... <i>its wasting money to consult them but its worthy (worthwhile) ...</i> ... <i>we have to resemble (assemble) our idea with them</i>
---	--

d) Lack of clarity

Some of the non-target-like sequences were also due to lack of clarity, resulting in incomprehensible, and sometimes unintelligible language output. Examples of these flaws in learner writing are shown in Table 10:

Table 10

Lack of clarity

Examples

Example 1

In my opinion, I know that as long as a civil engineer got his or her graduate from the university or college, then the person may have their own quality, style and intelligence in settle the problem that might be facing by themselves. But I'll not trying to deny that may having someone who is either excellent or very poor in their academic among themselves.

Example 2

For me, it important to student to know how to use their theoretical in a real world. Not all that we had learn can solve any kind of problem in our daily work. Some of it needs an experience to handle and solving the problem without any side effect. But this not mean we should not reduce our study due to gain more experience in practical.

Example 3

The engineer must bear responsibility for poor work quality in a site. ... They also must always look out for their project to know whether the project is in a good or not as a plan.

Despite the different types of errors that occurred, it is apparent that the learners were active participants both in the interactions and in the process of developing their

interlanguage systems. Although they produced non-target-like output, they could be observed continuously adjusting, reformulating, refining and modifying their interlanguage towards a more target-like production. Next, the teacher or second student response was examined to see whether the initial non-target-like sequences triggered negative feedback responses.

4.5 Teacher or second student response

The teacher and peer responses indicate that the initial error sequences triggered a considerable degree of negative feedback. Table 11 shows that in response to 149 non-target-like initial postings, 117 counts of negative feedback were provided. That is, 78.5% of the initial non-target-like turns elicited negative feedback responses.

Table 11

Teacher or second student response

	Interactional Exchange		
	Student-to-teacher	Student-to student	Total
Feedback	98.7%	58.1%	78.5%
	(74)	(43)	(117)
No feedback	1.3%	41.9%	21.5%
	(1*)	(31*)	(32)
$\chi^2 (1, N = 149) = 48.49, p < .0001$			

* Haberman Standardised Residual $2 >$ or < -2 .

A further examination of Table 11 shows that out of 117 counts of negative feedback, 74 were from the teacher while the peers provided 43. The teacher response is remarkable, as he almost always (i.e., in 98.7% of cases) provided feedback in response to the non-target-like turns. In contrast, the students responded with feedback over half the time (i.e., in 58.1% of cases). This represents a significant difference between the two contexts. Even so, the 'feedback' category did not contribute to the difference between the two contexts – it was in fact the 'no feedback' category where cell differences were observed. This result is the underlying reason for the significant difference between contexts for Pattern 11 (in which preceding error turns were ignored).

Nevertheless, the peers did provide a considerable proportion of feedback in response to non-target-like turns – more than one in every two turns received feedback. Therefore, regardless of context, there was ample feedback provided. Overall feedback could be considered outstanding, as only about one-fifth of the non-target-like sequences did not receive feedback.

4.6 The nature of “ignored” errors

A closer examination of the responses when feedback was not provided shows a qualitative difference between the teacher's and the students' responses. The teacher seemed to respond to problems with both form and meaning. However, the students tended to ignore form and concentrate only on meaning. Even so, it seems that in the teacher feedback response, the teacher ignored those errors in which the incorrect form was apparently within the limits considered acceptable. This was especially so in

situations where multiple errors occurred. Therefore, only errors that were more complex in nature, or which seemed to affect the clarity and comprehensibility of message meaning, were given feedback. This can be seen in the following example in a student-to-teacher interactional exchange:

Student: *...For this topic which are the civil engineering profession is a male domain I think now male still dominate the civil engineering profession but in the future I think female can take over this field. Why I say like this? It is because in the olden day, male are given chances to receive education, but female does not. However, day by day, this condition has changed. Nowadays, female can go to school at least until form five and now a lot of female have further their studies until degree or master. ... They not only in charge of hundred people, but ruling the people of a country. Now female also have the ability of what the male have. They also can take charge of many things in civil engineering properly or even better then what a male can do. Nevertheless, female do things more careful and more cautious.*

Teacher: *You wrote:*
" ... It is because in the olden day, male are given chances to receive education, but female does not."
You seem to be saying that female engineers will dominate the field just because they are now given the opportunity to receive a good education. But some of your friends argue that the issue is not about opportunities for education. ...

As can be seen, when there are multiple errors, non-target-like use of morphology, like omission of 's' in plural form in, "female can go...", or omission of grammatical morphemes in, "They not only in charge of ...", is ignored. Generally, the teacher responded to errors in form only when they resulted in difficulties with the expression of meaning, as in "It is because in the olden day, male are given chances to receive education, but female does not."

However, in cases where the learners' output consisted of a single error sequence, the teacher did provide form feedback, usually doing so by recasting the particular error, as in the following:

Student: *...Of course I agree that constructions which are carried out may cause pollution due to some irresponsible people in this field of civil engineering. There are other causes in pollution and this can be related to other fields. I always thought that civil engineering is one of the fields where there is less effect to the environment compared to the others ...*

Teacher: *You wrote:
"There are other causes in pollution and this can be related to other fields."
What other causes of pollution are you referring to and who, other than the Civil Engineer, should be blamed?*

(Note: A detailed discussion of the teacher's response to learners' errors is provided in Section 4.7.1)

In the students' feedback responses, non-target-like sequences related to form were mostly ignored. This finding is similar to the observations made by Kelm (1992) in which he suggested that students were unlikely to give feedback to each other on language-related errors. The feedback responses that were given seemed to be mostly triggered by the lack of clarity in the meaning of the sequences. That is to say, the learners seemed to be more interested in the message meaning and in the exchange of ideas than with the form of that message. It was clearly apparent that they were focused on the issues to be deliberated and in conveying their points to support their argument. This focus might have overridden their concern for form. This can be seen in the following example:

- Student 1: *... I agree with you that before construc a project, a civil engineer should know all the effects that may be caused by the construction ... Sometimes it's the fault of some civil engineers who just overlook about the damage which is cause by the construction, just construc the building and make sure the developers will not loss. ... I said "the employer/contractor should plant trees back to reduce the degradation of the environment after the constructions."*
... They can't just leave the land bald after doing their constructions right?
- Student 2: *I do agree with you that "they can't just leave the land bald after doing their constructions" but do you think that beside of this, the contractor/developer should take more useful action to prevent the degradation of the environment. The developers and contractors should realize their responsibility in the work to prevent the pollution. They should act strictly according to the laws.*

As can be seen in this example, errors related to form were all ignored and the learner merely continued the interaction while focusing on content. (A more detailed explanation on learners' response to peers' errors will be provided in Section 4.7.2)

The following provides two examples to show the difference in the responses made by the teacher as compared to the one made by a student to the same posting from one particular student. In the first example, the teacher responded to the student's error by incorporating both a negotiation strategy (in the form of a confirmation check) and a recast of the error sequence that the student made.

- Student *I quite not agreed with this statement. Cause now a days, many female students study civil engineering course in university and college which are offered this course...This is the reason that I say women also can be in the civil engineering profession. You may say that women are not stronger or suitable to do the outside work. If you say like this you are quite wrong because I watch the discovery channel that shown me that female profession (U.S.) success in civil engineering before. So I belief that women also can be successful in civil engineering.*

Teacher *You seem to disagree with the statement (that the civil engineering profession is a male domain) merely because there are more female civil engineering students nowadays.*

Through the confirmation check, the teacher rephrased the preceding error sequence while simultaneously providing a recast of the way to express disagreement 'I quite not agreed' and the wrong spelling of 'now a days'. The teacher thus provided feedback on form whilst retaining meaning-based interaction.

In the learner's response to the same posting, it can be seen that Student 2 merely focused on content and responded by expressing agreement with the view presented by Student 1. In addition, Student 2 put forth another issue on the topic under discussion. Thus there is no feedback given to the error sequences made by Student 1, as shown below:

Student 1: *I quite not agreed with this statement. Cause now a days, many female students study civil engineering course in university and college which are offered this course...This is the reason that I say women also can be in the civil engineering profession. You may say that women are not stronger or suitable to do the outside work. If you say like this you are quite wrong because I watch the discovery channel that shown me that female profession (U.S.) success in civil engineering before. So I belief that women also can be successful in civil engineering.*

Student 2: *I have the same opinion as yours. Like what you said " many female profession (U.S.) success in civil engineering before. So I belief that women also can be successful in civil engineering." However, do you think female prefer to work in office rather than work outside the office? If so, in some civil engineering field, it's still the male domain.*

However, there were times when learners did attend to form, in particular when miscommunication was a result of the problem with form, and therefore when there was a need to negotiate for meaning (see 4.7.2 for a detailed description of this).

Thus it was deemed appropriate to undertake a closer examination of the types of negative feedback that were given, so that the two different contexts can be compared.

4.7 Types of negative feedback

The results of a statistical comparison show a significant difference between the types of negative feedback provided in the two contexts (see Table 12). It can be seen that a substantial proportion of the feedback was implicit negative feedback in the form of both recasts and negotiation strategies (i.e. recast 66.7% and negotiation for meaning, 31.6%), while only a small proportion (i.e. 1.7 %) of explicit negative feedback was provided.

The teacher provided a higher number of recasts (n=52), almost twice the number provided by peers to each other (n=26). However, this was not significantly different. Nor was there a significant difference between the contexts in the category of 'negotiation for meaning', with an almost similar number of negotiation strategies used by the teacher and students. With respect to the category - explicit negative feedback, the only two occurrences were made by the teacher, with the students not providing any overt error correction in response to their peers' initial error turns. A more detailed description of the types of feedback made by both the teacher and students is provided in next sections.

Table 12

Types of negative feedback

	Interactional Exchange		
	Student-to-teacher	Student-to-student	Total
Recast	70.3% (52)	60.5% (26)	66.7% (78)
Negotiation for meaning	27% (20)	39.5% (17)	31.6% (37)
Explicit negative feedback	2.7% (2)	0% (0)	1.7% (2)

$\chi^2 (2, N = 117) = 74.20, p < .0001$

4.7.1 Teacher feedback response

Studies have shown that negative feedback is beneficial because it provides data about semantic and syntactic relationships within the target language, which, in turn, is facilitative of interlanguage development. The feedback provided by the teacher to learners indicated that their postings either lacked clarity, or were not acceptable in the target language, or both. Despite the nature of the task in which the focus was on meaning and not form, there were abundant attempts by the teacher to draw learners' attention to form. As indicated earlier, negative feedback consisted of:

- a) recasts,
- b) negotiation strategies, and
- c) explicit feedback.

Another benefit of the teacher's responses is the amount of positive input provided. His detailed responses model the L2 for the students as well as advancing the discussions and scaffolding their output.

In most cases, the teacher adopted a combination of techniques in giving feedback. This strategy may work to increase the perceptual salience of the correct and incorrect forms to the learners, and this increased awareness may assist learning. Thus, the teacher's feedback provides a 'focus on form' whilst meaningful interactions are maintained with the students.

a) Recasts

Studies by Long et al. (1998), Mackey & Philp (1998) and Mackey & Oliver (2002) have shown that the use of recasts as interactional feedback can provide significant advantages for learners who were exposed to recasts as compared to those who were not. It has been theorized that interactional feedback in the form of recasts seems to provide learners with data about the target language, which is facilitative of interlanguage development.

In this study, recasts were provided in situations where the message meaning was clear but the form was problematic. This is similar to the findings of Oliver (1995) in her study of negative feedback in oral interactions. When this occurred, the teacher, as the more competent language user, provided feedback by reformulating the preceding non-target-like sequences, whilst attempting to maintain the learners' meaning. For example, in the

following, the teacher recast a lexical item 'worthy' with the more suitable item 'worthwhile', while simultaneously engaging in the exchange of ideas.

Student: ...*Though some said we're only wasting our money just to consult them, but I think it's **worthy**.*

Teacher: ...*What do you think of the argument that it is more **worthwhile** to send our engineers overseas ...*

In another similar example, the teacher paraphrases the earlier non-target-like output, while at the same time relocating some of the earlier sentence constituents to make the form more target-like:

Student: *If there's more theoretical than practical, students will only know what they learn but they will be really poor in applying it.*

Teacher: *I agree with you that students may not be able to apply all the theories they have learnt in class.*

The teacher replaced the incorrect lexical item 'theoretical' with the more appropriate word 'theories', while at the same time rephrasing the whole non-target-like sequence. In another example, the teacher substituted the noun 'being' with a more appropriate word "attributes", to be used with the adjective 'physical'. At the same time, the teacher recast the earlier non-target-like sequence in the form of a question on content and recycled the constituents used by the learner. That is, he was able to maintain a meaning-oriented interaction while attending to form:

Student: ...*However, it is undeniable that male engineers have slight advantage in physical being than females.*

Teacher: *What physical attributes do male engineers have that give them a 'slight advantage' over their female counterpart?*

A further examination of the data revealed that the teacher's recasts often consisted of restructuring and relocating non-target-like sentence constituents. This can be seen in the following example:

Student: *...As mentally aspect, I think females are also not suitable for the civil engineering profession.*

Teacher: *I suppose you mean women do not have the right mental strength to face the world of civil engineering.*

In this case, both a recast and a confirmation check co-occurred. The teacher not only rephrased the non-target-like expression 'as mentally aspect', to a correct one, 'the right mental strength', but he also restructured the preceding error sequence, relocating some of the earlier sentence constituents to make the sentence more acceptable.

There were many cases in which the teacher's negative feedback constituted an overlap of both a recast and a confirmation check (Oliver, 2000; Leeman, 2000). In the following, the teacher rephrased a whole non-target-like sequence in the form of a confirmation:

Student: *...So, the responsibility for the degradation of the environment should be taken by many sides but not only civil engineering.*

Teacher: *I suppose you mean that the responsibility for the degradation of the environment should be shouldered by all parties involved in a construction project, not just by civil engineers.*

As can be seen, the teacher reformulated the non-target-like sequence "... the responsibility for the degradation of the environment should be taken by many sides ...", to a target-like form "the responsibility ... should be shouldered by all parties involved ...". At the same time, the teacher provided the correct lexical item, 'civil engineers', to replace the term 'civil engineering'.

The co-occurrence of a recast and a confirmation check can also be seen again in the following example:

Student: *I disagree about the statement because as you can see, there are many female engineers now days ...*

Teacher: *Am I correct to say that you disagree with the statement (that the civil engineering profession is a male domain) simply because there are many female engineers nowadays? ... while there may be more female engineers nowadays, the fact remains that they are not as capable as male engineers. Do you agree?*

The teacher recast the non-target-like form in the use of ‘... about the statement...’ and the incorrect spelling ‘now days’. This recast was made in the form of a confirmation check of the earlier error sequence. The teacher then repeated the correct spelling of ‘nowadays’ in his subsequent posting, a strategy which seemed to highlight the use of the correct spelling. However, unlike explicit correction, the focus on form occurred concurrently with meaning-oriented interaction. The following examines whether this is also the case in the use of negotiation strategies by the teacher.

b) Negotiation strategies

According to Pica (1994), interaction modified through negotiation provides learners with both lexical and grammatical information about the L2. These modifications can be in the form of reformulations, segmentations and movement of constituents. A closer examination of the interactional exchanges that occurred in this study revealed that negotiation strategies were employed in situations where the error/s made the meaning ‘opaque’ (Oliver, 1995), resulting in message incomprehensibility. This can be seen in the following examples where the teacher used clarification requests in response to the learners’ preceding sequences, which were problematic in both form and meaning.

Example 1

Teacher: *You wrote:*

“In my opinion, I know that as long as a civil engineer got his or her graduate from the university or college, then the person may have their own quality, style and intelligence in settle the problem that might be facing by themselves. But I’ll not trying to deny that may having someone who is either excellent or very poor in their academic among themselves.”

What do you mean by, “But I’ll not trying to deny that may having someone who is either excellent or very poor in their academic among themselves”? Please explain.

Example 2

Teacher: *You wrote:*

“Some of it needs an experience to handle and solving the problem without any side effect. But this not mean we should not reduce our study due to gain more experience in practical.”

Please clarify what you mean.

Example 3

Teacher: *You wrote:*

“They also must always look out for their project to know whether the project is in a good or not as a plan.”

Can you clarify what you mean by the above?

The teacher’s request for clarification could be perceived as an attempt to ‘push’ learners to produce more comprehensible output. The notion of ‘pushed’ output was first put forward by Swain (1985) as explanation on how interaction compels learners to improve on the form of what they were going to say in order to make it more comprehensible.

However, in these on-line exchanges, the teacher appears to not only use negotiation as a way to clarify meaning, but also as a way to ‘focus-on-form’. In the following example, the use of a clarification request related to a problem produced earlier by the student,

“...we have to resemble our ideas with them”, rather than to the lack of clarity of his meaning. The teacher repeated the sequence containing the error, with the apparent aim of triggering noticing of the incorrect form:

Student: *... I understand we have a huge number of good civil engineer, but we have to resemble our ideas with them (foreign consultants). The more ideas come, the great the project would be...*

Teacher: *What do you mean by “I understand we have a huge number of good civil engineer, but we have to resemble our ideas with them (foreign consultants)?”*

At other times, the teacher used confirmation checks, which were also recasts in response to the learners’ error sequence, once again, it seems, as a means to ‘focus-on-form’. This can be seen in the following example:

Student: *...So, for a job application most company prefer to choose the one who really have experience in work rather than someone who have many information but do not practice it or in the best word do not have practical on it. If the students given more practical they can know some other information which is not given in theoretical.*

Teacher: *You wrote:
 “If the students given more practical they can know some other information which is not given in theoretical.”
 I suppose you mean, through practical training, students will be able to gain knowledge, which they can’t get from theory in the class.
 But without theoretical knowledge, would the knowledge gained through practical training be meaningful to the students?*

In this exchange, the teacher provided feedback in the form of a confirmation check, while at the same time recasting the earlier non-target-like sequence in the use of the words ‘practical’ and ‘theoretical’. As noted earlier, this co-occurrence of both forms of negative feedback has similarly been reported in other ‘oral interaction’ studies (e.g. Oliver, 2000; Leeman, 2000). Following this, the teacher in this study maintained the

natural flow of interaction by posing a question on content. Simultaneously, the teacher made use of the correct phrases ‘theoretical knowledge’ and ‘practical training’, a strategy employed to enhance the correct use of the words ‘theoretical’ and ‘practical’ as adjectives. Thus, it can be seen that the teacher maintained meaning-based interaction while providing feedback on form.

It can also be seen that in this asynchronous mode of on-line interaction, the teacher sometimes went to great lengths to draw learners’ attention to deviations that existed in their erroneous output. There is evidence that the teacher engaged in laboured meaning negotiation with some individual students in order to focus their attention on problematic forms in their output. The following is one such example:

- Student: *... some says practice makes perfect, so if there's more theoretical than practical an engineer will only know what they learn but they will be really poor in applying it. In a working atmosphere, an engineers practical are very important.*
- Teacher: *I agree with you that student may not be able to apply all the theories they have learnt in class. However, without theoretical knowledge, will students be able to understand what they learn through practical experience?*
- Student: *About your question Sir, surely a student can't understand what their doing if there's no theoretical knowledge. ... if there's no theoretical knowledge, we engineers are poor in doing our practical. ...Just a bit of theoretical, I'm convince that we can do any of the practicals.*
- Teacher: *Well answered. I see your point that we do need theoretical knowledge. Do you think that we should increase the duration for the Civil Engineering course so that there will be a good balance between theory and practice?*

As can be seen, in response to the error sequence produced by the learner, the teacher first provided a recast of the correct use of the words ‘theory’, ‘theoretical knowledge’ and ‘practical experience’, while simultaneously posing a question on content. In his

response to the teacher's feedback, there was uptake of the correct item, 'theoretical knowledge', but the student still produced the incorrect forms in "Just a bit of theoretical, I'm convince that we can do any of the practicals". This led the teacher to again provide a recast of the correct form "... there will be a good balance between theory and practice" in his subsequent response to the student, while at the same time repeating the learner's correct use of the term 'theoretical knowledge'.

In the following example, it can again be seen that the teacher provided continuous feedback in response to the learner's errors. The teacher first repeated the sequence that contained the error and requested clarification. This prompted the learner to self-repair and modify his output by producing a more target-like phrase, "... we cannot deny the contribution that women play in this field".

Student: *I don't agree with this topic. Women play an important role...So, how come we insist the contribution of women in the field of civil engineering?*

Teacher: *You wrote:
"How come we insist the contribution of women in the field of civil engineering".
What do you mean by "insist the contribution of women?" Please explain.*

Student: *...I am sorry about the wrong word that I use. Actually, I mean that we should insist the important role that women play in the civil engineering field and we cannot deny the contribution that women play in this field.*

However, the learner still had a problem with the use of the word 'insist' in "... I mean we should insist the important role that women play in the civil engineering field". The teacher thus continued giving corrective feedback to this particular student by providing implicit negative feedback in the form of a recast. The word 'insist' was replaced with a

more suitable word 'recognise'. Again, the teacher provided feedback while engaging in meaning-oriented interaction with the student, as seen below:

Teacher: *You wrote:*

"... we cannot deny the contribution that women play in this field."

I see your point now. And I agree with you that we should recognize the important role played by women in the civil engineering field.

However, do you think that women engineers can play an equally effective role compared with that of their male counterparts?

Thus, this asynchronous mode of CMC interaction provides a suitable platform for the teacher to attend to individual learners' errors as they appear during the process of constructing meaning. This is something more difficult to do in a normal classroom context during oral interaction, especially if the class is a big group.

c) Explicit corrective feedback

Although the teacher was simply asked to respond to the students' postings, he took the initiative to provide explicit corrective feedback to the students' errors. Nevertheless, the teacher gave explicit negative feedback only occasionally, even though in a pedagogical context such as this, it would be legitimate for the teacher to give explicit corrective feedback in response to learners' non-target-like forms. Further, it would not be inappropriate for a teacher who is also the more competent language user, particularly in Malaysia, to overtly indicate the non-target-like features and correct them. However, as noted earlier, he only did this on rare occasions. One such example of the teacher's use of explicit negative feedback is the following:

Student: *I'm not agreeing with this statement. Of course civil engineers should take responsibility for the degradation of the environment. But can I say that civil engineers are just a part of them that should take responsibility... Finally I just want to tell you that civil engineering works are just fulfill the necessarily of human being in this world. So all the human being in the world should take responsibility for degradation of the environment and not just civil engineers.*

Teacher: *You wrote:*

"I'm not agreeing with this statement... Finally I just want to tell you that civil engineering works are just fulfill the necessarily of human being in this world. So all the human being in the world should take responsibility for degradation of the environment and not just civil engineers."

Firstly, remember our joke on "I'm not agree" in class? You should say "I DO NOT agree", otherwise, I'll call you "Mr. not agreeing"!

Back to the topic under discussion. I agree with you that civil engineering works are initiated to fulfill the needs of human beings in this world...

As can be seen here, the teacher first repeated the incorrect sequence produced by the learner. Then, in a joking manner, the teacher overtly indicated to the learner the correct way of saying "I'm not agreeing..." by using capital letters to highlight the correct usage, "You should say I DO NOT agree". At the same time, the teacher also provided a recast of the incorrect sequence "... I just want to tell you that civil engineering works are just fulfill the necessarily of human being in this world", with a more target-like sequence "I agree with you that civil engineering works are initiated to fulfill the needs of human beings in this world".

In another example, the teacher provided explicit negative feedback, indicating that the error made by the student was a common one among students. As in the earlier example, the teacher used various strategies to draw the students' attention to the correct form. He repeated the student's earlier error sequence and used capital letters to focus the learner's

attention to the non-target-like form. The teacher also appeared to draw the attention of the whole class to the mistake made. A recast of the earlier non-target-like sequences was provided, while again highlighting the correct word in capital letters.

Student: *... If we have a dream to do well in this field, no wonder who we are, a man or a woman, surely can DOMAIN that field. ...Nowaday there are still a lot of civil engineer is man but it doesn't mean that a man can domain the civil field. ... Actually we should look for the 'quality' of a people. Those who are capability and confident, those who can domain that field that he or she involved...*

Teacher: *You have been participating actively in this discussion. Well done and keep it up. Just a point on language use. You wrote:*

1) *"If we have a dream to do well in this field, no wonder a man or a woman surely can DOMAIN that field"*

2) *"...it doesn't mean that a man can DOMAIN the civil field"*

3) *"Those who are capability and confident, those who can DOMAIN that field that he or she involved"*

The correct word to use is DOMINATE. This seems to be a common error among students...

The correct use of the word is as follows:

1) *If we have the determination to do well in this field, we will be able to DOMINATE the field, regardless of whether...*

2) *...it doesn't mean that a male can DOMINATE the field...*

3) *Those who are capable and confident will DOMINATE the field they are involved in.*

Thus, it could be seen in this example that the teacher not only provided explicit negative feedback on non-target-like forms, but also made more salient the correct forms through the use of capital letters in order to increase the perceptual salience (Sharwood-Smith, 1993). There are various other examples to show how the teacher employed a combination of feedback techniques to focus on form, which will be illustrated next.

d) Combination of feedback techniques

Doughty and Williams (1998), Doughty and Varela (1998) and Muranoi (2000) have shown that combinations of, rather than individual, focus on form techniques are likely to be most useful for learners. Some of the combinations of feedback techniques have been shown earlier, which included repeating preceding error sequences to focus learners' attention on the incorrect form, enhancing input in the written text by manipulating the typography, such as using capital letters to highlight both target-like and non-target-like forms, and the use of recasts to provide correct restatements of erroneous forms. Apart from that, there was also scaffolding of form to assist learners in producing target-like output. Combinations of feedback techniques were employed while engaging in meaning-based interaction with the students. Some of these features can again be seen in the following example:

Teacher: Tan Wooi Ping,

You wrote:

"But it is not enough for our information if we gained it through theoretical. By theoretical, we only attend classes and hear the theories about the related topics, which are taught by our lecturer. Although we understand the theories which are lecturer said, we still do not get enough practical from it".

Would you agree that students should first gain THEORETICAL KNOWLEDGE while they are in university? They can gain PRACTICAL KNOWLEDGE later on when they are working.

It can be seen that in response to the learner's non-target-like sequence, the teacher first repeated the learner's incorrect sequence. Then, the teacher made use of implicit negative feedback in the form of a recast to provide the correct use of the word 'theoretical' and 'practical', using capital letters to make the correct input more salient to the learner. This

was done simultaneously while seeking the learner's opinion on the issue raised. This notion of repeating the learner's earlier non-target-like sequence, recasting it, while simultaneously focusing on meaning is similar to what Doughty and Varela (1998) refer to as 'corrective recasts'.

In the following example, the learner's error resulted from the confusion of reciprocal items, 'consult' and 'advise'. The teacher once again responded by repeating the sentence containing the error, and then provided a recast of the wrong lexical item. Capitalization was again employed to increase the perceptual salience in order to draw the learner's attention to the correct lexical item 'advise'. Following that, the teacher once again repeated the use of the correct word for emphasis, apparently in order to make it more salient to the learner. All these were provided while engaging in meaning-based interaction with the student, as shown in the following:

Teacher *You wrote:*

"Didn't we send our engineers to learn from them (the foreigners)? ... Besides, wouldn't it be a kind of waste of money to pay them to consult us in our projects?" Don't you think there is a difference between sending our engineers to learn from foreigners and getting foreign consultants to ADVISE us in our projects? ... If we engage foreign consultants, they will be able to advise us on aspects that are more advanced than what students will learn.

The following is another example to show how the teacher used a combination of techniques to provide feedback to the student.

Teacher: *You wrote:*

"Therefore, I disagree that male domain in civil engineering professional because female really also play an important role in future especially in civil engineering." Would you agree that while female engineers may play a role in civil engineering,

male engineers will always DOMINATE the field? This means that female engineers will only play a secondary, supporting role, not the main role in civil engineering.

Once again, the teacher repeated the sentence containing the error. He then proposed a counter argument to the learner's stand on the issue, while simultaneously providing a recast of the incorrect use of the word 'domain' and 'civil engineering professional'.

Capitalization was again employed to make the correct lexical item, 'dominate', more salient. There was thus a focus on form in the exchange of meaning in this feedback response.

A further examination revealed that the teacher also provided scaffolding of form in response to a learner's non-target-like production. In the following example, it can be seen that the teacher first provided a recast of the incorrect form, "I'm totally agree..." Subsequently, the teacher provided scaffolding of form by triggering a pre-emptive model in the form of a question, which would compel the learner to make use of the correct form of expressing either agreement or disagreement.

Student: *I'm totally agree with the engagement of foreign consultants. The needs for engaging foreign consultants are important for the country.*

Teacher: *I agree with you that foreign consultants do contribute to our nation's development. However, would you agree that our local civil engineers/ consultants should be given priority in civil engineering projects in Malaysia.*

Student: *Thanks for your reply. I do agree that our local civil engineers should be given priority in civil engineering projects in Malaysia provided we have the knowledge and technology.*

It can be seen that by responding to the question posed by the teacher, the student made use of the correct form for expressing agreement, 'I do agree'. This example seems to

show that learners could be prompted to produce more target-like production if scaffolding of form was provided in a purposeful manner through meaning-oriented interaction. A more detailed explanation of learners' modification of output is provided later in Section 4.9.

Thus, the teacher could be seen using various strategies to induce learners to notice the errors they produced and also to highlight the correct forms provided in the recasts. The focus on linguistic form was made while maintaining an overall emphasis on promoting meaningful communication in discussing the issues to be deliberated. The next section will provide evidence of the learners' role in providing feedback to their peers.

4.7.2 Peer feedback response

Despite the fact that most of the learners were of the same level of competence, and although error sequences were ignored on many occasions, learners did provide feedback in response to their peers. Studies by Pica et al. (1996), Pica and Doughty (1985), Gass and Varonis (1985, 1989) reported that learners are active providers of feedback. As indicated earlier, learners did provide a considerable proportion of feedback (58.1%) in response to their peers' non-target-like postings in this CMC on-line interactional context. Upon closer examination, the feedback responses made by students were mostly triggered by a lack of clarity of meaning in the earlier sequences. Peer feedback response consisted of two types, namely:

- a) recasts, and
- b) negotiation strategies.

Learners did not provide explicit feedback to their peers' non-target-like production.

Possible reasons for this will be discussed later.

a) Recasts

The percentage of recast provided by learners to their peers is 60.5 %. An examination of the transcripts reveals that the recasts learners made constituted mainly of segmentations of isolated words or phrases of the earlier non-target-like form. As compared to the recasts made by the teacher, the recasts learners made were more simple and involved fewer modifications such as paraphrasing, structural changes or relocation of prior sentence constituents. Further, the learners' attempts at rephrasing and restructuring longer segments in response to their peers' non-target-like sequences were not always successful.

As noted, a number of the recasts that were provided only involved replacement of incorrect and discrete lexical items. This is despite the fact that the non-target-like sequences often consisted of multiple errors such as spelling/phonological errors, semantic/lexical errors combined with morphosyntactic deviations that involved structural and grammatical mistakes. For example,

Example 1

Student 1: *The civil engineering profession is a male domain...This is because the profession of civil engineer is too tough and I don't think that the weak person can do this. So we can see that most of the civil engineer come from male. Although some female civil engineer can be this profession, but only men can conduct this career because engineer must see all the workers work very good in any weather like hot day or raining day.*

Student 2: *Do you think that women are really weak? If we are weak, you can't see us in our university. Don't you agree that living in university is tough? In civil engineering, we also can give commitment...*

Example 2

Student 1: *... if he/she can past the exam, for sure they are qualified to become a professional engineer. We no need to fix ourselves to work at least six years before we can take the exam.*

Student 2: *...Maybe you have your own thinking but I strongly feel that if a person can pass his exam and qualify to be an engineer with his ability (but working experience less than five or six years), he is still not a very professional engineer... I think that it is important to fix at least six years of working experience as one of the requirements to become a professional engineer.*

The recasts the learners provided only included such things as the correct spelling of the words. Nevertheless, it can be seen that in the second example, Student 2 tried to make use of the word 'fix' in a different way, which he might have considered as more target-like than Student 1's use of the same word. However, Student 2 did not seem to recast the earlier non-target-like sequence, "We no need to fix ourselves to work at least six years before we can take the exam". Instead, the use of the word 'fix' was related to the duration of time as in "...it is important to fix at least six years...". Nevertheless, feedback was provided and done so in a form in which a more acceptable use of the word 'fix' was available as data for language learning.

Although the type of recasts provided in the student-to-student context was limited, there were times when a substantial amount of lexical, grammatical and/or morphosyntactic information was made available by peers to each other through this type of feedback. For example, the following shows evidence of a recast that provides morphosyntactic

modifications of an earlier non-target-like sequence. As can be seen, Student 2 replaced the relative pronoun ‘that’ with a more suitable one ‘who’ as reference to the noun ‘people’. At the same time the missing auxiliary verb ‘are’ that had been omitted in “... many people that responsible”, was also inserted:

Student 1: ... *If I not mistaken, there are many people that responsible to run projects in civil engineering ...*

Student 2: ... *Based on your points, I agree with you and realize that there are many people who are responsible to run a project in civil engineering construction ...*

In the next example, Student 2 not only provided morphosyntactic modifications but also rephrased the preceding non-target-like output. Instead of responding to the question posed by Student 1, Student 2 repeated the earlier non-target-like sequence and provided a recast by inserting the missing auxiliary verb ‘are’, that had been omitted, “... pollution and flood just caused by ...”. It could also be seen that Student 2 substituted the wrong wh-word form, ‘whom’, with a correct one in the question form, “So, who should be blamed for this irresponsible act?”

Student 1: ...*Are you sure pollution and flood just caused by the civil engineering work...I don't think so. You should know a lot of trees have been chopped down, the water pollution become more serious... So can you tell me whom should be blamed? ...*

Student 2: ...*Well, I would like to make some explanations regarding your questions. You mentioned that pollution and flood are not just caused by civil engineering works...When a project started, land has to be cleared and thus results in serious pollution problems. So, who should be blamed for this irresponsible act?*

In fact, Student 2 actually attempted to rephrase the whole sequence of Student 1’s intended meaning, which seemed to make the flow of ideas more coherent, leading to a more logical progression of ideas, as in “When a project started, land has to be cleared

and thus results in serious pollution problems. So, who should be blamed for this irresponsible act?"

Similarly in the next example, Student 2 not only provides a recast of the wrong spelling of the word 'fault', but there was also an attempt to reformulate an earlier non-target-like form, "When the quality not well care it will collapse..." to a more target-like structure "... poor quality of work might lead to collapsing of the structure build...":

Student 1: *In my opinion, we as a civil engineer should take any responsibility... If the construction work is poor, that is our false... When the quality not well care it will collapse, many life were in danger and maybe some of them will die.*

Student 2: *... you wrote 'if the construction is poor it is our fault' ... You mentioned that poor quality of work might lead to collapsing of the structure build, but natural disasters such as earthquake can also cause the same effect.*

There was also an attempt by another student to rephrase his peer's non-target-like sequence. This can be seen in the following example:

Student 1: *There was some irresponsible developer and contractor just want to earn money. For my opinion, I think all who involve in the construction project should work together... Do you have any idea to realize the authority about this matter?*

Student 2: *I agree with you... In your opinion, what should the government do or react about the issue?*

Student 2 did not actually respond to the question posed by Student 1, but instead, he provided a recast of the preceding error sequence, "For my opinion..." by making use of the correct preposition, 'In your opinion...' and rephrased the earlier non-target-like question, "Do you have any idea to realize the authority about this matter?", to a more target-like form, "... what should the government do or react about the issue?".

Although there seemed to be fewer recasts that involved more complex structures and intricate ways of expression, there was evidence of learners' attempts to provide recasts of their peers' non-target-like form into more acceptable forms of expression. Even so, most of the feedback the peers provided to each other was concerned with developing mutual understanding through the use of negotiation strategies; and these are discussed next.

b) Negotiation strategies

The percentage of negotiation for meaning in the student-to-student interaction is about 39.5 %. Most of the negotiation for meaning in the student-to-student interactions involved the use of clarification requests to ask for more elaboration and details about the meaning of earlier sequences, as can be seen in the following examples:

Example 1

Student 1: *...A civil engineer takes many factors into consideration in their work. If we know what is EIA (environmental impact assessment) then we should have known nobody carry EIA seriously in Malaysia.*

Student 2: *... Can you explain what is EIA?*

Example 2

Student 1: *... Well, this profession is not necessary suitable for males only...However, it is undeniable that male engineers have slight advantage in physical being than females...*

Student 2: *I agree with you that females also suitable to work in civil engineering. But I don't understand what you mean "however, it is undeniable that male engineers have slight advantage in physical being than females"...*

These examples illustrate that although the initial turn was plagued with errors, the peer's feedback was more concerned with developing mutual understanding. There were many examples where the students responded to their peers by requesting clarification of content, asking for more details, or seeking opinions and suggestions related to content. However, unlike the teacher, the learners did not use negotiation strategies in conjunction with recasts, which was a common strategy used by the teacher in his feedback responses.

Nevertheless, there were occasions when learners' feedback, through negotiation, drew more attention to form. In the following example, the response by Student 2 seems to draw a particular focus to the form of Student 1's non-target-like sequence "... by make cooperation each others to save our environment". Student 2 does this by actually repeating the error sequence and then asking, "What do you mean each others?" Such an example highlights the way negotiation provides a 'focus-on-form' for learners.

Student 1: *...Nowdays, the pollution problem become very serious, so as a civil engineer and human, certainly we must avoid pollute the environment by make cooperation each others to save our environment.*

Student 2: *Can you tell me how to avoid pollute the environment by make cooperation each others? What do you mean each others?*

Although there were differences in the form of the negotiation strategies used by learners, compared to those of the teacher, the learners still used this form of implicit negative feedback for a similar purpose. That is, through negotiation, they could clarify meaning, which in turn assisted message comprehension and understanding.

c) Explicit corrective feedback

As noted, the learners did not provide each other with explicit feedback. There could be various reasons as to why this is the case. One possible explanation could be the fact that the students were mostly of the same proficiency level. As such, they may have felt that it was inappropriate to overtly correct their peers' errors. Another possibility could be that explicit corrective feedback was avoided as a face saving gesture because the whole class could view the on-line interaction. The last probable reason could simply be that learners lacked the proficiency or were not competent enough to provide such explicit corrective feedback.

Even though the learners rarely, if ever provided explicit feedback, they did provide a substantial proportion of implicit feedback in the form of recasts and negotiation strategies. The teacher provided an even higher proportion. The question, however, remains as to whether the learners used this feedback and incorporated it into their subsequent production. This is discussed in the next section.

4.8 Student reaction turn

Before looking at the students' reaction to the feedback response, it would be appropriate to look at whether there was the 'opportunity' available to the students (Oliver, 1995, 2000) to respond to the feedback provided by both the teacher and peers (see Table 13).

Table 13

Opportunity for student reaction to feedback response

	Interactional Exchange	
	Student-to-teacher	Student-to-student
Opportunity	100% (74)	95% (41)
No opportunity	0% (0)	5% (2)

Table 13 shows that students had ample opportunities in both contexts to respond to the feedback given. Based on the 117 counts of negative feedback provided, the students had the opportunity to respond to all the feedback from the teacher and similarly to their peers, in all but two occasions. Thus, regardless of context, and despite the asynchronous nature of the interaction, there were substantial opportunities for the learners to use the feedback they were provided with.

4.9 Modification of output

The results of whether or not the students actually modified their output in response to the negative feedback given are shown in Table 14.

Table 14

Modification of output

	Interactional exchange	
	Student-to-teacher	Student-to-student
Modified output	65% (44)	66% (19)
No modified output	34% (23)	34% (10)
Self-correction	1% (1)	0% (0)

The results show that the students did, in fact, use the negative feedback that was provided. It can be seen from Table 14 that students did modify their output toward more target-like production. In the case of student-to-teacher interaction, 44 student turns showed modified output, and in the student-to-student interaction, 19. Interestingly, these figures represent a similar proportion in both contexts and show that regardless of who provides the feedback, students modified output approximately two thirds of the time. Thus, only one third of the feedback in both contexts did not lead to modified output. There was only one instance when a student self-corrected after the initial non-target-like production was ignored, and this occurred in the student-to-teacher context. A more detailed explanation of the nature of modified output is provided next.

4.9.1 Nature of modified output

Swain (1985, 1998) and Swain and Lapkin (1995) argue that opportunities for production of comprehensible output are important for acquisition. A closer examination of the data showed that learners modified their output in various ways. When learners responded to negotiation signals from either the teacher or peers, they were able to adjust or modify their original non-target-like production, reformulating it towards improved form and better clarity. At the same time, there was also uptake by learners of the recasts made, making their output more target-like. This seemed to indicate that the negative feedback that was provided was usable to the learners (Oliver, 2000), in that it led to improved language production in the important 'third turn'. The following provides a more detailed explanation to illustrate this.

4.9.2 Response to teacher feedback

It seemed that because the teacher consciously focused on problematic forms in the learners' output, the learners were also compelled to focus on linguistic form when responding to the teacher's feedback. As a consequence, this led to modifications of their subsequent output. The response to teacher feedback included:

- a) Response to negotiation strategies,
- b) Uptake of recasts, and
- c) Use of explicit feedback.

In cases where there was no uptake of recasts, possible explanations of why it happened will be provided later.

a) Response to negotiation strategies

The following example shows how a learner modified his output in response to the teacher's feedback. It can be seen that in answering the clarification request made by the teacher, the learner was 'pushed' towards producing a more target-like form, substituting the inappropriate word chosen from the wrong domain, 'durable', with a more target-like phrase, 'can endure the harsh conditions of the construction site...'. At the same time, the learner gave a more detailed explanation to describe the context of the 'harsh conditions' being referred to.

Student: *I agree...male got more durable than female to do the site work.*

Teacher: *You wrote:*

"...male got more durable than female..."

What do you mean by the above?

Student: *Actually I mentioned "male got more durable than female to do the site work" means "male can endure the harsh conditions" of construction site...like sun, heat, dust and foul language use by construction workers.*

It can be seen in this example that pushing learners to improve the accuracy of their production through interactional negotiation has resulted in improved performance in output, leading to a more target-like form. This outcome is similar to the findings of studies by Nobuyoshi and Ellis (1993), Pica et al., (1989) and Oliver (1995) who have shown that learners were more likely to modify their output by making it more grammatical in response to requests for clarification.

Another example of 'pushed' output can also be seen in the following. In response to the clarification request by the teacher, the learner was prompted to make his output much more comprehensible. This was done by providing more elaboration and illustration of

the message meaning he was trying to convey, making his output much clearer and more easily understood. Although he expanded his original position, he was able to do so with much more coherence and clarity in the presentation of his ideas.

Student: ... *When we are in university, we are learn so much about theoretical subject from lecturer. Some time we are no so clearly and don't know whether some theory are useful or not. Maybe after we graduate, we don't know how to apply that theory in our work. So from the practical, we can apply that theory in reality world. We will more clearly about what we learn from our university.*

Teacher: *You wrote:*
"Sometime we are no so clearly and don't know whether some theory are useful or not. Maybe after we graduate, we don't know how to apply that theory in our work. So from the practical, we can apply that theory in reality world. We will more clearly about what we learn from our university."
Please clarify what you mean by the above.

Student: *Theory and real situation are two different things. For example, maybe we learn from theory $x=a+b+c$, but in real situation, we have to consider many things. Sometime for special case, we can no follow that theory to design. We need to learn from someone that have a lot of experience to solve it.*
When we do the practical at outside, we will try to apply that theory in our works. Further more, we will learn something new from our practical place. After we go back study from practical, we will more clearly about what we learn from our university.

Despite the fact that the learner's output was still problematic in form, his attempt at clarifying the content led to more comprehensible output.

The provision of implicit negative feedback through the process of negotiation for meaning also appeared to trigger the learners' attention to the problematic aspects of their output. This in turn, appeared to lead them to 'notice the gap' (Schmidt and Frota, 1986) and seemed to prompt them to make their output more target-like. The following example illustrates this:

Student: *..I understand we have a huge number of good civil engineer, but we have to resemble our ideas with them (foreign consultants). The more ideas come, the great the project would be. Don't you think so?*

Teacher: *What do you mean by "I understand we have a huge number of good civil engineer, but we have to resemble our ideas with them (foreign consultants)"?*

Student: *Thanks for your reply. I am sorry that I used the wrong word. The word that I was trying to say is combind instead of resemble.*

Through the clarification request made by the teacher, the learner's attention was drawn to the problematic form of her output. That is, she was prompted to be consciously aware of her linguistic shortcomings, leading her to correct the erroneous form. She seemed to notice that the lexical item was unsuitable and thus modified the word 'resemble', replacing it with a more suitable word 'combind'. Despite the lack of accuracy in terms of spelling, the learner's response to the teacher's feedback resulted in language output that was more target-like.

Schmidt (1990) and Robinson (1995) suggest that learners need to notice the linguistic characteristics of the target language in order to acquire them. For example, in the following, the teacher's clarification request drew the learner's attention to the non-target-like features in his earlier contribution. The learner responded by providing the correct word 'divided', to replace the non-target-like form, 'separate to'. In addition, the learner also provided a more precise word 'specialties' as an alternative to the word 'departments':

Student: *I do not agree. That's because civil engineering field also separate to many department...*

Teacher: *What do you mean by "civil engineering field also separate to many department?"*

Student: *Actually, I mean civil field is divided in many departments, or more precisely known as specialties, which is include ...*

Although he still had problems with form in the later output, as in '... which is include', the teacher's feedback response had somehow triggered awareness in the learner of problems in his earlier output, pushing him towards modifying his earlier non-target-like form.

The following is an example showing that learners have the capacity to manipulate their preceding non-target-like form to produce a more target-like output in response to the clarification request by the teacher:

Student: *Well, this profession is not necessary suitable for males only... However, it is undeniable that male engineers have slight advantage in physical being than females.*

—

Teacher: *You wrote:*

"However, it is undeniable that male engineers have slight advantage in physical being than females."

What physical attributes do male engineers have that that give them a "slight advantage" over their female counterpart?

Student: *I believe that each person, either male or female, have their own abilities and characteristics which will determine whether they will be a good engineer or not. But of course, male have the slight physical advantage than the female...*

It can be seen that although the teacher provided a recast of the earlier error sequence "... slight advantage in physical being", the learner did not repeat the teacher's recast. Instead, in response to the teacher's question on content, the learner produced a more

target-like form compared to his earlier error sequence, "... male have the slight physical advantage...".

Thus, implicit feedback provided in the process of negotiated interaction (especially clarification requests by the teacher) triggered learners to notice problems in their output, leading them to produce more target-like forms in their attempt to make the output more comprehensible. Therefore, it can be inferred that noticing occurred in these computer-mediated exchanges based on the evidence provided, suggesting that this context is one that facilitates acquisition. It would be worth examining whether recasts, another form of implicit corrective feedback, also results in modified output. This will be examined next.

b) Uptake of recasts

Based on the 65% of modified output by learners in response to the teacher's feedback, uptake of recasts provided by the teacher was quite substantial. Learners modified their output either by incorporating part of the recasts, or by repeating the whole recast. The process of negotiated interaction induced learners to notice the correct form used by the teacher, and in their subsequent output, learners incorporated or repeated the correct form, thus making their output more target-like.

In the following, the teacher provided a recast of the learner's incorrect turn "I disagree about the statement ... many female engineers now days ..." in the form of a confirmation check. At the same time, the teacher posed a question with regard to the issue raised. In response, the learner incorporated the recast into his subsequent output, "

I disagree with this statement ... there are many female engineers nowadays ... “. The learner repeated correctly the phrases and expressions used by the teacher, while providing supporting arguments to justify his stand on the issue.

Student: *I disagree about the statement because as you can see, there are many female engineers now days ...*

Teacher: *Am I correct to say that you disagree with the statement (that the civil engineering profession is a male domain) simply because there are many female engineers nowadays? But the real issue here is whether the female civil engineers can perform as effectively as their male counterparts in carrying out their duties ... while there may be more female engineers nowadays, the fact remains that they are not as capable as male engineers. Do you agree?*

Student: *Thanks for your reply. I disagree with this statement because not just there are many female engineers nowadays but they are as capable as male engineers. In my point of view, I think that female engineers can perform as effectively as their male counterparts in carrying out their duties, maybe better than them.*

Incorporation of recasts again can be seen in the following example:

Student: *...Training is also more interesting than theoretical because we can tried out what we have learned in theoretical. However, practical must be balanced by theoretical learning...*

Teacher: *If you have to allocate a certain percentage of time to practical training and theoretical knowledge, how much time would you allocate to both? 60% to practical training and 40% to theory?*

Student: *..I would allocate 40% for practical training and 60% theoretical knowledge... If we don't have enough theoretical knowledge, practical training is meaningless... That's why I would allocate slightly more percentage of time for theoretical knowledge.*

In response to the learner's error, the teacher provided a recast of the correct usage of the word 'theory', 'theoretical' and 'practical', while posing a question on content. The learner responded to the question asked by the teacher, while simultaneously

incorporating the correct use of the words ‘practical training’ and ‘theoretical knowledge’. The learner then repeated the correct usage a number of times. Thus, this example shows there is use of the recast in the third turn sequence (Oliver, 2000), leading to more target-like output in this platform.

Further evidence of learner uptake can be seen in the following example. The teacher first repeated the sentence containing the error and then posed a question on content while providing a recast of the correct word ‘worthwhile’. In response to the teacher’s question, the learner expressed her opinion on the issue raised, while at the same time incorporating the correct use of the recast word:

Student: *... Though some said we’re only wasting our money just to consult them, but I think it’s worthy...*

Teacher: *You wrote:*

“Though some said we’re only wasting our money just to consult them, but I think it’s worthy,”

What do you think of the argument that it is more worthwhile to send our engineers/students overseas to learn from foreigners, rather than engaging foreign consultants in our local projects?

Student: *For me, it’s more worthwhile to engage foreign consultants rather than sending our students abroad because, if we consult the foreign consultants, we are surely learn from the consultants as we are directly in the field.*

In the following example, it can be seen that the learner repeated the recast made by the teacher verbatim, “Yes, what I’ve told Sir is through practical training ... gain knowledge which they can’t get from theory in the class”. Nevertheless, in his subsequent production, the learner was able to use the correct form, “... not all the things in practical training was been told in theory in class”. This example seems to suggest that the student

had been induced to notice the correct form, and as a consequence incorporated it into his subsequent output.

Student: *... If the students given more practical, they can know some other information which is not given in theoretical.*

Teacher: *I suppose you mean, through practical training, students will be able to gain knowledge which they can't get from theory in the class.*

Student: *Thank you for responding. Yes, what I've told Sir is through practical training, students will be able to gain knowledge which they can't get from theory in the class. As we know, not all the things in practical training was been told in theory in class.*

Repetition of the correct form used in the recast can again be seen in the following example. The student first repeated verbatim the statement made by the teacher.

However, in supporting her argument, this particular learner was able to self-correct her earlier non-target-like usage of 'theoretical', as in, "... the theoretical we learn in lecture" and was able to use the correct lexical item while expressing the same concept later, "... in my opinion, we learn about the theory first...".

Student: *Generally, the theoretical we learn in lecture, but practical we use in working, such as industrial practical.*

Teacher: *You wrote: Generally, the theoretical we learn in lecture, but practical we use in working , such as industrial practical.
Would you agree that ' THEORETICAL KNOWLEDGE' is the foundation to practical knowledge? Universities should therefore concentrate on theoretical knowledge.*

Student: *Yes, I agree with your statement that 'theoretical knowledge' is the foundation to practical knowledge... In my opinion, we learn about the theory first before go to the practical.*

There are also examples showing that although learners incorporated the recasts made by the teacher, their language output was still not wholly accurate. As pointed out by Doughty and Varela (1998), the restructuring of interlanguage grammar that occurs

following a recast might not always immediately lead to interlanguage accuracy. In the following, the teacher first provided a recast of the earlier non-target-like form, ‘...the responsibility ... should be taken by many sides...’ in the form of a confirmation check, “I suppose you mean the responsibility ... should be shouldered by all parties ...”. It can be seen that the learner, in responding to the teacher’s question on content, simultaneously incorporated a more target-like sequence, ‘... shoulder the partly responsibility...’ Although the phrase used was not wholly target-like, the learner’s output could be seen as moving closer towards a more target-like form, with the incorporation of the more suitable verb, ‘shoulder’, to be used with the noun ‘responsibility’:

- Student: *... I don't think that the civil engineer is the only one who responsibility to the degradation of the environment... So, the responsibility for the degradation of the environment should be taken by many sides but not only civil engineering.*
- Teacher: *... I suppose you mean that the responsibility for the degradation of the environment be shouldered by all parties involved in a construction project. Why should the contractors and developers shoulder the responsibility since it's the civil engineers who are directly involved in a construction project?*
- Student: *In my opinion, the civil engineer is the one who controls and manages the construction site. But it is the developer who start the project and the architect who... So, the engineers has to shoulder the partly responsibility.*

There is thus evidence that the provision of recasts had induced learners to notice the correct form, leading them to produce a more target-like output. Nevertheless, this could probably be short lived and might not be indicative of acquisition. As cautioned by Mackey and Philp (1998), uptake should not be interpreted as constituting development or acquisition, arguing for a longer term perspective on learner development rather than

immediate use. However, there was potential for learners to notice the recasts as they can see the corrected form written on their screens, which in turn, had subsequently resulted in uptake of the correct form. In cases where uptake does not occur, possible explanations for this are provided next.

c) No uptake of recasts

As shown earlier in the quantitative results, 'no modification of output' in both student-to-teacher and student-to-student interactional exchanges represents the same proportion of 34%. There are various explanations as to why uptake of recasts did not occur at times. On closer examination, the production of modified output was sometimes dependent on the type of signals directed at the students in the feedback response. Learners tended to modify their output in situations where the feedback given was more open-ended in nature, as in the form of a clarification request. This could be seen in the clarification request examples illustrated earlier. However, when the response given was modified versions of their earlier non-target-like sequences, such as in the form of a recast that was also a confirmation check, learners sometimes did not seem to see the need to adjust or modify their output further.

This is similar to the findings reported by Pica et al. (1989) and Oliver (1995), which show that requests for clarification compel learners to stretch their interlanguage capacity to clarify what they meant, whereas in a confirmation check, the communicative problem has already been resolved by the interlocutor. As such, learners seem to give the impression that further modification on their part is not necessary. Other possible

explanations could be that learners lack the required proficiency and linguistic resources to provide another modification. Thus, learners sometimes merely responded with an expression of agreement or acknowledgement of the feedback with a simple ‘yes’ or ‘no’ (Oliver, 1995).

In the following example, the learner did not incorporate the recast made in the form of a confirmation check, but instead she merely acknowledged the teacher’s confirmation of her earlier contribution. However, the learner did respond to the clarification request that was also asked by the teacher by attempting to explain what she meant in the earlier sequence. The learner also tried to justify her argument by providing supporting details.

Student: *Of course we still need them to shared their knowledge and skills, but we should give more opportunities to our local engineers and consultants as a way to provide balance between foreign and local engineers.*

Teacher: *Am I correct to say that you’re of the opinion that while we need foreign consultants for purposes of technology transfer (i.e. we can learn from their expertise), we should not engage too many of them? Please clarify.*

Student: *Yes. That’s what I’m trying to explain... Why do we think that our local engineers still don’t have the expertise in this industry. Our engineers has keep on learning the skills and knowledge from foreign engineers year by year. If we don’t give them the opportunities to show that they have improve their skills, who else?*

The following examples further illustrate that when models of the correct sequence were provided, learners were not prompted to include another modification of their own.

Example 1

Student: *...Lets together to responsibility for our poor work quality in civil engineering...*

Teacher: *I suppose you mean we should all share the responsibility for any poor quality work in civil engineering.*

Student: *Of course sir! ...The engineers should not responsible for poor work...*

Example 2

- Student: *I know for now, we still need the foreigners for some huge project but in the future, we need the local professional engineer...If not we still trapped in the way of conquer by the foreigners' ideas and technologies...*
- Teacher: *I suppose by the above, you mean we're still trapped in a mindset that looks up to the superiority of foreign ideas and technologies. Don't you think that foreigners do have expertise which we don't have, and we should learn from them?*
- Student: *Indeed. We do need their expertise and learn more from them.*

In both examples, it can be seen that in response to the confirmation check, the learner merely responded by expressing agreement and acknowledging the truth of what the teacher had said. There was neither uptake of the recast made, nor alternative recoding or modification of the earlier non- target-like form. This seems to show that the modification of output was thus contingent on the nature of feedback given.

A further examination revealed that learners sometimes did not incorporate the recast because it was neither necessary nor appropriate for them to do so. For example, in some contexts, it was more appropriate for learners to respond with a simple 'yes' or 'no' when they were asked a certain question, as shown in the following example:

- Student: *I disagree...In my opinion, what male can do, female can do too. In the modern world, we don't discrimiluisse women.*
- Teacher: *Would you agree that the person who posted the topic was not actually discriminating against women when she posted that view? Perhaps she was just stating a fact...*
- Student: *Yes...I realize she's just stating a fact...*

In this exchange, the flow of interaction did not necessitate the learner to incorporate the recast made by the teacher of the unintelligible word - 'discrimiluisse'. The learner merely

continued the interaction by expressing agreement with the teacher. In fact, he merely repeated what the teacher suggested. As such, the context of the interaction did have an influence on the kind of reaction produced by the learner in response to the negative feedback given.

d) Use of explicit feedback

In the cases of explicit feedback by the teacher, there was no response from the learner in one instance, and in the other, the learner responded but there was no uptake of the corrected form. However, the learner acknowledged the correction made by the teacher and then responded to the question that had been asked, as can be seen in the following:

Student: *I'm not agreeing with this statement. Of course civil engineers should take responsibility for the degradation of the environment. But can I say that civil engineers are just a part of them that should take responsibility... Finally I just want to tell you that civil engineering works are just fulfill the necessarily of human being in this world.*

Teacher: *You wrote:*
"I'm not agreeing with this statement... Finally I just want to tell you that civil engineering works are just fulfill the necessarily of human being in this world. So all the human being in the world should take responsibility for degradation of the environment and not just civil engineers."

Firstly, remember our joke on "I'm not agree" in class? You should say "I DO NOT agree", otherwise, I'll call you "Mr. not agreeing"!

Back to the topic under discussion. I agree with you that civil engineering works are initiated to fulfill the needs of human beings in this world. But the issue is, shouldn't civil engineers take responsibility for the degradation of the environment since they are the ones in charge of all construction projects?

Student: *Thanks for correct my grammar mistake... Dr, actually in my first comment about the "Degradation of the environment" already mentioned that civil engineers should take responsibility for the degradation of the environment but not the main people who should be blamed.*

This seems to indicate that learners did not see the need to incorporate the correction made by the teacher, or to further modify their problematic form following explicit feedback provided by the teacher. Since the teacher had provided a correct model of the non-target-like form, learners seemed to perceive that their problems had been resolved.

Nevertheless, evidence provided earlier does seem to suggest that the teacher's feedback response seemed to be facilitative of interlanguage development. Further, the kind of feedback responses given to learners influenced the nature of the modifications made by learners in reaction to this. Whether or not similar opportunities also existed for modified output in the interaction between students will be examined next.

4.9.3 Response to peer feedback

Similar to the student-to-teacher interactional exchanges, the student-to-student interactions also provided a context for modified output. The response to peer feedback included the following:

- a) Response to negotiation strategies,
- b) Uptake of recasts,
- c) Self-correction by learners, and
- d) Incorporation of non-target-like form.

The following provides a more detailed explanation on each of these.

a) Response to negotiation strategies

Instances of negotiated interaction among peers seemed to prompt learners to attend to form in their attempt to make the message meaning more comprehensible and the form more target-like. In most cases, in response to clarification requests by peers, learners modified their output to make it much more easily understood. In doing so, learners' attention was focused on the linguistic features in their attempt to convey message meaning. This can be seen in the following example:

Student 1: *...Nowdays, the pollution problem become very serious, so as a civil engineer and human, certainly we must avoid pollute the environment by make cooperation each others to save our environment.*

Student 2: *Can you tell me how to avoid pollute the environment by make cooperation each others? What do you mean each others?*

Student 1: *The meaning is each other should take responsibility for their actions. For example, people should keep the environment always clean. It means that everyone should cooperate to maintain a better environment. It is everybody's responsibility to keep the environment clean. It can be considered as a type of cooperation too. Are you clear?*

In response to the clarification request by Student 2, Student 1 tried to clarify his initial non-target-like sequence. In doing so, Student 1 consequently focused on 'form' to make his output more comprehensible to his peer. He reformulated his earlier non-target-like sequence, "...to avoid pollute the environment by make cooperation each others" into a more target-like form, "everyone should cooperate to maintain a better environment." It can also be seen that Student 1's response to the feedback given was much more lengthy, as more elaboration was provided to clarify the output in much more detail. At the same

time, Student 1 ended his turn with a comprehension check, “Are you clear”, to be utterly certain that his explanation had been understood.

In the following example, the clarification request made by Student 2 was triggered by a lack of coherence in the expression, “ the earthquake ... is exactly related to the poor work quality in the construction”, which had resulted in a lack of understanding in Student 2.

Student 1: ... *For example, the earthquake which is occurred in Taiwan lately is exactly related to the poor work quality in the construction.*

Student 2: *Refer to the example above, which is made by you, can you please let me know: How the construction work is related to the earthquake?*

Student 1: *Thanks for your comment. Maybe there are some missing words in the example that I forget to write. So make you and the other readers confuse. Sorry! But what I want to mean here is the collapse of a number of buildings in Taiwan during the earthquake lately was related to the poor work quality of the construction.*

The clarification request had focused Student 1’s attention on the meaning of what had been posted earlier, which created an awareness in Student 1 that the meaning of his earlier posting was incomprehensible, as when he said, “... maybe there are some missing words in the example that I forget to write. So make you and the other readers confuse”. In reaction to that, Student 1 tried to clarify the meaning by expanding the earlier sequence, showing more coherence in relation to poor work quality and earthquakes. As a result, Student 1’s modification was a longer turn sequence, but the output was much clearer and more easily understood.

These examples show that student-to-student negotiation in this computer-mediated interaction does provide opportunities for the production of modified output that can lead to more target-like and more comprehensible production.

b) Uptake of recasts

Despite the fact that the recasts made by learners were much simpler compared to the ones the teacher provided, there was uptake of recasts in the student-to-student interactions, and that these, in turn, resulted in more target-like output. Similar to student-to-teacher interactions, learners also incorporated the recasts made by their peers, as can be seen in the following example:

Student 1: *The civil engineering profession is a male domain...This is because the profession of civil engineer is too taugh and I don't think that the weak person can do this. So we can see that most of the civil engineer come from male.*

Student 2: *Do you think that women are really weak? If we are weak, you can't see us in our university. Don't you agree that living in university is tough? In civil engineering, we also can give commitment...*

Student 1: *...About the statement that I said that female are weak ... Weak here means that they are not tough to responsible for this career...*

Here, Student 2 provided implicit feedback on the incorrect spelling, 'taugh'. In response to the questions posed by Student 2, Student 1 incorporated the correct spelling 'tough' into her subsequent output, while simultaneously providing a definition of what she meant by 'weak'.

In another example, it can be seen that there was uptake by the learner of the recast made by his peer. At the same time, the learner tried to provide his own recast of his peer's output.

Student 1 ... and of course if he or she can past the exam, for sure they are qualified to become a professional engineer...

Student 2 ... Maybe you have your own thinking but I strongly feel that if a person can pass his exam and qualify to be an engineer with his ability (but working experience less than five or six years) he is still not a very professional engineer...

Student 1 ...You said that if he can pass his P.E.(professional examination)and qualify to be an engineer in the period of less than five or six years, he is still not a professional engineer.

In this context, Student 1 incorporated the correct spelling of the word 'pass', which was incorrect in his earlier output. Simultaneously, Student 1 also made an attempt to rephrase his peer's response, "... if a person can pass his exam and qualify to be an engineer with his ability (but working experience less than 5 or 6 years) he is still not a very professional engineer...". The sequence was modified, making it more concise and straightforward, as in "... if he can pass his P.E.(professional examination) and qualify to be an engineer in the period of less than 5 or 6 years, he is still not a professional engineer."

c) Self-correction by learners

Although uncommon, there were attempts by learners to self-correct their mistakes, resulting in a more target-like form. An attempt at self-repair is shown below:

Student 1: ...Nowadays, both male and female have the equal opportunity in the engineering field. Although male civil engineers outnumber female civil engineers in our country, it does not means that male have dominated the field...

Student 2: *Maybe you are right. You said that female can also handle this job well ...But, can you please refer to the main title ...You just mean that female can do well in this field and the title also does not deny the female capability.*

Student 1: *I agree with you... Civil engineering field is being dominated by male...Although male engineers outnumber female engineers, that doesn't mean that male has larger opportunity in this field while female have less.*

It could be seen here that the learner made use of the correct form, 'doesn't mean', Although the incorrect form, 'does not means', was earlier used in the initial sequence. This example shows that even without feedback, learners were at times capable of correcting themselves. However, this example could also reflect a performance error by the student, resulting in the correction made.

d) Incorporation of non-target-like form

There were only a few cases in which learners failed to recognize the errors made by their peers, and in which they incorporated the non-target-like forms into their subsequent output. Studies on learner oral interaction by Porter (1983), Lightbown and Spada (1990) and Holliday (1993) reported the lack of effectiveness on the part of NNS-NNS learners to provide target-like input about the L2 syntactic forms. In a computer-mediated discussion in his French language classroom, Kern (1995) reported that learners engaged in 'discussions' in which they read 'defective' French. The following is an example of such an instance in the context of this study:

Student 1: *I disagree with this statement because both male and female in this century are same especially in education and profession. A female can also do what a male can do...*

Student 2: *I really agree with your point here that both male and female in this century are same especially in education and profession. Nowday, female really become bold*

and strong in their thinking, work, character and so on.

Student 3: *Thank you because you are agree with me. Nowadays, female really become bold and strong in their thinking, work, character and so on.*

It can be seen that both students failed to provide corrective feedback to each other's error sequences but instead, they repeated the non-target-like sequences and incorporated the incorrect form into each others' postings. A similar occurrence is also seen in the next example:

Student 1: *... As we all know, most civil engineering firms only employ experienced civil engineers rather than fresh graduates. Part of the reason to this is they are not confidence with the ability of fresh graduates ...*

Student 2: *I really agree with what you said that most civil engineering firms only employ experienced civil engineers rather than fresh graduates. They are not confidence with the ability of fresh graduates ...*

In this instance, Student 2 incorporated the non-target-like form produced by Student 1

This seems to indicate that formal accuracy could sometimes be difficult to achieve in

Interactions among students, especially among those of the lower proficiency group.

Another possible explanation for the incorporation of non-target-like form by learners

could be due to the 'cut and paste' function on a computer which makes it convenient for them to just use this facility rather than constructing new sentences.

Nevertheless, as indicated earlier, learners as participants in the interactional exchange

generally triggered more target-like output in their peers. Although learners tended to

focus on meaning-oriented exchanges, they did negotiate meaning and they did focus on

form. This subsequently resulted in uptake of correct forms and production of more

target-like output. It also seems to provide evidence that this mode of on-line interaction

does provide learners with opportunities to continuously develop and refine their interlanguage system towards more target-like production.

4.10 Summary

As a concluding remark to this chapter, this on-line platform served as a suitable context and a conducive environment for interlanguage development. Both the student-to-teacher and student-to-student interactional exchanges presented evidence of comprehensible input, feedback and modified output. Through meaning-oriented interaction and communicative exchanges, both teachers and peers provided ample opportunities for learners to focus on form. This resulted in the production of more target-like output, thus providing some evidence that this platform is facilitative of interlanguage development.

The next chapter will present the results of the interview responses of the students and the teacher regarding the on-line interaction task. The aim is to gain some insights of the students' and the teacher's overall perceptions and opinions of the CMC discussion forum.

CHAPTER FIVE

Findings of interview responses

5.1 Overview

This chapter reports the results of data collected by means of the semi-structured interview with the students and the e-mail interview with the teacher. The findings provide some insights into both the students' and the teacher's perceptions and overall opinions regarding the on-line interaction task. The students' interview responses are categorized and presented in three main areas:

1. Positive aspects of the on-line discussion forum;
2. Negative aspects related to the on-line interaction task;
3. Other comments or suggestions for improvement of the on-line interaction activity.

In a similar way, the teacher's responses to the e-mail interview are categorized into three main aspects namely:

1. Advantages of the CMC on-line interaction task;
2. Disadvantages of the on-line discussion forum;
3. Usefulness of the on-line interaction task to the teacher in helping students.

These main headings will be further divided into various sub-headings, providing a more detailed and accurate description of the findings.

5.2 Students' interview responses

On the whole, it would seem that all the students interviewed responded positively and favourably to the on-line interaction task which they had conducted using the CMC platform. The favourable responses are represented by the following student comments:

"I can't see any problem at all in doing this task. It is something new for us. It very interesting and exciting... a change from the normal English classroom".

"It's very convenient and easy to use. It make interaction and communication easy. It's good ... after a while, more students interact in the discussion".

"It's fun to use the computer for the on-line discussion during English class. Sometime the usual English class boring".

5.2.1 Positive aspects of the on-line discussion forum

The positive responses by the students about the on-line interaction task can be further categorized as belonging to one of the following:

- a) Monitoring of language production;
- b) Usefulness of the teacher's feedback;
- c) More exposure to the English language;
- d) Fostering student-to-student interaction;
- e) Ease and convenience of on-line interaction;
- f) A platform to express ideas and share insights;
- g) Exposure to the use of technology; and
- h) Exposure to the civil engineering field and insights into the profession.

These are presented with explanations and examples below:

a) Monitoring of language production

Some students responded positively to this asynchronous mode of interaction because they could view their language first as they produced it, and consequently monitor or edit their writing before sending off their postings. As such, this mode of interaction gave them opportunities to improve their language production. A similar finding has been reported by Sotillo (2000), which shows that the flexibility of the asynchronous mode of interaction encourages learners to plan and edit their writing, providing more time to focus on the form of their language output. Here are some comments made by the students that illustrate this:

“Before we send our idea or opinion, we can check for grammar mistake or other mistake because we can see what we type”.

“This task help to improve my English especially in writing skill. When we write something, we can see the message. We can check from the dictionary or we can use the words and phrase from other student”.

“We can check first what we write. But in oral discussion we cannot”.

Some students also perceived that the on-line interaction made them more aware that there was an audience for their writing. As such, they reported that they tended to pay particular attention to what they wanted to write in this mode of interaction. They also claimed to have put more thought into their posting and more effort into their writing as others could read what they had written on-line. This view is also reflected in the study by Kroonenberg (1994/1995), which shows that through this medium, learners have more

opportunities to reflect on both form and content of their postings. As remarked by the students:

“Since others will read my writing on-line, I try to make it as clear as possible”.

“We have to think first whether we use the correct word or not. If we use the wrong word, other people will not understand us. They will correct us”.

“Sometimes, not all people can understand what we try to say. When people don't understand, we try again to make it clear”.

These advantages reflect the suitability of this mode of interaction to provide a platform for students to monitor and pay closer attention to their language output, which could be facilitative of and conducive to their interlanguage development.

b) Usefulness of the teacher's feedback

Another favourable aspect of this on-line discussion task related to the teacher's feedback to their postings. The students perceived that the teacher's response had encouraged them to improve their language production as they tried to make their output much clearer and more easily understood. Here are some student views regarding the teacher's feedback:

“Encik Khairi give a good response. He just want to know what we mean. Sometimes, not clear what we want to say”.

“Encik Khairi maybe ask to elaborate when not very clear what we try to say. So, we try to write the sentences clearly”.

“When Encik Khairi give us comment, he want to improve our writing. He ask straight to the point question. He ask me to elaborate my point.

So I try to improve my sentence. I don't mind".

"Encik Khairi has more experience in using the language. It is a good way to learn English. When he reply to our writing, he always ask what do you mean. Maybe, he want to see how we manage the sentence".

These comments give the impression that through the teacher's feedback, there was opportunity for 'pushed output' (Swain, 1985) as the students tried to clarify their postings in reaction to the teacher's response. This provided the possibility that students might attend to the syntactic aspect of their posting as they stretched their linguistic capacity to express their ideas more clearly and appropriately, which, once again, has been hypothesized as facilitative of interlanguage development (Swain, 1995).

Another student viewed the on-line interaction discussion forum as providing a suitable platform for students to seek help from the teacher when they faced difficulty with the task or with the use of the language:

"With this on-line task, I can ask the lecturer if I can't understand something or when there is lack of understanding ".

This seems to reflect that through this on-line platform there is opportunity for learners to receive useful input from the teacher in their quest to resolve their lack of understanding either related to language or content.

Another positive remark regarding the teacher's feedback was that it created more awareness in one student of non-target-like forms in her writing:

"I once use a wrong word, 'resemble'. I don't think I know the

mistake if Encik Khairi did not interact with me. After that I correct the word. That help”.

This points to the benefit of this mode of on-line interaction in that it enables the student to ‘notice the gap’ (Schmidt and Frota, 1986). As claimed by this student, the process of interaction with the teacher had triggered an awareness of her incorrect production, leading to modification of her earlier erroneous form.

On a different note, some of the students viewed the on-line task as providing a platform for them to interact with the teacher, which normally would be a rare opportunity in this English classroom of seventy-three students. As one student stated:

“During class time, not all students can interact with the lecturer, especially in a big class. We only meet our lecturer when we have problem like want to know about marks. In this on-line interaction, we can communicate with the lecturer”.

The students’ positive response to the teacher’s feedback suggests that they had a lot to gain from the interaction with the teacher. The feedback encouraged the students to try to improve their non-target-like and problematic forms in their output, making them more aware of the linguistic features in their language production. This medium of interaction thus provides opportunities for improved language output, that aspect of interaction which has been shown to be facilitative of interlanguage development.

c) More exposure to the English language

Students reported that the task provided greater exposure to the English language than ‘normal’ English classroom activities. The task required them to respond to the topic of discussion, read messages posted by their peers, respond to their peers’ postings and also react to the responses made on their postings – all in English. Meeting the requirements of the task meant they had to use a great deal of English, and, further, no other alternative was possible:

“ In normal oral interaction in my English class, I sometime go off to another language. But in this activity, I have no choice. I have to use English”.

In addition, students also perceived that through this on-line interaction they were exposed to the use of a certain vocabulary, phraseology and expression, which they claimed they could learn and later use. Here are some comments made by the students:

“I learn new phrases and expressions when I read other people postings. I can make use of the phrases or expressions in my writing. For example, I learn this phrase, “ Can I chip in”.

“I can learn more when I see other comments or replies. I can improve my writing and grammar skill when I see examples of good sentences”.

“With this task, I can read my friends’ sentences. I can learn difficult words and new words. I can improve my vocabulary by reading my friends’ posting”.

Since this activity was held only one hour per week during class period and was also done as a self-access activity, there was no way of ensuring that the contribution was

made by the students themselves. However, some students claimed that in this type of interaction they could easily consult their peers and the teacher when they had difficulty in using the language. Since they were not required to respond spontaneously to the postings, the task allowed them to discuss with other friends points of concern related to form and meaning. As one student commented:

“For this on-line interaction, I can ask my friends who are more fluent when not sure of the meaning or the right word to use”.

Another observation made by some of the students was that since the task could be conducted as a self-access activity, the use of English was not only confined and restricted to the classroom context. Students reported that this activity provided them with a platform for interaction in English outside the confines of the English classroom, giving them more exposure to English.

Based on the positive responses made by the students, particularly in relation to the abundant opportunities this task has for providing comprehensible input, CMC is obviously a conducive environment for language learning. The students were exposed to new words, phrases and expressions, many of which they could then use in their subsequent writing. They also had more opportunities to engage in discussions with their peers and with the teacher about the task and language-related matters.

d) Fostering student-to-student interaction

The majority of the students also perceived that the on-line interaction task fostered interaction among peers. They claimed that in the normal English classroom context,

there were no genuine opportunities for them to interact in English with one another or with the teacher, except in cases where they had to participate in class activities. Due to the large group of students in the class and the limited time available during class meetings, they hardly had time to get to know one another, let alone to interact. With this on-line activity, students felt that they could get to know more people they would not normally have time to talk to in class. As one student remarked,

“In class, we feel like strangers because difficult to interact with one another. When doing the on-line discussion, we sometime don’t know each other but we are interacting. This activity give us the chance to interact with friends”.

Other comments related to the convenience of the on-line discussion forum as a platform for interaction among peers are as follows:

“It’s very convenient. We can talk to more people and get to know more people”.

“By using this on-line discussion, it make the English subject more fun because it is easy to interact with other people”.

Based on the students’ comments, it would seem that the on-line interaction task was perceived as a suitable platform to foster and promote interaction among students. Further, engaging in interaction also results in students negotiating meaning, testing hypotheses related to their developing interlanguage system and receiving feedback about their output, aspects vital for SLA. It therefore can be deduced that the use of CMC for ECE students is facilitative of their language learning.

e) Ease and convenience of on-line interaction

Another positive observation made by some of the students was that the on-line interaction provided a less stressful environment for them to express their ideas and interact with their friends in English, an opportunity not normally afforded to them in the normal classroom context. Students who were more shy and nervous in face-to-face interaction perceived that they adjusted more favourably to this mode of interaction. Here are some of the positive remarks made by these students:

“Sometimes I feel shy to express my ideas in public. With this on-line interaction, it is easier to express ideas and opinions. I don't mind people read what I have done”.

“I feel less nervous than face-to-face interaction because I don't have to see the person. I can give ideas without feeling ashamed”.

Warschauer (1999) has highlighted the fact that Asian students are more reticent and introverted, which he perceives could be attributed to the culture of their society in which extrovertiness and openness are discouraged. Thus, it could be suggested that the flexibility of on-line discussion reduces some of the constraints suppressing students' participation.

In addition, some students felt that the asynchronous nature of the on-line task imposed less demand on them as compared to spontaneous, face-to-face interaction. The reason given was that they could go at a slower pace with the on-line interaction as they had more time to think before writing and sending off their postings. The following comments by the students seem to illustrate this:

“It is easier to interact on-line because I can think first about the idea

and opinion before I type and respond to the discussion topic”.

“When we do this on-line interaction, we have a lot of time before we give any comment, but when we talk, we must respond quickly”.

“With this on-line task, I can find suitable word to use before posting. I have more time to think. When we talk, we have to think fast”.

Some students also expressed the opinion that this on-line interaction seemed less threatening for those less fluent and lacking proficiency in the language. In traditional classrooms, students who lack the native English fluency, or who are overwhelmed with anxiety and nervousness are less likely to participate in discussion activities. The positive comments regarding the on-line discussion task for this group of students are clearly depicted in the following:

“It is easier to interact in English using on-line discussion because you don't have to worry about people giving you a certain look when you do grammar mistake or when you write badly”.

“With this on-line discussion, we just head to the computer room. We can do it independently. We don't worry about grammar mistake”.

“Anyone can take part in this activity, even if they are not good in English”.

These views are similar to the findings reported by Sullivan and Pratt (1996), Warschauer (1996a), Kelm (1992) and Beauvois (1992), which show that participation in CMC platform is more equitable and less threatening, encouraging more student participation.

f) A platform to express ideas and share insights

The students suggested that the on-line interaction provided a platform for them to express their ideas and viewpoints and share insights with an entire group of students in the ECE on-line community, something not easily available and possible in the normal classroom context. They felt that the ability to give ideas and opinions on the discussion topics and receive feedback and comments from peers were very beneficial for them. For example:

“This discussion forum is very exciting because you can write your opinion and can see the reply on your opinion from the other user”.

“This is something useful for us. We can read postings by friends. We can know other opinion about the topic”.

“We can give opinion in this on-line interaction. Sometimes there is no opportunity during class time to give opinion”.

g) Exposure to the use of technology

Some of the students also commented that the on-line activity had given them the exposure to the use of technology, which they regarded as important for their present academic circumstance as well as their future professional needs. Some of the positive remarks about the benefits of the on-line discussion forum as a medium that promoted the use of technology are as follows:

“This is the way of the future. We need to have the skill to communicate on-line for our future work”.

“With this on-line discussion, I have interaction with the latest technology. It is fast, efficient and silent”.

Some students also gave favourable comments about the use of technology in an English class, which they felt had benefited them in a number of ways - providing a platform for language practice as well as giving exposure to technology use. The following comments were made by the students regarding this:

“This is a very good way. We can improve our English and IT skills”.

“It’s good. We can use the Internet as part of our academic work in English”.

With continuous development in technology use in this high-tech era, this optimistic view points to a positive vision for the marriage between computer technology and language education as one potential approach to facilitate the process of language learning.

h) Exposure to the civil engineering field and insights into the profession

The majority of the students also gave a favourable response regarding the topics of discussion, which they deemed to be beneficial. They claimed that engaging in discussion forums on topics related to the civil engineering field and the profession was useful to them as civil engineering students. This was because it enabled them to gain information and knowledge about their specialized field. For example:

“Thank you for bringing up the on-line discussion. It’s very useful for civil engineering students”.

“It’s great. I like the discussion forum because the topics are very interesting. It’s useful for our future”.

“With the on-line interaction, I gain some information about the civil engineering field and get benefit from the topic we discuss”.

“This on-line discussion can add to my knowledge about civil engineering”.

Exposure to the civil engineering field and insights into the profession can be seen as adhering to the notion of ‘apprenticeship learning’ and ‘legitimate peripheral participation’ as discussed by Lave and Wenger (1991). Through the discussion forum on topics related to the students’ specialized discipline, their entry into the target community is facilitated. Studies using CALL in ESP have also highlighted the benefits that could be derived from exposing students to the real-world disciplinary practice of the target community (Leahy, 1998; Dlaska, 1999).

In addition to the benefits mentioned, some students were of the opinion that the task encouraged them to read more about relevant civil engineering topics. This can be seen in the following comments:

“This task make me to read up more about the civil engineering field and the profession”.

“The task provide the initiative to read more from other sources before giving opinion”.

“I have to read more. Find topics on the Internet and search for information. So, I have point to argue with friends”.

In addition, some students perceived that the on-line discussion task had provided the avenue for them to sharpen their thinking skills and to be more critical in their attempt to justify the stand they took on the issues discussed. This included comments such as:

“This task is good because in discussing the topic, I try to justify my argument and support my points”.

“This on-line interaction gave me a chance to think in many aspects. I have to think of a way how to protect myself (defend my arguments)”.

5.2.2 Negative aspects related to the on-line interaction task

Although the overall impression given by the students in the interview was favourable toward the on-line interaction, in their view, the task was not without its problems and drawbacks. Some of the negative issues regarding the on-line interaction task raised by the students were associated with:

- a) Technical matters with regard to facilities available;
- b) Issues related to the time frame of the task;
- c) Limited topics covered; and
- d) The need for typing skills.

A more detailed explanation and examples are given as follows:

a) Technical matters with regard to facilities available

The limited number of computers available for students' use was one of the most common problems raised. Some of the complaints made by the students are as follows:

“I think there should be more computers. There are many students on campus but only a few hundred computers”.

“The computer labs are full most of the time. It's difficult to do the task”.

For students to reap the full benefit of computer-supported language learning, this issue needs to be addressed by the proper authorities. If the computer facilities were not made sufficiently available for students in the future, it would dampen their initiative and effort to use the computer as a tool for language practice.

Another difficulty that had hampered the students' effort was the limited availability of computers with Internet access. Here are some of the complaints made by students:

"Most of the computers don't have Internet access. This make it difficult to conduct the task".

"It is sometimes difficult to access the on-line task because there is not enough computers with Internet access".

This is an issue that must be addressed if tasks for computer-assisted language learning are to be used in University of Technology Malaysia English classes.

Related to Internet access was the complaint regarding the lack of efficiency of the system. Students complained that the time taken to get connected to the on-line task was, at times, too long. This posed a threat to the students' motivation and initiative, as reflected in the following comment:

"What I like least is sometime it takes too long before I can get connected and join in the on-line discussion. It's a waste of time".

Much faster and more efficient systems would be needed to ensure easier access to the on-line activity.

b) Issues related to the time frame of the task

Some students commented that the time allocated for the implementation of the task was too limited and that more time should be made available. As one student remarked:

"The time is too short. We don't have time to reply. Moreover, there are many students. So we only reply once every two weeks".

More time would require more commitment from the teacher. As one student commented:

“I think the lecturer must spend more time for this activity. It is the one most interesting task to do in the English for civil engineering class”.

c) Limited topics covered

Some students also felt that the topics of discussion should have been changed regularly so that there was a wider range available for discussion. This would also help to alleviate the boredom some students felt:

“New topics should be added every week. We should not discuss the same topic over and over again”.

“I started my own topic because discussing the same topic can be quite boring”

In relation to this last comment, a closer examination revealed that the particular student did indeed initiate a topic, which triggered responses from the rest of the students. The following excerpt is the first posting from that student that achieved this. As can be seen, it involves a topic quite different from the ones assigned by the teacher. Nevertheless, it was relevant and current:

Student: *The current economic crisis has seriously wounded and dampened the nation’s economy progress, especially in the construction sector. Though many still bears hope that the economy will surge up in recent days ... is there really hope for a better tomorrow in this sector? Or is the civil engineering field naturally exposed to the changes of the market force? All opinion regarding the effects of the current crisis on civil engineering are welcome.*

It could thus be seen that this CMC mode of interaction had provided opportunities for students to be engaged in self-generated and self-directed learning, as shown by the

example above. This could be due to the decentralized role of the teacher in the CMC environment (Kern, 1995; Warschauer, 1997), affording more flexibility and initiative on the part of the students in determining their learning goals and direction.

d) The need for typing skills

One issue raised by two students was the fact that this activity posed a problem if a participant lacked typing skills. These students would take a longer time to get their message posted which could be quite frustrating for them. Here are the concerns voiced:

“The person who is slow in typing has problems to take part”.

“What I don't like about this task is that I have to type all the words that I want to write. My spelling in English is not very good and my typing skill is not up to the standard”.

However, this problem seemed to be of a personal nature and not one critical to the long term outcomes of computer-assisted language learning.

5.2.3 Other comments and suggestions for improvement

The students also gave some comments about the on-line interaction task and provided some useful and practical suggestions for improvement of future tasks. The comments and suggestions were related to the following:

- a) Issues pertaining to language proficiency;
- b) Continuation of the task;
- c) Involvement of the civil engineering experts; and
- d) Website links on relevant information.

A more detailed explanation and examples are given below:

a) Issues pertaining to language proficiency

Some students indicated that they were aware of their English language inadequacies, but that they should be explicitly informed by the teacher of their weaknesses in the language. In this way, they could be made more aware of their shortcomings and problems with the language. Some of the comments illustrative of this view are as follows:

“His (The teacher’s) feedback is good. The only thing is that his message is too short. We want to know our weaknesses in our posting. We want to know our mistake”.

“He doesn’t say I’m wrong. He is more like a judge, evaluating what has been written”.

This shows that some students view explicit negative feedback as necessary for them to develop their English language proficiency. When the students were asked how they would feel about being corrected in full view of other students in the class, surprisingly most of them seemed to react positively to this. For example:

“It’s not embarrassing at all. We can know what our weakness and try to improve”.

“We don’t mind. In fact we are thankful that he has read our postings and reply to us”.

This suggests that, contrary to many reports in the literature about ‘saving face’, these learners say they actually welcome explicit negative feedback and the opportunity it affords them to focus on form, which in turn assists their interlanguage development.

Some students suggested that grammar check facilities should be made available for the on-line interaction task. They perceived that such facilities would be useful for them to improve their language output. As one student remarked,

“We make grammatical mistake but we don’t know. There should be a grammar check so that we can check our grammar before posting”.

Another student suggested an alternative solution to overcome the problem:

“We can type in Microsoft Word first and then transfer or copy what we have written and corrected to the on-line bulletin board platform”.

The suggestions given by the students are encouraging and reflect their initiative and effort at producing and ensuring quality language in their writing output.

b) Continuation of the task

Based on the positive remarks about the on-line interaction task, some students suggested that the task should be continued and included as part of the curriculum for English classes at the university. For example:

“The university should fully implement this on-line discussion activity. We can gain a lot of benefits by doing this task”.

“We should have this on-line discussion again. Discussion on-line is important to improve our self-confidence, especially in English”.

“I suggest this task should be continued even after this. It will make us more confident to use English. Practice makes perfect”.

“This on-line communication must be include in the English class. It’s good to have this on-line discussion. Keep it up”.

A continuation of the task would mean that students have more opportunities to use the on-line technological platform for purposes of interaction in English. As noted previously, this would be fortuitous as it provides the necessary conditions for a learning environment that facilitates the process of L2 acquisition.

c) Involvement of the civil engineering experts

Some students suggested that the on-line discussion activity should not be confined to members of the English class, but it should include interactions with civil engineering experts, professionals and lecturers who have more experience and expertise in the field. Their desire to have the input and feedback from the professionals would help facilitate their content knowledge acquisition in the specialized field. Here are some of the comments made by the students:

“The task should be opened to those who have more experience in the civil engineering field”.

“It would be useful to have the involvement of civil engineering professionals and subject lecturers in the discussion”.

Studies on the application of CALL in ESP settings have reported the benefits of involving subject specialists or content experts for teaching purposes (Leahy, 1998; Dlaska, 1999). It would help make the language learning experience more worthwhile, relevant and authentic for students specializing in particular disciplines.

d) Website links on relevant information

A few students suggested that for the on-line discussion task, relevant website links related to the topics of discussion should be provided, which would direct them to relevant reading materials and information available on the Internet. As one student put it:

“For this task, can add a few links related to the topic so that we could read about it”.

This suggestion seemed to be made because of the realization by some students that a good background knowledge and adequate information were necessary before they could actually engage in effective on-line discussion forums. This was due to the fact that students were required to support their arguments and justify their stand taken on the issues discussed. As remarked by one student,

“The topics must be something that the students have some background knowledge so that they can discuss well”.

This seems to suggest that prior preparation may be needed on the part of the teacher to find relevant Internet reading material so that students can be directed to it prior to the task. This may require more collaboration with subject specialists and content lecturers to assist and advise the English language teacher in the best possible way for this to happen.

5.3 The teacher's interview response

The teacher's overall response to the CMC on-line interaction task seems very favourable. He perceived that the on-line discussion was extremely beneficial for

language learning in many ways. The following are some of the positive remarks he made about the on-line discussion forum.

5.3.1 Advantages of the CMC on-line interaction task

The benefits of the on-line discussion task as perceived by the teacher can be categorized into the following:

- a) Maximises learner participation;
- b) Increases learner motivation;
- c) Attention to form;
- d) 'Social activity' for the students; and
- e) Opportunity to view written work of classmates.

A more detailed explanation of the teacher's views on these is presented next.

a) Maximises learner participation

In the teacher's opinion, one of the most obvious advantages of the CMC on-line interaction is that it provided the opportunity for all his students to participate in the activity. As the teacher remarked:

"In a conventional class discussion, especially in a class of about seventy, I would not have been able to get every student to participate actively. The on-line discussion enabled me to get almost full participation from my students".

This is similar to the findings reported in other CMC studies, which have also shown that the use of this medium promotes greater student participation (Kern, 1995; Kelm, 1992; Beauvois, 1992; Warschauer, 1996a; Sullivan and Pratt, 1996). Apart from increased

student participation, the teacher further added that this mode of CMC interaction affords more symmetrical roles for every student in the class:

“Everyone had equal opportunity to voice their opinion, agree and disagree, and influence the flow of the discussion. A few students even started their own topics for discussion”.

Thus, this mode of interaction provides a more balanced opportunity for all students to participate and contribute to the class discussion. This provides more flexibility for students to voice their opinions and express their stand without being interrupted. Students choosing their own topics of discussion was also reported in the students’ interview response. This seems to indicate that the flexibility of this medium of interaction increased learners’ initiative to be engaged in self-generated interaction and learning.

b) Increases learner motivation

Another advantage indicated by the teacher was that the on-line interaction seemed to increase *motivation* among his students. This is one comment made by the teacher related to this:

“My students felt ‘important’ as individuals because everyone felt that they had an equal ‘voice’ in the class activity. They knew that everything that they wrote could be noticed and the weight of their opinion depended not so much on their personality or popularity in class (as could happen in a conventional class), but on the quality of what they wrote”.

This equalizing effect of CMC interaction in bringing about fairness in the exchanges and reducing individual domination of classroom discussion has been reported by Beauvois

and Eledge (1996). Further, the teacher felt that the on-line discussion platform provided a more equitable distribution of attention to the students (Hartman et al., 1991), and this somehow increased learners' self-esteem and motivation. This is what the teacher observed:

"I think my students felt particularly 'important' as individuals when I responded to their postings. They felt 'noticed' by the lecturer. There was an instance when a student posted an entry about 700-800 km away (in Kedah, I think, during the semester break) and I happened to respond immediately. He immediately responded, saying that he was surprised to get such a quick response from me. After that, he approached me quite regularly in class to consult me on many things related to English"

c) Attention to form

The teacher perceived that the on-line platform also provided more opportunities for the learners to practise writing and, in the process, they focused their attention on grammar.

This is what the teacher said:

"It makes the learners pay more attention to how they express their views. I don't have empirical evidence, but I notice that in oral face-to-face interaction, my students tend to speak in rather ungrammatical English (e.g. "Can or not?", "This also canlah", etc.) and yet are able to complete the task assigned to them. I suppose there's no need for them to pay attention to grammar because there's too much shared background knowledge among them and they're among close friends. If they continue this way, I wouldn't be surprised if their language fossilizes. In the on-line discussion, while there were still many grammatical mistakes, the students were more careful with not only what they say, but also how they say it. I suppose the act of writing quite naturally forced them to pay more attention to form. If this practice is continued, I think there will be a positive effect on their grammatical competence".

As reported earlier, students also perceived that they tended to pay closer attention to what they wanted to write, as they were made more aware that there was an audience for

their writing in this on-line interaction. As others could read what they had written on the screen, learners were obliged to put more effort into their writing, paying attention not just to the content of what they were writing, but also to how they expressed it.

Therefore, there is potential for students to improve their grammatical competence by writing in the CMC medium.

d) 'Social activity' for the students

The teacher perceived that this on-line interaction is a good 'social activity' for the learners, especially in a large class with a multi-racial grouping. The CMC on-line discussion activity had somehow broken down the barriers with regard to race, gender and social groupings, and learners were more willing to communicate with everyone, even with those who were not within their social circle. This is what the teacher observed happening in the CMC interaction:

"I noticed quite early in the semester that the students did not really know one another well because they were from different groups/sections in their mainstream course. When asked to work in groups, they had the tendency to work among their small circle of friends and among friends of their own race and gender. The on-line discussion got them to 'socialize' in cyberspace across race and gender and they sent postings to classmates with whom they were not well acquainted".

This is similar to the views expressed by the learners (as noted previously) that this on-line interaction provided more opportunities for them to get to know more people they would not normally have the opportunity to talk to in class.

e) Opportunity to view written work of classmates

Another benefit of the CMC on-line interaction task described by the teacher is that the students could view the written performance of everyone in the class. This is what the teacher said:

“A special feature of the CMC on-line discussion experiment, which I realised as the project progressed, was the opportunity it accorded the learners to view the written work of their classmates. In a conventional writing class, only the teacher gets the (sometimes unpleasant and time-consuming) opportunity to read the written work of each and every student”.

The teacher was of the opinion that this was good for the students because they could compare their performance with that of their friends, drawing inspiration from the better ones and feeling assured that there were others still struggling like them. The learners also expressed the view that they gained benefit from reading their friends' postings as they were exposed to vocabulary use and sentence construction, which they could learn from and later use.

5.3.2 Disadvantages of the on-line discussion forum

There were just two negative aspects of the CMC on-line interaction task expressed by the teacher, which are:

- a) Rules regarding frequency and nature of participation; and
- b) The time-consuming nature of the task.

A more detailed explanation is provided next.

a) Rules regarding the frequency and nature of participation

Since this was the first on-line discussion project for the teacher, he changed the 'rules' regarding the frequency and nature of participation a few times, but he felt that he was not being fair to the students. This is what the teacher said:

"I felt that I was rather unfair to the students. For example, when I realized that the students were sending several postings in one sitting, I told them that in addition to the number of postings, I would also award marks for the number of different sittings the postings were made (to ensure continuous participation throughout the semester)".

Nevertheless, what the teacher tried to do was for the benefit of the students, to help them to participate progressively and not just do everything in one sitting.

b) Time-consuming nature of the task

There were some students who felt that the task was rather time consuming. However, this view is in contrast to the views reported by students' in the interview responses who complained about the limited time available for the task and that more time should be allocated for the implementation of the task.

5.3.3 Usefulness of the on-line interaction task to the teacher in helping students

The teacher highlighted some of the advantages of the CMC on-line interaction for helping the students. These can be categorized as follows:

- a) Providing individualized instruction;
- b) Monitoring the students' progress;
- c) Giving written feedback;
- d) Improving students' language proficiency; and

e) The teacher as a participant in the discussion.

The following provides a more detailed explanation.

a) Providing individualized instruction

The most useful aspect of the on-line interaction perceived by the teacher is that it provided him with a tool to provide individualized instructions to a large class. The teacher had this to say:

“I was able to, in my interaction with the students, ‘talk’ to them as individuals, making them clarify points that were not clear, providing them with language input which I felt they needed and correcting them if I had to. I think I gave them the impression that I knew everyone of them (which I did not, actually) and that I was close to them”

This gives the impression that the teacher paid close attention to the needs of each individual learner with regard to help with the language. This on-line platform could be regarded as a suitable context for the teacher to provide individualized language input and feedback to learners.

b) Monitoring the students’ progress

With this on-line interaction, the teacher felt that it provided him with a suitable platform to monitor the performance and progress of his students more effectively. He could keep track of each individual students’ problems that occurred and handle them accordingly.

The following comment by the teacher reflects this:

“I had, on the computer screen, a constant reminder of my students’ performance. I knew who the weaker ones were, the common language problems they faced and the consistent errors that needed explicit teaching”.

c) Giving written feedback

The teacher also reported that as the written feedback given on the screen could be read by all the students in the group, this would not only benefit the particular student concerned, but others could also learn from it. This is the teacher's comment regarding this:

"It also helped me in giving written feedback that could be read by all my students. In a conventional writing class, the teacher's feedback in a student's exercise book would only be read by one student".

d) Improving students' language proficiency

The teacher also felt that the on-line interaction task has the potential to improve the students' language proficiency, especially in the long run. This was the comment made by the teacher:

"I think language proficiency, especially grammatical competence, develops over time. One semester was just short a period for me to see any noticeable improvement in the students' language proficiency. The quality of the interactive seminar (in terms of content) after the on-line discussion however, seems better than that in the previous years. The on-line discussion must have provided the students with the relevant content for the interactive seminar".

e) The teacher as a participant in the discussion

The teacher also highlighted the fact that for the on-line discussion to be effective and beneficial for language learning, the teacher should always be a participant in the discussion and the students should not be left on their own to do the discussion activity.

This was because:

"Left on their own to interact among themselves without the 'presence' of the teacher, I think the discussion will be similar to the type of oral face-to-face interaction that takes

place in the conventional classroom – learners will focus solely on what to say rather than on how to say it. The on-line discussion reminds the learners that there is an ‘omnipresent’ teacher who, while interested in the content of what they have to say, may also comment on their use of the language. I think this mode of learning is consistent with current thinking in the field of SLA on getting learners to focus on form within a communicative context”.

With the teacher as a participant in the discussion forum, learners would be more aware of the need to focus not just on content, but also on form, as the teacher will be there to monitor their use of the language in expressing their meaning.

5.4 Summary

Based on the perceptions of both the teacher and the students, the interview findings reveal that there are some minor problems with regard to the on-line interaction task, but the benefits seemed to far outweigh the limitations. The findings provide a better understanding of the processes involved in the use of technology in language learning. Most importantly, this platform enables learners to focus on form within a communicative context. Hence, it would seem that CMC provides conditions that are conducive to learning and facilitative of interlanguage development.

In the following chapter, both the findings of the interactional exchanges and the interview will be integrated and discussed in relation to the research questions this study sought to answer.

CHAPTER SIX

Conclusion

6.1 Overview

This chapter presents a summary of the findings from both the interactional exchanges and the interview and a discussion of this in relation to the aim of this research, that is to seek insights into how the use of CMC can help to facilitate and support the language learning process in the ECE learning environment. As shown in the findings, observable features of interaction in both student-to-teacher and student-to-student interactional exchanges were examined for evidence of modified input, modified output, feedback including negotiation for meaning and recasts, noticing, and focus on form – elements regarded as critical for interlanguage development. It is important to consider these variables so that answers can be provided to the question of whether the use of CMC in the ECE learning context provides opportunities that facilitate language acquisition. Since these elements are closely inter-related, they will be discussed integratively. Lastly, the conclusion for this study and directions for future research will be presented.

6.2 Patterns and features of interaction

An analysis of the data showed that the interactions in both student-to-teacher and student-to-student exchanges consisted of twelve distinct patterns. This shows that students interacted in a variety of ways, both with the teacher and with peers (refer 3.6.3). This reflects the dynamic nature of learners' interaction using this CMC on-line medium. The analysis of the interactional patterns provides qualitative input relevant to the

features that were investigated, in particular the modified input, feedback responses and modified output. (These will be discussed in the following section)

Although the patterns of interaction were shown by the analysis to differ significantly between student-to-teacher and student-to-student interactional exchanges, this difference can be attributed to just two of the patterns (see 4.3), where preceding error turns were ignored (which showed a much higher percentage in the student-to-student exchange) and modification of output in response to a recast (which showed a higher percentage in the student-to-teacher exchange).

The quantitative analysis of the interactional exchanges shows a high percentage of non-target-like sequences in the initial response in both contexts, where almost all the initial turn sequences were non-target-like. There was a variety of error types produced by students, ranging from linguistically incorrect forms related to lexis, syntax, morphology, semantics and phonology, to the lack of clarity in the expression of meaning. Although the different types of error reflect students' lack of proficiency in the language, they are indicative of the continuous development of the students' interlanguage systems and their attempts at refining, adjusting and modifying their respective interlanguages in the process of language acquisition.

6.3 Input, output and interactional opportunities

Data from both student-to-teacher and student-to-student interactional exchanges provide direct evidence of the interactional opportunities available in the CMC on-line, and in

turn, these are of a kind that facilitate SLA in the ECE context, in terms of modified input, feedback and modified output. In this thesis, these features were discussed separately for purposes of clarity and convenience. However, it is important to note that input, output and interaction do not exist in isolation but are closely integrated and intertwined. Gass (1997) points out the complex interplay between these elements and asserts that interaction is as much a form of input as it is output. Further, Ellis (1999) states that interactionally modified input and modified output work in tandem, as “one learner’s modified output often works as another learner’s comprehensible input” (p. 14). As such, there is a complex interaction of the different features of the linguistic environment in the process of interlanguage development, all being important variables in the acquisition process.

6.4 Modified input

As shown in the findings, there is ample evidence that this on-line interactional medium provides a suitable context to make input comprehensible to the learners, both syntactically and semantically. Through this on-line platform, learners were provided with opportunities to receive comprehensible input from both the teacher and peers. This, in turn, helped them to resolve their lack of understanding, ranging from non-understanding of single lexical items, phrases and expressions, to a complete breakdown in communication. As shown earlier, opportunities for modified input occurred in various ways including through meaning negotiation among interlocutors, which subsequently triggered learners’ attention to form.

It seems that the non-threatening nature of this asynchronous mode of on-line interaction encourages students to seek assistance from others more competent in the language. As reported by students during the interview, they viewed the on-line discussion forum as providing a suitable platform for them to consult the teacher and peers when they had problems with the task or with language use. There is evidence indicating that students acted as novices, requesting clarification of word meaning and content from others to assist them in the discussion task.

The interview responses seem to indicate that there was less apprehension among students when communicating in this medium than when communicating face-to-face. They appeared to be less affected by constraints such as shyness or nervousness due to their lack of proficiency when interacting in this asynchronous mode of interaction. As such, they could seek assistance without loss of face. As indicated by the teacher, there was a high level of participation in the task, where almost everyone in the class actually participated. Thus, this CMC medium seems to provide a more equitable platform and a less threatening forum for learner interaction and participation (Warschauer, 1996 (a); Sullivan and Pratt, 1996). This mode of interaction also seems to provide ease and convenience for students to negotiate meaning with both the teacher and peers to resolve problems of non-understanding and miscomprehension.

The teacher as the more competent language user clarified input both syntactically and semantically in response to the students' requests. In most cases, the teacher was able to achieve a focus on form whilst maintaining and developing meaning-oriented interaction.

This occurred in two ways, firstly by the students seeking clarification from the teacher and when the teacher took the opportunity to seek clarification from students and/or when he provided recasts of non-target-like form. As such, the teacher helped students develop meaning whilst at the same time providing input about form. As reflected by the teacher in the interview, he was able to make the students clarify points that were not clear, and provide them with language input which they needed.

There was also evidence that interaction among learners provided opportunities for input modification. When faced with difficulty in understanding contributions posted by their peers, learners did not hesitate to seek clarification from them, requesting more explanation and details. In response, learners could be seen modifying input by giving more elaboration to make their input more explicit, which seems to facilitate comprehension and understanding of the input. In addition, there was evidence that this on-line platform provided opportunities for learners to scaffold each other's postings, and clarify input on behalf of peers. This is perhaps due to the flexibility and dynamic nature of this asynchronous mode of on-line interaction. In this medium, the interactional exchanges were not necessarily sequential, and as such, there was a free flowing exchange of ideas, with learners interrupting and clarifying input on behalf of peers. Thus, this platform is a suitable context for learners to receive comprehensible input and to provide modified input to improve comprehension and understanding.

6.5 Feedback

There is ample evidence that this CMC on-line platform is a suitable context for providing feedback, both in the student-to-teacher and student-to-student interactional exchanges. The substantial percentage of feedback provided by both the teacher and peers shows the flexibility and convenience of this asynchronous medium of CMC interaction in providing corrective feedback in response to learners' non-target-like forms. The findings revealed that irrespective of context, form was attended to in the process of clarifying meaning. In giving feedback, the teacher almost always seemed to respond to problems with both form and meaning. However, learners tended to ignore non-target-like form when it did not interfere with meaning. Nevertheless, there was ample evidence to show that learners were capable of providing feedback, especially when miscommunication was the result of problems with form, which had simultaneously impelled learners to negotiate for meaning.

The teacher's remarkable response rate to learners' non-target-like sequences suggests that this CMC on-line interaction is a conducive environment to provide individualized attention to learners' errors - something more difficult for a teacher to handle during oral discussions in a normal classroom activity. Through this asynchronous medium, the teacher could target corrective feedback specifically to an individual learner's problematic form as it appeared in the process of interaction. As can be seen, specific linguistic problems related to morphosyntax, semantics, lexis, pragmatics or phonology could be attended to without disrupting the flow of the interaction. The teacher also mentioned this in the interview, that this on-line interaction provided him with a tool to

provide individualized instruction to a large class. He could monitor the performance and progress of each individual student more effectively.

Data from this study shows that the teacher laboriously provided feedback to draw learners' attention to the non-target-like form in their output. Various strategies were employed by the teacher to induce learners to notice the gap between their incorrect form and more target-like features. The teacher's feedback provided a 'focus on form' whilst maintaining meaningful interaction with the students. Instances of focus on form were thus incidental, triggered by learners' problems with comprehension or production (Long and Robinson, 1998). Both implicit and explicit negative feedback were provided in the context of meaning negotiation, with the interaction focused on promoting meaningful exchanges with the learners in deliberating the issues under discussion.

Data from this study supports the contributive role of implicit negative feedback in facilitating interlanguage development and promoting acquisition (Long, 1996; Mackey and Philp, 1998; Long et al., 1998; Oliver, 1995, 2000). Implicit feedback by the teacher in the form of recasts, for example, provided data about the target language to the learner. The teacher can be seen reformulating the learners' non-target-like sequences by replacing non-target-like lexical items with more suitable ones, and paraphrasing non-target-like output by relocating prior sentence constituents or making structural changes. All these provided linguistic input to learners in the form of target-like restatements of their incorrect sequences. As can be seen, learners did modify their output by

incorporating part of the recasts made or repeating the whole recasts, leading to more target-like form (Refer to 6.6).

The teacher also adopted negotiation strategies in the form of clarification requests and confirmation checks directed to the learners. Clarification requests could be perceived as a way to achieve 'pushed output' (Swain, 1985) because in response to requests for clarification, learners were impelled to improve their interlanguage production to make their meaning easy to understand. This in turn led to improved performance and more accurate production. In contrast, and as found in other studies, when learners were simply provided with the correct model in the form of confirmation checks, they were less likely to attend to form (Pica et al., 1989; Oliver, 1995).

In the case of explicit negative feedback, it could be seen that although the teacher provided this only minimally, learners expressed the need for the teacher to be more explicit in informing them about problems they had with the language. This finding from the interview suggests that students were aware of their shortcomings in using the language, and readily welcomed feedback on form as a means to improve their interlanguage development. However, it is interesting to note that explicit feedback did not result in modified output, which could be attributed to the fact that the overt provision of a target-like model in the explicit feedback did not oblige the learners to provide further modifications or adjustments to their non-target-like sequences.

The benefits derived from the teacher's feedback are further supported by learners' remarks in the interview. They claimed that the teacher's feedback had instigated

noticing, which enabled them to attend to their erroneous form in their interlanguage. The teacher's feedback had thus triggered more awareness of the linguistic features in learners' language production. This seems to indicate that this CMC platform provides a suitable context to focus learners' attention on form in their output.

Learners also reported in the interview that the teacher's feedback had encouraged them to try to improve the non-target-like and problematic form in their writing. This attention to form is similar to findings of studies by Lyster and Ranta (1997) and Lyster (1998), which show that corrective feedback provided by the teacher triggered a revision of learner hypotheses about the target language and fostered self-repair.

The data from this study also reveal that learners provided considerable feedback on their peers' non-target-like output, although not as markedly as the teacher. Although learners' errors related to form were mostly ignored by their peers, there was a substantial amount of lexical, grammatical and morphosyntactic information made available by students to each other. There exists evidence to show that learners did provide implicit negative feedback during the process of meaning negotiation, and this seemed to trigger a focus on form. In addition, and unlike the student-to-teacher interactions, no explicit feedback was provided among peers. However, the teacher rarely provided explicit feedback, instead the teacher's focus was on meaning. However, the learners expressed the need for the teacher to be more explicit in informing them about the problems they had with the language, as reported in the interview responses.

It can be seen that although learners attempted to recast their peers' non-target-like form, the recasts produced by learners lacked sophistication and were less complex when compared to the recasts made by the teacher. The reformulations attempted by learners involved mostly replacements of inappropriate lexical items or grammatical morphemes, and there exist fewer modifications in the form of paraphrasing and restructuring of preceding non-target-like constituents. However, there were modifications and readjustments in terms of lexis, grammar and morphosyntax made by learners to each other. This shows that learners are capable of providing feedback on form.

In the context of meaning negotiation, in most cases, learners used negotiation strategies to develop mutual understanding through requests for clarification and more elaboration and details of content. Learners seemed to be more concerned with the message meaning than in the form of the message. As such, their focus was on the exchange of ideas and insights and deliberation of the issues to justify the stand they had taken. This concentration on content could be the most probable reason as to why learners' attention to form is ignored in most cases.

Moreover, in contrast to the teacher's approach in using a combination of techniques in giving feedback, learners did not do so. For example, learners did not often combine negotiation of meaning with recasts, a strategy frequently used by the teacher. There was also a focus on form in the negotiation of meaning for purposes of message comprehension and understanding.

It could be perceived that the teacher's focus on form is a conscious attempt on his part to provide corrective feedback of learners' non-target-like form through meaning-oriented interaction. It is less obvious in the case of learners whether there is an attempt to focus on form. Even so, data from this study did show that learners have the capacity to focus on form when providing feedback to their peers.

It is worth noting that the findings of this study seem to highlight the potential of content lessons for supporting L2 learning. Pica (2002) has pointed out the difficulty of incorporating form-meaning relationship in an open-ended task such as the one employed in this study. However, the effective use of corrective feedback by the teacher in the on-line discussion showed that opportunities of making form-meaning connections more salient to learners existed in this CMC medium. Most importantly, the teacher's approach at guiding learners to focus on form within meaning-oriented interaction in the discussion task seemed to impact positively on the learners' subsequent output. There is sufficient evidence to show that learners' attention was drawn to linguistic form although the interaction seemed to be focused on the discussion of issues pertaining to the civil engineering field or profession.

This is a useful and relevant approach in an ESP context such as this ECE environment, where discussions on specific subject-matter content are common activities that dominate the discourse of the ESP classroom. The learning activities in this ECE learning environment revolve around topics related to the students' specialized discipline such as civil engineering materials, engineering survey, environmental engineering and so on.

This study shows that CMC interaction involving subject matter content can provide opportunities that are facilitative of second language development in an ESP context.

At the same time, however, this approach calls for a systematic, effective and consistent provision of feedback in interactive tasks by the teacher to promote opportunities for drawing learners' attention to linguistic form. As highlighted by Pica (2002), teachers working in such contexts should be aware of the need to incorporate 'interactive form-focused intervention' that promote opportunities for targeted input, feedback and student production.

Based on the interview responses, students supported the incorporation of subject matter content in an ESP classroom context. Students pointed out the benefits of engaging in discussions on relevant issues related to their specialized discipline, which they claimed enabled them to gain insights into and exposure to the disciplinary practice of civil engineering. This helps to facilitate their entry into the 'discourse community' (Swales, 1990) of civil engineers and justify their 'legitimate peripheral participation' (Lave and Wenger, 1991) in the target community of civil engineers. Moreover, it makes language learning for the ESP students more relevant, meaningful and purposeful.

6.6 Modified output

There is also sufficient evidence that this CMC on-line interaction is a suitable context for modified output, providing learners with opportunities to produce even more quality language. As indicated previously, almost two thirds of the feedback learners received in

both student-to-teacher and student-to-student interactional exchange led to modified output. This shows that the negative feedback provided was usable by learners.

It has been pointed out by Lyster and Ranta (1997) that the effectiveness of different types of feedback is determined by whether or not a feedback technique results in uptake, and if it does, by whether it results in successful repair. In this study, the notion of uptake is reflected in the modifications of output by learners through reformulations of their non-target-like output in response to negotiation strategies, or uptake of recasts in the 'third turn sequence' leading to more target-like production, or by their use of explicit correction.

As can be seen, the provision of implicit feedback appears to trigger noticing of learners' non-target-like output, prompting them to be consciously aware of the deviations in their efforts, leading them to correct their erroneous form. As mentioned earlier, students seemed to support the contributive role of negative feedback based on their interview responses. Corrective feedback in the form of meaning negotiation and recasts mostly led learners to make self-generated repairs and to modify their preceding non-target-like output into more acceptable and target-like form.

It can be seen that comprehensible output in this mode of interaction was more an outcome of linguistic demands placed on the learner by the teacher as well as their peers in the course of negotiated interaction. There is a lot of evidence from the data to show that learners were able to adjust, modify and expand their original contribution when they

responded to negotiation signals from the teacher as well as their peers. As mentioned earlier, negotiation signals in the form of clarification requests seemed to compel learners to modify their output, pushing them toward producing more target-like output. It can be seen that through clarification requests about certain content meaning and through repetition of learners' incorrect forms, the teacher and peers managed to trigger awareness in learners of their non-target-like output, which subsequently prompted them to modify their output towards more target-like form.

Thus, in response to the negotiation signals, learners were not only pushed to make the meaning more comprehensible but they were also able to produce more grammatical forms. This seems to contradict the reservations made regarding the utility of negotiation for meaning in drawing learners' attention to form-meaning relationships (Pica, 1994; 2002). There is sufficient evidence in this study to support the findings of others that opportunities for negotiation of meaning facilitate and optimize opportunities for acquisition.

Data from this study also show that recasts are facilitative of improved performance. There is ample evidence that learners modified their output either by incorporating part of the recast made by both teachers and peers, or repeating the whole recast verbatim, both leading to more target-like output. Studies such as Lyster and Ranta (1997) and Lyster (1998) questioned the beneficial role of recasts for increasing salience and leading to uptake of more target-like output. This was not the case in this study. The findings support the facilitative role of recasts in providing data about the target language. In

response to the recasts made by the teacher and peers, learners were made aware of the problematic form they had used, prompting them to incorporate the correct form either wholly or partially. This had resulted in more target-like production. However, the different context in which this study was conducted should be noted (see Nicholas, Lightbown and Spada, 2001). This context is an adult, ESP, on-line, written, CMC medium. Moreover in this asynchronous CMC medium, time pressure of communication is removed and students thus have more time to plan and edit their response.

In cases where there was no uptake of recasts or modification of output, there were many possible explanations for this. For example, modified output was dependent on the signals given to learners in the feedback response. Learners tended to modify their output most often when the teacher or peers signaled an explicit need for clarification, rather than when a model form was provided for confirmation. Learners might sometimes not incorporate recasts because it was neither necessary nor appropriate for them to do so. Furthermore, learners might not have the capacity to provide another modification due to their lack of proficiency or linguistic ability.

Despite the facilitative role of both negotiation for meaning and recasts in promoting improved performance through focus on form, it is worth mentioning that students' uptake often did not result in wholly accurate form. There were many examples from the data which showed that learners produced forms that still needed repair. As asserted by Doughty and Varela (1998) and Leeman et al. (1995), focus on form might lead to reformulations that reflect enhanced interlanguage development but this might not always

lead to immediate interlanguage accuracy. Although learners produced non-target-like forms, there was evidence of improved performance. This shows that learner's interlanguage development is gradual and progressive, and that learners are continuously refining, readjusting and improving their interlanguage.

Production of more target-like output in this CMC asynchronous mode of interaction is supported by students' interview responses. They stated that this mode of interaction provided them with more time and opportunity to monitor and/or edit their writing before posting it. As such, they were able to repair their errors and improve their language production because they could view their language as they produced it. At the same time, they were able to view the language produced by the teacher and their peers. The production of more target-like output is reflected in some of the data which showed instances of self-generated repairs in response to clarification requests. For example, learners were capable of replacing preceding non-target-like lexical items and morphosyntactic structures with more target-like and appropriate ones. In addition, learners were capable of self-correcting forms which had previously been mistakes in their output to make them more target-like forms.

In their interaction with the teacher especially, learners were more likely to 'notice the gap' because on most occasions, the teacher provided feedback in the form of recasts, which constituted reformulations of learners' preceding non-target-like output. Thus, the flexibility of this asynchronous medium of interaction allows learners to reflect on what they have written and focus their attention not just on content, but also form. Moreover,

with this on-line interaction, learners were made more aware of the fact that there was an audience for their writing, and this encouraged them to put more thought and effort into it.

It is important to note, however, that the process of language acquisition is complex and intricate. Various researchers have cautioned that although production or output may demonstrate that learners have incorporated target forms and produced more target-like output, it is not necessarily a reliable indicator that feedback has had a positive effect on interlanguage development, or that learners have actually acquired or internalized a particular form into their interlanguage (Mackey and Philp, 1998; Lyster and Ranta, 1997). It would be inappropriate to base evidence of L2 learning solely on learners' immediate response to corrective feedback.

Further, Doughty and Williams (1998) have cautioned that the effects of corrective feedback are 'gradual and cumulative' rather than 'instantaneous and categorical' (p. 40). As such, there is a need for more longitudinal studies to capture the intricacies and complexities involved in the relationship between types of feedback, modified output and interlanguage development. As noted by the teacher in the interview, grammatical competence develops over time and the duration of one semester was too short a period to notice any significant improvement in the students' performance.

Despite these important issues, as indicated, the fact that the learners did adjust and modify their output in response to feedback suggests that they have made some use of

that which was given. Although learners' immediate incorporation of recasts and production of modified output may not be a just indicator of the long term effects of negative feedback, there is evidence showing that the provision of feedback prompted learners to modify their output toward a more target-like form which could be facilitative of interlanguage development, at least in the short term, which might ultimately lead to acquisition.

6.7 Conclusion

This study set out to investigate an important concern in the adoption of technology in language teaching and learning, in particular the use of CMC to support the language learning process. Since the use of CMC is gaining popularity as a medium for communicative practices in the language classroom, this study contributes toward a better understanding of the opportunities available if language teachers do use this medium.

This study has shown that the use of on-line written interaction in CMC provides opportunities for improved language output. Thus, language instructors should be encouraged to use the CMC platform not merely as a tool for language practice but also because feedback can be provided to improve learners' language performance.

Data from the student-to-teacher interactional exchange show that the teacher, as the more competent language user, was an active provider of target-like input and feedback to the learner. The teacher's continuous effort at providing negative feedback in response to learners' errors provided opportunities for learners to attend to form in a more

consistent and effective manner. As such, learners were prompted to ‘notice the gap’ between their interlanguage production and the target-like form, and this in turn prompted learners to produce more target-like and quality output.

The findings from the student-to-teacher interactional data imply that the teacher’s role is an important variable in the CMC on-line interaction. The positive results of the study were directly related to the commitment and effective role of the teacher. The significance of the teacher’s role in CMC for facilitating language learning calls for appropriate training of teachers to fulfil this role so that effective, appropriate and timely feedback can be provided to learners during on-line interaction activities. It is only to this extent that teachers respond in similar ways to their students work, that results are generalisable.

Data from student-to-student interactional exchanges reveal that learners were increasingly becoming language resources for each other in this ECE context (Pica et al., 1996). Although they did not provide the same quality and quantity of modified input and feedback to their peers as did the teacher to the students, there was evidence they provided linguistic and grammatical information to their peers.

From this study, it can be concluded that the CMC on-line interaction provided learners with opportunities for comprehensible input and comprehensible output, and to have access to feedback related to their attempts – all factors considered facilitative of interlanguage development and conducive to language acquisition. CMC interaction in

the ECE context is perceived as a beneficial and non-threatening platform for learners to practise language to produce more target-like form and to focus on form. Therefore, this study supports the notion that CMC can foster interlanguage development for ECE students.

6.8 Directions for future research

As this was a descriptive study with no learning measures, no learning development could be claimed. However, the results indicate that CMC is a valuable type of interaction, and there is clear and ample evidence that opportunities for modified input, feedback and modified output, which are integral to second language acquisition, exist. Future studies should therefore explore the role of input, output and feedback in terms of actual development and internalization of L2 knowledge. As such, there should be attempts to include learning measures which can support the claim that the interactional features that exist do lead to acquisition and language development. Subsequent studies could trace the path from L2 forms contained in input, through to the process of feedback, to measures of intake, and finally to the acquisition of the target language forms.

Future research could also make a comparison between CMC written interaction and oral interaction in terms of recasts, negotiation for meaning and other features of negative feedback. For example, research could reflect on the extent to which recasts, negotiation moves and other features of negative feedback in CMC writing are fulfilling the same function or are beneficial for the same reasons as oral interaction. Future research could also examine the differences of the CMC medium as compared to the oral mode in terms

of the processing constraints posed on learners. What can be examined is whether recasts, negotiation moves and other features of feedback function in the same way under these different conditions.

Another area of research worth examining is which types of error are treated through interactional modifications and what kinds of form tend to receive the most feedback in this CMC platform. This will provide some insights for pedagogy.

Future research may also need to turn to a more long-term approach to see the impact of input, feedback and output over time and not just from data collected on a single research session. In addition, future research could also explore the exact conditions under which input, feedback and output are likely to be effective in L2 acquisition in the CMC environment.

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APPENDIX A

English for Civil Engineering
On-line discussion forum
Task sheet

Task

Using the on-line bulletin board discussion forum, each one of you will be assigned by the English language lecturer to deliberate and give your views on one of the following topics/issues:

1. The civil engineering profession is essentially a male domain
2. Foreign consultants should not be engaged in civil engineering projects in Malaysia
3. Civil engineers should bear responsibility for poor work quality in civil engineering construction
4. Civil engineering graduates should have at least six years of working experience before they can sit for the professional examination
5. The training given to civil engineering undergraduates should be more practical rather than theoretical
6. Civil engineers should take responsibility for the degradation of the environment resulting from civil engineering works

Task requirement

Before implementing the task, each participant is required to read relevant articles from books, journals, magazines and newspapers on any social, economic and environmental issues related to the civil engineering field and profession.

Task 1

Each participant is required to:

1. Reply to one of the issues on the civil engineering field and profession posted on the on-line bulletin board assigned to you by the teacher.

2. Respond to the feedback given by the teacher once a response has been made to your initial posting on the topic.

Task 2

Each participant is required to:

1. Read the postings made by the other participants on other issues posted on the bulletin board.
2. Respond to at least one of the issues based on the postings you have read earlier.
3. React to any of the feedback made by the other participants on your initial response to the topic.

APPENDIX B

Patterns of interactional exchanges

PATTERN 1

Non-target-like > Recast > Modification of output

Student-to-teacher interaction

Lee Chun Pang
Registered User

Re: Training given should be more practical than theoretical

In my opinion, training is quite important to students because it expose students to the real life of an engineer. Through training, students can see what they are going to do when they become a real engineer.

Training is also more interesting than theoretical because we can tried out what we have learned in theoretical. However, training must be balanced by theoretical learning to build up a good engineer.

From Chun Pang

Khairi
Manager

Re: Training given should be more practical than theoretical

Lee Chun Pang,

If you have to allocate a certain percentage of time to practical training and theoretical knowledge, how much time would you allocate to both? 60 % to practical training and 40 % to theory?

Khairi Izwan Abdullah

Lee Chun Pang
Registered User

Re: Training given should be more practical than theoretical

Reply to

PM Khairi,

If I would allocate a certain percentage of time to practical training and theoretical knowledge, I would allocate 40% for practical training and 60% theoretical knowledge.

Although I've said that "practical training is also more interesting than theoretical " it doesn't means that we can be good engineer only if we had a lot of practical training. If we don't have enough theoretical knowledge, practical training is meaningless.

That's why I would allocate slightly more percentage of time for theoretical knowledge.

Chun Pang

PATTERN 1

Non-target-like > Recast > Modification of output

Student-to-student interaction

Foong Boon Sheng
Registered User

Working experience prior to professional examination

To: Lee Siong Wee

For those who have confident and capable enough can apply for the professional examination. The approval of to become a professional engineer depend to the Director of the Professional Board. They will decide whether can approve a member to become IR or not.

From this statement, we can see that the P.E. examination is very professional. And of course if he/she past the exam, for sure they are qualified to become a Professional Engineer.

So we no need to fix ourselves to work at least six years before we can take the P.E. examination.

Thank you.

Foong Boon Sheng

Lee Siong Wee
Registered User

Re: Working experience prior to professional examination

Dear Foong,

Maybe you have your own thinking, but I strongly feel that if a person can pass his P.E. exam and qualify to be an engineer with his ability (but working experience less than 5 or 6 years), he is still not a very professional engineer.

I think he or she can pass the exam maybe buy some skills and after he obtain an IR, his or her lesser working experience make him still fresh in some situations during his duties as a professional engineer.

So, again I think it is important to fix at least six years of working experience as one of the requirements to become a Professional Engineer.

From: Lee Siong Wee

Foong Boon Sheng
Registered User

Working experience prior to professional examination

To: Lee Siong Wee

Again, thanks for your respond and comment.

You said that if he/she can pass the P.E. exam and qualify to be an engineer in the period less than five or six years but they are still not a very professional engineers.

With this statement, let me ask you some questions. Do you think that a professional engineer is very tough in every field? I mean do you think that a PE in civil and structural also tough in Geotechnical or highway? Of course not! They will major in some field where they are interest in.

If you also say that maybe they pass the exam because of the skill but still fresh in some situations in their duties. I'm sure that even a professional engineer will also face some problem that they can't solve it.

So in my opinion, the Board of Director in IEM or BEM will decide whether he/she can become an Ir. depends on their performance. It is not necessary to fix the basic requirement of six years working experience before they can sit for the exam.

Thank you.

PATTERN 2

Non-target-like > Recast > Ignore Feedback

Student-to-teacher interaction

Roslan 82
Member

Re: Work quality in civil engineering construction

To Mashamzah,

I agree with you. Civil engineers should bear responsibility for poor work quality in civil engineering construction. Moreover, everybody have to responsible for what they have done. So they are civil engineers have responsibility for their work in civil engineering construction because civil engineers manage the flow of works at the sites.

Roslan b Pilus.

Khairi
Manager

Re: Work quality in civil engineering construction

Roslan,

You wrote: "...everybody have to responsible for what they have done."

If everyone has to be responsible for what he or she has done, don't you think that contractors and labourers too should share the blame for poor quality work in civil engineering?

Khairi Izwan Abdullah

Roslan 82
Member

Re: Work quality in civil engineering construction

To PM Khairi,

Sorry for reply your message late. Okay, my statement is everybody have to responsible for what they have done. So if we just simply blame civil engineers for the poor work quality, it is unfair because civil engineers do not involve in every part during the construction period. I think the consultant, contractor, labourers, and even architects also must responsibility for poor work quality in that project. Everyone is playing a different role during the construction period. So, we cannot just simply blame civil engineers for the poor work quality.

Roslan b. Pilus.

PATTERN 2

Non-target-like > Recast > Ignore Feedback

Student-to-student interaction

Denis Kong Peng Lung
Member

Re: The civil engineering profession is a male domain

To PM Khairi,

Generally, female engineer is more sensitive than male engineer in handling their work and also more careful with their decision at work. We could also find that they are more calm when facing problem.

In a company also, it is better if female and male could work together in some projects because their thinking are different.

Besides that, female is also more rational than male in some cases but not all.

In conclusion, female is needed in civil engineering field.

From Denis Kong Peng Lung

Dievi Janet Bilin
Member

Denis Kong,

I do agree regarding your statement that female engineers are more careful with their decision at work. Females are very particular about small matters, which leads to perfection in their works. They usually want the job to be well done. Therefore I agree that females are needed in civil engineering field. Thank you.

Dievi Janet Bilin

Denis Kong Peng Lung
Member

Re: The civil engineering profession is a male domain

To Dievi Janet Bilin

Thank you for your supporting on my statements. Thank you very much.

Denis Kong

PATTERN 3

Non-Target-like > Recast > Zero Response

Student-to-teacher interaction

Eka kusmawati
Suparmanto
Registered user

Re: The civil engineering profession is a male domain

As we know a man is the people who conquer in civil engineering industry. Regarding the statements above, I disagree of this topic. It is because now a days there are a lot of student in civil engineering course are woman. It was the same situation in construction site which is most of the engineer are woman. Although in our thinking that being civil engineer is suitable for man, it doesn't mean a woman can't do that. Meaning woman also can do or work as well as well as what man can do. We also know that woman not only can work in office as secretary, accountant or others. We must change our thinking for it. As the conclusion, the civil engineering profession is not only for male domain.

Eka Kusmawati

Khairi
Manager

Re: The civil engineering profession is a male domain

Eka,

You wrote:

" As we know a man is the people who conquer in civil engineering industry" and yet you said,

" It is because now a days there are a lot of student in civil engineering course are woman. It was the same situation in construction site which is most of the engineer are women".

What do you mean by the above? Are you saying that men are dominating the civil engineering industry? If so, why do you at the same time say that most engineers are women?

Khairi Izwan Abdullah.

PATTERN 3

Non-Target-like > Recast > Zero Response

Student-to-student interaction

Hazrul Aizat
Member*Work quality in civil engineering construction*

In my opinion, we as a civil engineer should take any responsibility in any kind of construction that we do. If the construction work is poor that is our false. Why? This is because we as engineer should always survey our construction quality in a site. Not just depant from what our worker report to us. This were not an attitude of an engineer. We must always at the site project to survey the quality of the construction. It is because when the project has done, it will be use by people. When the quality not well care it will collapse many life were in danger and maybe some of them will die.

*Hazrul*Dievi Janet Bilin
Member*Hazrul,*

In your statement, you wrote 'if the construction work is poor that is our fault. I totally disagree that civil engineer should be totally blame for any poor quality of construction work. You mentioned that poor quality of work might lead to collapsing of the structure build, but natural disasters such as earthquake can also cause the same effect. Civil engineers could have done their responsibility in designing the structure based on the earthquake impact, but there is always a possibility that a greater earthquake might occurred and the structure will collapse. Due to this reason do you think that the civil engineer should still be blamed?

*Thank you,**Dievi Janet Bilin*

PATTERN 4

Non-Target-like > Negotiation for meaning > Modification of output
 Student-to-teacher interaction

Lim Chee Yong
 Member

Re: Training given should be more practical than theoretical

I agree that "Training given should be more practical than theoretical ". When we are in university, we are learn so much about theoretical subject from lecturer. Some time we are no so clearly and don't know whether some theory are useful or not. Maybe after we graduate, we don't know how to apply that theory in our work. So from the practical, we can apply that theory in reality world. We will more clearly about what we learn from our university.

Khairi
 Manager

Lim Chee Yong

Re: Training given should be more practical than theoretical

Lim Chee Yong,

You wrote:

"Sometime we are no so clearly and don't know whether some theory are useful or not. Maybe after we graduate, we don't know how to apply that theory in our work. So from the practical, we can apply that theory in reality world. We will more clearly about what we learn from our university."

Please clarify what you mean by the above.

Khairi Izwan Abdullah

Lim Chee Yong
 Member

Re: Training given should be more practical than the theoretical

Reply to PM Khairi:

Theory and real situation are two different things. For example, maybe we learn from theory $x=a+b+c$, but in real situation, we have to consider many things. Sometime for special case, we can no follow that theory to design. We need to learn from someone that have a lot of experience to solve it.

When we do the practical at outside, we will try to apply that theory in our works. Further more, we will learn something new from our practical place. After we go back study from practical, we will more clearly about what we learn from our university.

From:

Lim Chee Yong.

PATTERN 4

Non-Target-like > Negotiation for meaning > Modification of output
 Student-to-student interaction

ChiamKieng Sueng *Re: The degradation of the environment*
 Member *To Chai Tzer Luen*

I agree with your statement because to save the environment is every human's responsibility and not just civil engineer's problem. As Benny Lau said the degradation of environment cause by human activities. Nowaday, the pollution problem become very serious, so as a civil engineer and human, certainly we must avoid pollute the environment by make cooperation each others to save our environment.

Chiam Kieng Sueng

Chai Tzer Luen *Re: The degradation of the environment*
 Member

To: Chiam Kieng Sueng

Can you tell me how to avoid pollute the environment by make cooperation each others? What you mean each other?

From: Chai Tzer Luen

ChiamKieng Sueng *Re: The degradation of the environment*
 Member

To Chai Tzer Luen,

The meaning is each other should take responsibility for their actions. For example, people should keep the environment always clean. It means that everyone should cooperate to maintain a better environment. It is everybody's responsibility to keep the environment clean. It can be considered as a type of cooperation too. Are you clear? Thank you.

Chiam Kieng Sueng

PATTERN 5

Non-Target-like > Negotiation for meaning > Ignore Feedback
Student-to-teacher interaction

Mohd Aqsha bin Mohd
Othman
Member

Re: Training given should be more practical than theoretical
I agree with this topic. Training should be more practical because in class, we just attending for lecturer in theoretical. Practical is a good way to show what will we do after graduated. Practical also can give an experience how to manage the engineer job.

However, theoretical is also important in training. Maybe we only study a basic, that why we must learn theoretical in training besides practical.

Mohd Aqsha

Khairi
Manager

Re: Training given should be more practical than theoretical

Mohd aqsha,

You wrote:

"Maybe we only study a basic, that why we must learn theoretical in training besides practical."

What do you mean by 'study a basic'. Do you mean equipping oneself with the basic knowledge of civil engineering?

Please also clarify what you mean by "we must learn theoretical in training besides practical".

Khairi Izwan

Mohd Aqsha bin Mohd
Othman
Member

Re: Training given should be more practical than theoretical
To PM Khairi

Thank you for respond...

I am sorry because can't explain to you clearly but I try to give you some example.

In civil engineering, we have an option subject. If I choose a structure subject for my option, I also must learn a basic about hidrology. In training, sometimes we must do the hidrology job if we can't find a structure job.

In this case, we must learn the theoretical in training besides practical.

Mohd Aqsha

PATTERN 6

Non-Target-like > Negotiation for meaning > No opportunity

Student-to-student interaction

Jarrold Ting
Registered user

Re: The civil engineering profession is a male domain

Well, this profession is not necessary suitable for males only. Actually, I think that it actually depends on the engineer himself or herself. If the engineer is a strong hearted and dedicated one, I can see that he or she will overcome whatever obstacle which is in the way. However, it is undeniable that male engineers have slight advantage in physical being than females. But this does not mean that male engineers will be better engineers than the female engineers.

Ng Chee Hooi
Member

*Re: The civil engineering profession is a male domain
To Jarrod Ting*

I agree with you that females also suitable to work in civil engineering. But I don't understand what you mean " however, it is undeniable that male engineers have slight advantage in physical being than females. But this does not mean that male engineers will be better engineers than the female engineers." So, can you tell me what you want to say about males.

From: Chee hooi

Loo Chang Soon
Member

Re: The civil engineering profession is a male domain

to Chee Hooi

Sorry for disturbing. I think what Jarrod means by "male having their slight advantage in physical being than females" is actually said that when something heavy very intensely work that want civil engineer to do, surely female engineer have not enough 'strong' to do this kind of work....

....But, what I want to emphasize here is why do you think that female civil engineer can also done it perfectly if they employ many subcontractor or work of clerk....(male)..???

Think about it...!!

Thank you.

Loo Chang Soon

PATTERN 7

Non-Target-like > Negotiation for meaning > Zero response

Student-to-teacher interaction

Eka Kusmawati
Suparmanto
Registered user

Work quality in civil engineering construction

Mashamzah,

Being a civil engineer at a construction site is not easy work. The engineer must bear responsibility for poor work quality in a site. They must make sure the safety of the site worker. They also must always look out for their project to know whether the project is in a good or not as a plan. Work quality is important in order to project will succeed. So that, it is very important to have a quality when working in civil engineering construction.

Eka Kusmawati

Khairi
Manager

Re: Work quality in civil engineering construction

Eka,

You're the first to deliberate on this topic. Well done.

You wrote:

"They also must always look out for their project to know whether the project is in a good or not as a plan."

Can you clarify what you mean by the above?

Khairi Izwan Abdullah

PATTERN 7

Non-Target-like > Negotiation for meaning > Zero response

Student-to-student interaction

Norhaliza binti Nordin
Registered User

Re: Training given should be more practical than theoretical

I agree with this statement. The training given to undergraduates should be more practical than theoretical. The undergraduates are given chances to practice what they have learned in the University. This will help them to understand the theory and they will know how to use it. With the practical the undergraduates will be face to the real world easily because they know more in civil engineering. Not only that, undergraduates can learn through practical training which will help them to conduct any project.

Denis Kong

Denis Kong Peng Lung
Member

Re: Training given should be more practical than theoretical

To Norhaliza binti Nordin,

Actually what you had said to PM Khairi is a good opinion. But can you express more details about 'undergraduates can learn through practical training which will help them to conduct any project.' I just want to know more information about it. Thank you.

Denis Kong

PATTERN 8

Non-Target-like > Explicit negative feedback > Ignore feedback
 Student-to-teacher interaction

Ting Chiong Ming
 Member

Re: The degradation of the environment
 I'm not agreeing with this statement. Of course civil engineers should take responsibility for the degradation of the environment. But, can I say that civil engineers are just a part of them that should take responsibility, is that more correct?
 Can somebody tell me that a country can be developing without civil engineering works? I'm very sure that there are more jobless person in our country.....why I say that? Okay, let me give you some example. Without road and highway, the product of car will be decrease and following that the job of mechanical engineers will be decrease. Without a building construction, there are more unemployed architects and electrical engineers. Without an airport, what are the use of aeroplane? And following by many aeronautic engineers, pilots, air steward and air stewardess will lose their job. Are the people whom I mentioned above don't want civil engineering become more active?
 Besides, can your people imaging that what respond by the people in our country if there are no bridge, no highway, no skyscrapers, no building, no dam.....do you feel so uncomfortable?
 Finally, I just want to tell you that civil engineering works are just fulfill the necessarily of human being in the world. So, all the human being in the world should take responsibility for degradation of the environment and not just civil engineers.
 Ting Chiong Ming

Khairi
 Manager

Re: The degradation of the environment
 Ting Chiong Ming
 You wrote:
 "I'm not agreeing with this statement...Finally, I just want to tell you all that civil engineering works are just fulfill the necessarily of human being in the world. So, all the human being in the world should take responsibility for degradation of the environment and not just civil engineers."
 Firstly, remember our joke on "I'm not agree" in class? You should say "I DO NOT agree", otherwise, I'll call you "Mr. not agreeing"!
 Back to the topic under discussion. I agree with you that civil engineering works are initiated to fulfill the needs of human beings in this world. But the issue is, shouldn't civil engineers take responsibility for the degradation of the environment since they are the ones in charge of all construction projects?
 Khairi Izwan Abdullah

Ting Chiong Ming
 Member

Re: The degradation of the environment
 To: PM Khairi

Thanks for correct my grammar mistake, and also thank you for giving me a new name " Mr. not agreeing", but I prefer "Mr. agree" this name, ha ha...just kidding.
 Dr, actually in my first comment about the "Degradation of the environment" already mentioned that civil engineers should take responsibility for the degradation of the environment but not the main people who should be blamed.
 From: Ting Chiong Ming

PATTERN 9

Non-Target-like > Explicit negative feedback > Zero response

Student-to-teacher interaction

Benny Lau 27 Member
 Re: Reply to PM Khairi

To PM Khairi

Thank you for your "fast" mail. I really surprise I can get the respond from you in a short time.

Actually, I have mentioned that "if we have a dream to do well in this field, no wonder who we are, a man or a woman, we surely can do it". I believe that those one no wonder a man or a woman surely can domain that field.

Although it is a fact that, nowadays there are still lots of civil engineer is man but it doesn't mean that a man can domain the civil field. Am I right? If you say there are a lot of civil engineer is a man, so why I can't say a man is the domain of civil field. However, that is only a "quantity domain", do you agree with this statement? But, that doesn't mean a woman cannot domain this field with "quantity" for the other day....am I right?

Actually, we should look for the "quality" of a people. Those who are capability and confident, those who can domain that field that he or she can involved, am I right...?

It is no point to say "Men are the domain of civil engineering field". I only can say that "a man still domain the "quantity" of civil field" but not "a man is the domain of civil field". Do you agree with this statement.....?

From:

Lau Eng Kee

Khairi
 Manager

Re: Reply to PM Khairi
 Lau Eng Kee,

You have been participating actively in this discussion. Well done and keep it up. Just a point on language use. You wrote:

- 1) *"If we have a dream to do well in this field, no wonder a man or women surely can DOMAIN that field."*
- 2) *"... it doesn't mean that a man can DOMAIN the civil field,"*
- 3) *"Those who are capability and confident, those who can DOMAIN that field that he or she involved,"*

The correct word to use is DOMINATE. This seems to be a common error among students, so I hope the others reading this message will take note of the feedback as well.

The correct use of the word is as follows:

- 1) *If we have the determination to do well in this field, we will be able to DOMINATE the field, regardless of whether...*
- 2) *... it doesn't mean that a male can DOMINATE the field...*
- 3) *Those who are capable and confident will DOMINATE the field they are involved in.*

Khairi Izwan Abdullah

PATTERN 10
 Non-target-like > Ignore error > Self-correct
 Student-to-student interaction

Lee Chun Pang
 Member

The civil engineering profession is a male domain

I don't agree with this topic. Nowadays both male and female have the equal opportunity in the engineering field. Female civil engineers have proven that they can also construct buildings, highways and bridges which are as good as those constructed by male civil engineers.

Although male civil engineers outnumber female civil engineers in our country, it does not mean that male engineers have dominated this engineering field. The reason why the number of female are less in this field is most probably because they have an idea that civil engineers needs a lot of strength and stamina. I know that in some situation, strength and stamina are needed but I'm sure that with proper training and experience, female engineers can also handle this kind of situation.

Lee Chun Pang

Ting Chiong Ming
 Member

The civil engineering profession is a male domain

To: Lee Chun Pang

I reply what you wrote at 17/01/02. Maybe you are right, you said that female can also handle this job well and construct buildings, highways and bridges which are as good as those constructed by male civil engineers. But, can you please refer to the main title "The civil engineering profession is a male domain". You just mean that female can do well in this field, and the title also does not deny the female capability in this job.

The reality is man still dominate in civil engineering field.

From: Ting Chiong Ming

Lee Chun Pang
 Member

The civil engineering profession is a male domain

To my dear friend Ting Chiong Ming,

You have said that in my posting on 17/01/02, I only proved that female can do well in this field. You also said that "The reality is man still dominate in civil engineering field"

It's true that I was proving female engineers is capable to do well in this field. This is because in my opinion, female engineers surely have chance to compete with man in this challenging field. Anybody, no matter men or women have their equal opportunity and chances to succeed in this field. That's why I think civil engineering is not male domination.

I agree with you that in present, civil engineering field is being dominated by male, but what I would like to emphasize here is that this domination is only based on the number of male engineers against the number of female engineers. Although male engineers outnumber female engineers, that does not mean that male has larger opportunity in this field while female have less... so I still strongly disagree with the topic "The civil engineering field is a male domain".

Lee Chun Pang

From: Lee Chun Pang

PATTERN 11

Non-target-like > Ignore error > Continue

Student-to-teacher interaction

Navanitha Krishnan *Re: Engagement of foreign consultants*
Member

Yu Kok Loon

You mentioned that we should give chances to Malaysians...getting consultancy from the foreigners doesn't mean that we are handing over the whole project to their hands... we are simply seeking their help to give us some advises on how to carry out certain projects in the best way. Then why should we get so emotional and start saying that we can live without the foreigners and we should grab the chances and never to seek their help. You did mention that employers employ the foreigners because they are more confident on them. Maybe... I don't know! What I think is that they simply do this because employers just want to make their projects the best with the best technology and since we have to agree that we are still lacking with the technology we surely need help from those who have it. Instead of saying we shouldn't seek their help why don't we say let's work together with them for a better tomorrow!!

Navanitha Krishnan

Khairi
Manager

Re: Engagement of foreign consultants

Navanitha,

I see your point, but what do you think of the argument that when we engage foreign consultants, we are depriving our local engineers the opportunity to develop their expertise?

Khairi Izwan Abdullah

Navanitha Krishnan *Re: Engagement of foreign consultants*
Member

I don't agree with that Mr Khairi!

What I meant is that we are seeking for help from the foreigners to improve on our technology and this is certainly not going to deprive our local engineers opportunities, infact this will help to create more creative engineers in the country. We will be exposed to the outside technology and this will have effects on our work quality here in Malaysia.

As I mentioned before we are just seeking for consultancy, it's not that we are handing over our projects to them. We still need our local engineers to show their expertise on certain projects. To become an expert we have to be expert. We can't do that by not absorbing the foreigners technology because to come up with our own technology it will take time and if we don't move now we will be left behind!!

Navinatha Krishnan

PATTERN 11

Non-target-like > Ignore error > Continue

Student-to-student interaction

Yinfen
Member

Re: Working experience prior to professional examination

Dear PM Khairi,

I would like to respond to the above topic. In my opinion, I feel the period of six years of working experience for the civil engineering graduates before they can sit for their professional examination is too long. I agree working experience is important but I feel 2-3 years of working experience is sufficient enough as a prior requisite to take the professional examination. As we know, we are now living in a "high-tech" era. The world is dynamic and fast changing. Globalisation has enabled us to obtain information easily by a click of fingers. If we need at least six years of working experience, everything has change again, and the information might have become obsolete. So, why do we need such a long period of time? Don't you think 2-3 years is a more suitable and reasonable period to acquire the recognition? To put it in a nutshell, I will say that the process to obtain this honourable acquisition should be a means and not an end! Thank you.

Liew Yin Fen

Shiauboon
Member

Re: Working experience prior to professional examination

To: Miss Liew Yin Fen:

I disagree with what you had said. Do you think an engineer could clearly understanding what she/she learned in these few years space (2-3 years)? Don't you think that they still lack of experience and confidence? If so, they still not qualify to sit for the professional examination, am I right? Thank you.

Fong Shiau Ween

Yinfen
Member

Re: Working experience prior to professional examination

Shiau Boon,

Yes, a few more years of experience won't do any harm to ensure the quality of civil engineering projects. But if a person really capable and have confident to do his/her job well, should we still want to force he/she to wait until six years to sit for the examination? If his/her performance is really good, why don't we give him/her a chance to contribute his/her knowledge? It is good for our country development, isn't it?

From: Liew Yin Fen

PATTERN 12
 Targetlike > Continue > Continue
 Student-to-student interaction

Navanitha Krishnan
 Member

Re: Engagement of foreign consultants

Why not!!!. We are a developing country. We need help from the outside to develop the country. I don't see the point why we shouldn't have foreign consultants in Malaysia. I just feel that we still don't have the technology yet to be on our own. We can learn a lot from the foreign consultants and this can help us to improve in our management and our technology. It's not that I think Malaysians are not capable of carrying out a project without consulting foreigners. It's just that there is no harm in learning from the professionals and there is no damage done!

Nur Azwani
 Member

Re: Engagement of foreign consultants

Navinatha Krishnan,

I disagree with you. It's true that we need help from the outside to develop the country. But I think there's better way to learn. Why do you think the government keep sending our engineers or student overseas? To learn, right? Don't you think that's enough? You said there's no harm in having foreign consultants working in our country but I think you are only seeing this matter on one side. The money that will be used to pay the foreign consultants will effect our economy.

The government is trying to decrease the amount of our money from flowing outside the country. I think by hiring the foreign consultants that demanded high payment would make this matter worse. Plus, don't you want to give your chance to work in big firm when you are graduated? Or you are too kind to let the chance pass to the foreign consultants instead...

Nur Azwani

Navanitha Krishnan
 Member

Re: Engagement of foreign consultants

Cool down Azwani... I see that my comments upset you... Well that was not my intention. As I said we need to learn. I understand that the government is sending many of the students to foreign countries to learn. Of course they come back and become engineers but has this help to create new technology in the civil field on our own. We are still depending on others to provide the technology? Don't you think we are still lacking of something... we still need guidance! We should be more openminded and have the concept where we let others to coach us when we think we need to improve on it. We need to have some sort of ties with the foreign countries and why not we do that by getting together and putting our mind together to achieve something in this field especially!!

Navanitha Krishnan

APPENDIX C

Glossary of terms

Computer-assisted language learning (CALL)

The search for and study of application of the computer in language teaching and learning (Levy, 1997).

Computer-mediated communication (CMC)

CMC is concerned with communication between two or more participants via a computer. It is used generally in the social sciences to cover e-mail, bulletin boards, discussion lists and computer conferencing, both text-based and video-based (Levy, 1977, p.79).

Comprehensible Input Hypothesis

The comprehensible input hypothesis states that in order for input to be made available for acquisition, it must be comprehensible, i.e., the input contains forms and structures just one stage beyond the learner's current level of competence in the language ($i + 1$).

(Krashen, 1982; 1985).

Comprehensible Output Hypothesis

The comprehensible output hypothesis stresses the importance of language production in L2 development. Learners need opportunities for 'pushed output' such as speech or writing in order for interlanguage development to occur (Swain, 1985; 1995).

English for Civil Engineering (ECE)

An English language program catered specifically to meet the needs of civil engineering students in University of Technology Malaysia.

English for specific purposes (ESP)

A language program that caters for specific disciplines.

Explicit negative feedback

Overt error correction or explicit indication that the learner has produced a non-target-like form, while at the same time providing a target-like model.

Feedback / corrective feedback

Any indication to the learners that their target language use is incorrect, which includes various responses that the learners receive (Lightbown and Spada, 1999, p.171).

Focus-on-form

An approach that overtly draws students' attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning or communication (Long, 1991, p.45-46).

Implicit negative feedback

An indirect indication of non-target-like usage, where the unacceptability or ungrammaticality of the incorrect utterance is implied without disrupting the flow of the conversation (Long, 1996).

Interaction Hypothesis

A theory of second language (L2) acquisition which emphasizes the joint contributions of the linguistic environment and the learners' internal mechanism in language development. This theory emphasizes the importance of interaction in language learning and the necessity for learners to have access to meaningful and comprehensible input (Long, 1996).

Interactional modifications

These are motivated by the need to avoid or resolve communication problems during the L2 discourse. Long refers to these as negotiating for meaning. They are employed either, 'strategically', to avoid possible communication breakdowns, or 'tactically', as repairs in response to learner error of some kind (Long, 1996).

Interlanguage

A term coined by Selinker to refer to the systematic knowledge of an L2 that is independent of both the target language and the learner's first language (L1).

Malaysia Certificate of Education (MCE)

A public examination conducted by the Ministry of Education, Malaysia for students in the final year of secondary education before they can gain entry into tertiary education.

Modified input

This is adapted speech aimed to assist the learner to understand the input syntactically and/or semantically. It consists of such features as simplification, elaboration and regularization of the input, among others, which can make linguistic features more salient to the learners and thereby make input clearer and more easily understood (Larsen-Freeman and Long, 1991).

Modified output

Modifications made to non-target-like sequences produced earlier, either by incorporating the recast given or reformulating the output toward a more target-like form. The modifications made could be lexical, semantic or morphosyntactic in nature.

Multimedia Super Corridor (MSC)

A new age developmental project launched by the Malaysian government to create a high-tech environment through the development of Information and Communication Technology (ICT) as a strategic foundation for national development and global positioning.

Negative evidence

Information given to the learner about what is inappropriate or not possible in the target language (Long, 1996).

Negotiation for meaning

This refers to the process in which, in an effort to communicate, learners and competent speakers provide and interpret signals of their own and their interlocutor's perceived comprehension, thus provoking adjustments to linguistic form, conversational structure, message content or all three, until an acceptable level of understanding is achieved. (Long, 1996, p. 418).

Notice the gap

The process by which learners pay conscious attention to the difference between linguistic features in the input and their own output (Schmidt and Frota, 1986).

Noticing

The process of attending consciously to linguistic features in the input (Schmidt, 1990).

Positive evidence

Feedback provided to learners of what is grammatical and acceptable in the target language in the form of either modified input or models of the target language (Long, 1996). The source of positive evidence includes both authentic texts (spoken and written), as well as those texts that have been modified for comprehensibility through simplification, elaboration, and redundancy, among others.

Recasts

Recasts are utterances which rephrase the learners' production by changing one or more sentence components (subject, verb or object) while still maintaining the central meaning of the message (Long, 1996, p. 434).

Scaffolding

The process by which learners can successfully attempt more complex learning tasks in the presence of more knowledgeable peers. In terms of L2 learning, scaffolding may facilitate learners to produce a greater quantity of language and more complex language which they would be incapable of producing on their own (Hatch, 1978).

Tertiary Entrance Examination (TEE)

An examination conducted for Year 12 high school students in Australia as an entry requirement into tertiary education.

University of Technology Malaysia (UTM)

One of the universities in Malaysia which offers science- and technology-based courses at tertiary level.

Vision 2020

Malaysia's Vision to be a fully-developed and knowledge-rich nation by the year 2020.