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Development of Spanish L2 competence in a synchronous CMC (chat room) environment: the role of visually-enhanced recasts in fostering grammatical knowledge and changes in communicative language use

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DEVELOPMENT OF SPANISH L2 COMPETENCE IN A SYNCHRONOUS CMC (CHAT ROOM)
ENVIRONMENT: THE ROLE OF VISUALLY-ENHANCED RECASTS IN FOSTERING GRAMMATICAL
KNOWLEDGE AND CHANGES IN COMMUNICATIVE LANGUAGE USE

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
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in

The Interdepartmental Program in Linguistics

by

Francisco Ramon Lluna-Mateu
B.A., University of Valencia, 1996
M.A., Northwestern State University of Louisiana, 1999
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While there are occasions in life when a man can consider himself fortunate for the gifts (sometimes underserved) that life has bestowed upon him, it is much less frequent for that man to *notice, feel* and *acknowledge* the extent of his good fortune. In so doing, this man –an abstraction, one among countless doctoral candidates each year– would like to lend his voice to *the man* himself, Francisco Ramón Lluna Mateu (without the hyphenation imposed on him by the naming system in his new “home country”). It is he, Francisco –Ph.D. or not–, who almost ten years ago left his beloved family, his dear country (Spain), and life as he knew it in the, perhaps selfish, quest for bettering his professional life. It is he that will now be allowed to speak. I really feel blessed for the time, support and affection that I have received from a number of individuals over the past ten years. They are more than I can mention here without writing a dissertation-within-a-dissertation, but, in the next few paragraphs, I will acknowledge the varying roles of, to name a few, the following individuals: a) my dissertation committee; b) my dear friends/colleagues at Duke University; c) my friends from LSU and Baton Rouge; and d) my beloved family.

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Special consideration goes to *Dr. Arnulfo G. Ramírez*, who has been more than a Mentor and a Professor for me and, at the risk of falling prey to cliché, has always gone above and beyond the call of duty. While my comments may be interpreted as pure flattery, I have so many good things I could say about him that I do not even know where to begin. I admire *Dr. Ramírez* for his long, successful professional career filled with scholarly accomplishments and international recognition. As I complete a major milestone in my career, I only hope that I can at least accomplish a third of the work he has done. Above all, I thank him for always keeping me intellectually stimulated, for gently pushing me to do my best, for his continual support, patience, encouragement and his belief in me since we first met and throughout the process of crafting this dissertation,

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LIST OF FREQUENTLY USED ABBREVIATIONS

A-D

ATTN	<u>A</u> ttention
CALL	<u>C</u> omputer- <u>A</u> ssisted <u>L</u> anguage <u>L</u> earning
CF	<u>C</u> orrective <u>F</u> eedback
CMC	<u>C</u> omputer- <u>M</u> ediated <u>C</u> ommunication
Cond.	<u>C</u> onditional

E-L

EFL	<u>E</u> nglish as a <u>F</u> oreign <u>L</u> anguage
ESL	<u>E</u> nglish as a <u>S</u> econd <u>L</u> anguage
F1	<u>F</u> eedback Type <u>1</u> , non-enhanced recast
F2	<u>F</u> eedback Type <u>2</u> , enhanced recast
F3	<u>F</u> eedback Type <u>3</u> , control group
FL	<u>F</u> oreign <u>L</u> anguage
IE	<u>I</u> nput <u>E</u> nhancement
IRB	<u>I</u> nternal/ <u>I</u> nstitutional <u>R</u> eview <u>B</u> oard
L1	<u>F</u> irst <u>L</u> anguage
L2	<u>S</u> econd <u>L</u> anguage

M-S

MOO	<u>M</u> ulti- <u>U</u> ser <u>D</u> omain <u>O</u> bject <u>O</u> riented
MUD	<u>M</u> ulti- <u>U</u> ser <u>D</u> omain
NNS	<u>N</u> on- <u>n</u> ative <u>S</u> peaker
NS	<u>N</u> ative <u>S</u> peaker
Post	<u>P</u> osttest
Pre	<u>P</u> retest
SLA	<u>S</u> econd <u>L</u> anguage <u>A</u> cquisition

T-V

TE	<u>T</u> extual/ <u>T</u> ypographical <u>E</u> nhancement
TypEs	<u>T</u> ypographical <u>E</u> lements
TypIE	<u>T</u> ypographical <u>I</u> nput <u>E</u> nhancement
VE	<u>V</u> isual <u>E</u> nhancement
VIE	<u>V</u> isual <u>I</u> nput <u>E</u> nhancement

ABSTRACT

Taking into consideration some gaps observed in SLA research –noticing, recasts, input enhancement (IE),...– and in CALL/CMC research, a study was conducted among 12 advanced FL Spanish learners to assess whether and how, by communicating with a Spanish native speaker in 5 written chat-room sessions, their language competence would develop in the following areas: 1) communication strategies; 2) communicative acts; and 3) grammatical knowledge of verb tense-aspect-mood (TAM) assignment. Subjects were assigned to a specific feedback condition/group (A: +recast, -enhancement; B: +recast, +enhancement; and C: no feedback) under which their TAM errors were treated in the sessions.

Few research studies have concentrated on the effectiveness of recasts for grammatical acquisition; rather, they tend to focus on conversational aspects (e.g. Lyster & Ranta, 1997; Ohta, 2000) while the scarce grammar-based recast research has yielded positive results (e.g. Doughty, & Varela, 1998; Ishida, 2004; Mackey, & Philp, 1998). On the other hand, IE, typically an enhancement of the perceptual salience of input in applying the “input flooding” technique (Francis, 2003), has yielded mixed results, but some studies have found a facilitative effect for IE (cf. e.g. Doughty, 1991; Francis, 2003; Jourdenais et al., 1995; & Shook, 1994). Because of their relatively ineffective, rather implicit nature when used in isolation, in this study recasts were combined with IE assuming that IE –a tool not traditionally used in SLA as an additional measure of feedback– might strengthen the recast and render it more effective for uptake of the linguistic forms. Based on the properties of the resulting combined feedback (group B: enhanced recast), it was anticipated that enhanced recasts would be a more powerful tool, and, as a result, the following sequence of gain in grammatical knowledge would be found: group B (enhanced) > group A (non-enhanced) > group C (no feedback).

The findings reveal that groups B and C had the highest overall gains in verb TAM assignment and group B was superior in most grammatical contexts. In the case of communication strategy and communicative act use, the sequence of gain was: group A > group B > group C.

CHAPTER I. INTRODUCTION

1.1 Introduction

SLA research is a well-established field of inquiry. In the next few paragraphs, the reader will be presented with a brief overview of the state of affairs in the discipline in the areas pertaining to the study presented in this dissertation.

Stephen Krashen (1981) formulated the comprehensible input theory, which posits that exposure to comprehensible input is a necessary and sufficient condition for triggering the language acquisition process. On the other hand, Merrill Swain (1985) and proponents of the comprehensible output theory contend that language acquisition is successful if the learner is given abundant opportunities to produce comprehensible output. In the study presented in this dissertation, the learners interacted in a written chat room, which led them to produce a substantial amount of output, and they were, therefore, going one step beyond Krashen's proposal.

For quite some time, researchers have been investigating the effects of different types of corrective feedback. One of those forms of corrective feedback is recasts, which cause the target L2 forms to become more salient than other types of feedback. In this study, the subjects were exposed to two different versions of feedback of the recast type.

Awareness and attention and their impact on learning have been widely studied in cognitive psychology. In most SLA research, noticing is viewed as conscious awareness. Tomlin and Villa (1994) suggested that noticing might play a less vital role while Schmidt's notion of "noticing" acknowledges the role of consciousness in language learning. Schmidt argued that noticing is a prerequisite for any intake of input. The notion of noticing is important to this study and that is even more so when a connection is made between recasts and their function as a trigger to promote noticing of the properties of language. Noticing is also relevant in the discussion pertaining visual input enhancement, which shall be presented below and further explored in Chapter II.

Visual input enhancement¹ (VIE), typographical input enhancement (TypIE) or more commonly known as input enhancement (IE) is an attention-drawing mechanism through which the learner needs to pay conscious attention to certain manipulated typographical elements (TypEs) in order for the device to be effective. Through it, a teacher or researcher manipulates TypEs such as font size, boldfacing, italics, etc. in such a way that it will draw the learners' attention to some linguistic form or forms. It must be noted here that the use of IE as it is done in this dissertation derives from a teaching technique called input flooding (please consult section 1.9 Definition of Terms for an explanation of this term), but, to this researcher's knowledge, it has never before been experimentally used as a feedback tool. As was noted in relation to recasts, VIE has a noticing function of which this researcher tried to take advantage in designing the study that constitutes the core of this dissertation.

A fairly new line of L2 research, Computer-Assisted Language Learning (CALL), is concerned with the use of computer technology and its role in language learning. CALL assesses the potential benefits associated with the implementation of computer technologies such as computer-mediated communication (CMC) in fostering language acquisition. The most popular examples of text-based CMC tools are electronic mail and written chat rooms; other less-known text-based CMC environments include Multi-User Domains (MUDs), and Multi-User Domains Object Oriented (MOOs), which are text-based, virtual environments and involve varying degrees of writing on the part of the user. The study presented in this dissertation takes advantage of current CMC technologies by engaging the learners in interaction within a written chat room environment.

1.2 Background of the Problem

High school and university-level curricula mandate that many students embark on the long, sometimes arduous, process of learning a foreign language. As a result, a number of foreign languages are currently being taught in our universities and high schools. Yet, in spite of the well-intentioned efforts of instructors and professors, the average L2/FL learner goes through two to four years of foreign language instruction, and their actual level of language proficiency at the end of their learning experience tends to be, generally, intermediate low or, less commonly, intermediate high.

¹ All subsequent references to commonly occurring terms in text, figures or tables will be abbreviated. A list with the abbreviations used in this dissertation is available on page xix (List of Frequently Used Abbreviations).

As a Spanish language instructor, this researcher sometimes wonders who, if anyone, is to blame for the lack of apparent success in the FL learning/teaching world. The current situation truly calls for immediate action on several fronts, one of which involves the design and deployment of new teaching and learning techniques that will further enhance the students' learning experiences and, therefore, the acquisition process. The following pages outline the project that ultimately led to this dissertation in the quest for finding an alternate learning/feedback technique that it is hoped will assist the learners in achieving higher levels of language competence.

1.3 Purpose of the Study

One of the central assumptions in this study is that, when a learner produces a string of linguistic material that contains at least one mistake, corrective feedback (CF) in the form of recasts is more powerful if that feedback is enhanced by means of textual/visual IE. It follows from the latter that recasts with VIE are a more powerful feedback tool than recasts without the VE. Hence, one of the main purposes of the study is to find evidence supporting this assumption by investigating whether the application of two different corrective feedback techniques (recasts alone vs. recasts with VE) yield different results among the learners and have a differential effect on the acquisition rates of verb tense assignation among three groups of advanced Spanish FL learners in three main linguistic contexts. Through this study, this researcher intends to determine whether his assumption that recasts with visual enhancement are a more powerful feedback tool holds true.

1.4 Questions to be Answered

The goal of the study is to answer the following research questions:

Question group 1. Feedback and grammatical development

Question 1A) Does the type of feedback determine the amount of feedback uptake (incorporation) that will take place as measured by posttest results?

Assumption 1A) The more perceptually salient nature of enhanced (underlined) recasts will lead to greater amounts of feedback uptake, because increased perceptual salience leads to greater rates of noticing and uptake.

Question 1B) Does perceptual salience through visual enhancement increase the effectiveness of recasts as a feedback tool?

Assumption 1B) Perceptual salience through visual enhancement will increase the effectiveness of recasts because of their greater specificity as feedback and will lead to greater amounts of gain.

Question 1C) Does the provision of feedback result in increased grammatical accuracy?

Assumption 1C) The provision of feedback will result in increased grammatical knowledge, and the increase will be directly proportional to the explicitness of the feedback.

Question group 2. Development in communication strategies

Question 2A) Will chat room interaction bring about improvement in students' ability to identify the appropriate context for different communication strategies as measured by the communication strategies (dialog completion) test items?

Assumption 2A) Chat room interaction will have a small impact on the subjects' ability to determine when a given communication strategy is needed in the context.

Question 2B) Will the type of communicative strategy determine the subjects' ability to identify it?

Assumption 2B) Specific communication strategy types such as self-repair for form and self-repair for meaning will pose significant problems due to their inconspicuousness in comparison with other strategies are, and their infrequent use among the learners.

Question group 3. Development in communicative act use

Question 3A) Will overall quantity of communicative acts increase as a function of time spent in the chat sessions?

Assumption 3A) Overall production or quantity of communicative acts will increase as the sessions progress.

Question 3B) Will the variety of communicative act types used increase as the subjects engage in different sessions?

Assumption 3B) The variety in communicative act type use will change, but it will not increase just because the subjects are engaging in more chat sessions.

1.5 Conceptual Assumptions

Research has shown that the provision of feedback does, in many instances, result in increased grammatical accuracy (e.g. Nicholas, Lightbown, & Spada, 2001). The rate of grammatical accuracy will particularly increase as the degree of explicitness of the feedback increases; specifically, subjects who receive feedback with VE will experience greater rates of gain than those who do not.

The greater perceptual salience of some linguistic forms facilitates their being noticed by the learners. The more perceptually salient any linguistic form is, whether it be feedback or not, the more readily available for uptake it becomes and for further processing and subsequent development of the language system. Therefore, if feedback is enhanced through some VE device, it will be more noticeable, and the perceptually salient/enhanced forms will be more ready to be uptaken by the learner. In connection with the latter, VE, a means of inducing increased perceptual salience, has the potential for augmenting the effectiveness of recasts as a feedback tool. Because they are a much more specific type of feedback, and, to be more precise, feedback involving underlining, this researcher assumes that recasts with visual enhancement, as provided in this study, will lead to greater amounts of linguistic gain.

Finally, interaction in the chat room as proposed in the study presented in this dissertation is of great import as it enhances the acquisition process. The written chat room experience provides opportunities for interacting in the target language and for producing output, which is in line with Swain (1985)'s claims and findings. That is exactly what, this researcher believes, these learners need to receive in order to further refine their knowledge of the foreign language.

1.6 Rationale and Theoretical Framework

The rationale for conducting the study is to determine the differential effects that different feedback properties may have on the acquisition of a small set of target linguistic forms. In addition, there is a gap in existing studies on noticing, recasts and visual input enhancement that this study seeks to fill, since research in these subfields of SLA linguistic inquiry has not combined recasts and visual input enhancement into a single, novel feedback tool nor actively taken noticing into account as an important variable.

Furthermore, written chat rooms are an ideal medium to communicate with other individuals that gives the learners the opportunity to engage in meaningful interaction in the foreign language and to produce output using certain target forms, all of which the learners need in order to be successful in refining their developing L2 knowledge.

Finally, few, if no, studies have been conducted to this date with the characteristics of this study and, particularly, within the context of a written chat room environment. In that sense, this study intends to fill another void in research on: 1) noticing, recasts and visual input enhancement, and 2) CMC use in foreign-language learning contexts.

1.7 Delineation of the Research Problem

In the study, there are two experimental groups (Group A and Group B) and a control group (Group C). The experimental groups match the two feedback conditions with which the subjects are treated in the written chat room: F1 or Group A, non-enhanced recast condition, or recast without input enhancement (no underlining) vs. F2 or Group B, enhanced recast, or recast with IE (underlining). The control group (F3) receives no kind of feedback while they engage in interaction in the written chat room sessions. Each subject remains in the same feedback condition throughout the experiment. Underlining refers to the fact that, as part of the feedback in the written chat room sessions, the researcher's feedback is enhanced by underlining the portions that he has corrected after a learner provided an ungrammatical utterance. The research problem is outlined on the following page in Fig. 1.1. in terms of treatment group (Group A –non-enhanced recasts; Group B –enhanced recasts–, and Group C –control group–), dependent variables (gains in pretest-posttest scores; grammatical performance in conditional sentences, subordinate noun clauses and subordinate adverbial time clauses; and communicative language use –communication strategies and communicative act use– in the written chat sessions) and intervening variables (learner background –age, gender, language they feel more comfortable using, and language preference according to the linguistic domain–, academic background information such as academic major and the learners' foreign language learning/study background, self-assessment of overall L2 proficiency and proficiency according to language skill, motivation –instrumental vs. integrative–, and travel abroad experiences).

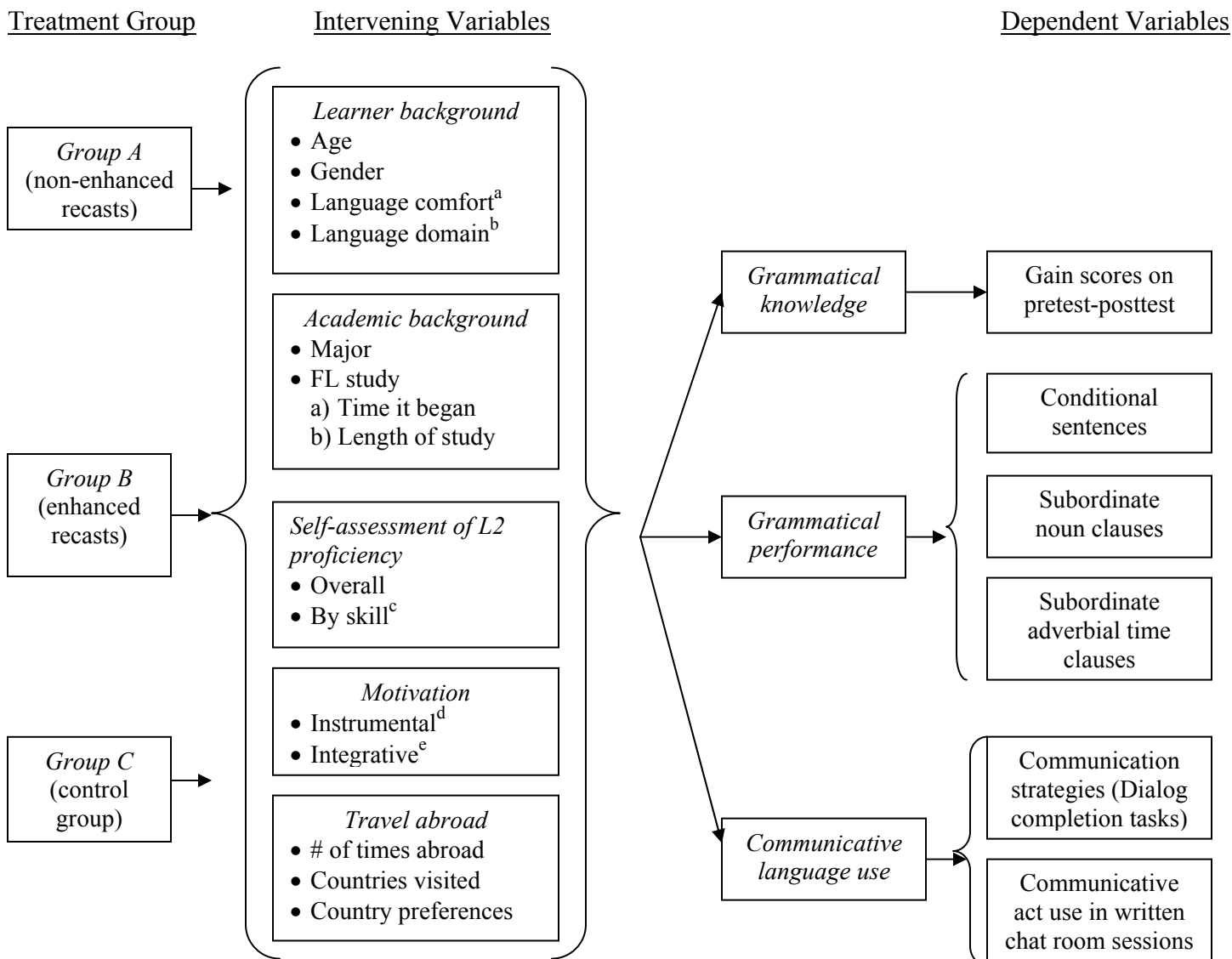


Fig. 1.1
The Research Problem

Note.

^a “Language comfort” = how comfortable the subject feels depending on the language (s)he is using.

^b Language preferred by the individual according to the context, e.g. church, home, with friends,...

^c Skill = one of the four basic language learning skills (listening, speaking, reading, or writing).

^d Refers to the more practical applications, often providing some benefit such as employability, need/desire to communicate while traveling,...

^e For example, socialization with members of the target culture.

The problem that this study seeks to address is whether different types of feedback provided to learners while in the course of interaction in a written chat room session result in noticeable and differential uptake in the acquisition of conditional sentences, subordinate noun clauses and subordinate adverbial time clauses. The study also seeks to measure the development in communication strategies, and communicative acts.

1.8 Importance of the Study

This study aims to fill a gap in the existing studies on recasts and visual enhancement by examining how two seemingly disparate tools (recasts and visual enhancement) can come into play simultaneously in enhancing the learning possibilities that L2 learners have at their disposal. It also contributes by filling a void in the studies on noticing in that the tools just mentioned are believed to have a special noticing function, since, by providing feedback through recasts or visual enhancements, we are providing the learners with information that allows them to notice and zero in on relevant linguistic information in which they may still be deficient.

1.9 Definition of Terms

The following terms are defined here within their application in the context of SLA research. Their meaning may vary in other fields of inquiry. Please note that those definitions that are not accompanied by a parenthetical reference to an author or authors were crafted by the writer of this dissertation.

- Attrition: “another name for language loss, i.e. when a learner’s competence or control in a given L1 or L2 undergoes change which may be seen principally as a reduction of knowledge and/or skill” (Sharwood Smith, 1994, p. 195).
- Communication strategy: a strategy used by a learner in attempting to resolve a problem while communicating with someone else. Following are the communication strategies relevant to the study. Table 3.1 in section 3.4.2 (p. 50) provides examples for the following strategies:
 - Appeal for assistance: the speaker requests unknown information because they need help.
 - Clarification check: the speaker expresses confusion, because the words are unfamiliar or the message is incomprehensible; typically, they are accompanied by tag questions.
 - Clarification request: it involves asking the other interlocutor about the intended meaning of a previous utterance or part of it, because at least part of the message was not understood. They commonly take the form of WH-questions.
 - Comprehension check: a question is asked to ensure that the message is understood.

- Confirmation check: it consists of repeating parts of a statement to make sure that it is understood.
- Self-repair for form: it involves correcting errors one has made on grammatical items.
- Self-repair for meaning: it entails correcting errors one has made on lexical items.
- Topic shift: a communication strategy that entails giving up the topic and switching to a new one, maybe due to a lack of interest or unfamiliarity with the topic, or insufficient language resources to discuss the topic. The latter is usually the case.
- Use of [first language]: the other language is typically the subject's mother tongue. Since many of the published studies focus on English-speaking students learning other languages, this strategy is commonly known as "use of English." It consists of using English or another L1 to substitute for words or ideas in the L2 when the learner does not know the FL counterpart. It typically designates phenomena at the lexical/word level.
- Computer-Assisted Language Learning (CALL): a new line of L2 research that is concerned with studying the practical, pedagogical applications of computer technologies and how their implementation may be advantageous in fostering L2 learning/acquisition.
- Computer-Mediated Communication (CMC): a set of electronic means of communication such as electronic mail that were popularized by the Internet revolution.
- Dyad: a pair of students, usually, subjects participating in a research study.
- Dyadic: of a dyad, pertaining to or related to a dyad.
- Feedback: additional information provided to the learner to the effect that he or she can notice a gap in their knowledge (quoted from p. 20 of this dissertation). It almost always has the intention of correcting a mistake a learner has made.
- Garden path technique: an experimental technique developed by Tomasello and Herron (1988, 1989) in which the researcher/teacher first presents learners with examples that encourage them to induce and generalize the rule. Next, the learners are provided with the exceptions to the rule, without being

told that these are exceptions. The learners are thus induced into making errors. The teacher/researcher then immediately corrects such errors.

- Input: a string of linguistic material that a language user receives. As Sharwood Smith defines it (1994, p. 200), it is “observable, potentially, processible language data relevant for acquisition.” According to Krashen (1981, and on) and the proponents of the comprehensible input theory, comprehensible input is the primary source of language acquisition.
- Input flooding: an implicit, focus-on-form language teaching technique in which the learners are flooded or bombarded with content saturated in examples of the target L2 grammatical form(s), which are highlighted as a noticing device (see below for a definition of “noticing”). Typically, exposure to the input consists of having the learners read passages containing a large number of examples of a target item that are frequently bolded in the chosen text(s) to draw the students’ attention.
- Intake: linguistic form(s) that, after exposure to it/them, has/have been absorbed by a language learner and are ready for the mind to process.
- MOO (Multi-User Domains Object Oriented): a CMC (see “computer-mediated communication” on p. 9) environment similar to a MUD (see next entry for a definition), but a MOO is a text-based online virtual reality system to which multiple users are simultaneously connected. (*Moo*, n.d.)
- MUD (Multi-User Domains): a CMC (see “computer-mediated communication” on p. 9), text-based, virtual environment which involves varying degrees of writing on the part of the user. It is basically an “[online] multi-player computer game that combines elements of role-playing games [...] and social instant messaging chat rooms [...]” (*Mud*, n.d.)
- Noticing: conscious perception and awareness of (a) linguistic form(s).
- Output: a string of linguistic material (usually written or spoken) that is produced by a speaker.
- Recast: it consists of a reformulation of an incorrect utterance or, more often, an incorrect part of an

utterance that incorporates the corrected version of a mistake a learner has made. A recast is considered to be a special type of feedback that is regarded as both positive evidence (a model of “good” language use) and negative evidence (an indication of “anomalies” in L2 production).

- Speech/communicative acts: they are “what the speaker ‘does’ by saying something” (Stenström, 1994, p. 225), i.e. the linguistic act that a speaker performs when making an utterance. The communicative act classes and types are presented and defined in Table 3.2 (section 3.4.3, p. 51)².
- Synchronous CMC: a type of computer-mediated communication in which both interlocutors engage in simultaneous, real-time communication such as in the case of a chat room as opposed to communication via e-mail (asynchronous CMC) in which message reception is most often delayed.
- Typographical/visual (input) enhancement (VIE): in its more widespread use, it is a way of drawing the learners’ attention to specific linguistic forms by using typographical cues through the manipulation of typographical elements such as font size and/or type, boldfacing, italics, etc. in input flooding, which is a language teaching technique characterized by overexposing the learners to typographically enhanced target forms in the hope that the enhancement will draw the learners’ attention to the targeted form or forms, hence leading to the acquisition of those forms. In this study, visual enhancement is not used in reading passages; instead, the enhancement is applied to recasts to enhance a word that the NS has corrected. Please consult other sections for further details on VIE (section 2.7, pp. 25-36) and its implementation in this study (section 3.8, pp. 64-66).
- Uptake: “a learner’s modification of their original utterance following the NS’s use and is ready to be processed by the language system of the user” (Mackey, Gass, & McDonough, 2000, p. 492), or “language that the learner actually attends to and that gets processed in working memory in some way” (Lee, & Van Patten, 1995, p. 42). This researcher favors both definitions.
- WH-questions: As opposed to yes/no questions, WH-questions are information-seeking questions headed by interrogative pronouns such as *who*, *where*, *when*, *why*,...

² The different types and classes were borrowed from A. G. Ramírez (2004, pp. 53-54) and the definitions shown adapted from those provided by Stenström (1994, pp. 221-226)

1.10 Limitations of the Study

This section brings to the forefront some of the most important limitations of the study identified by this researcher. While the limitations are presented now, they will be discussed much more thoroughly in Chapter V (section 5.3 Limitations of the Study, pp.152-156) along with possible suggestions for minimizing their negative impact on future studies (section 5.4 Directions and Suggestions for Future Research, pp. 156-162). Following are the most salient limitations.

- a) Sample selection. While this researcher attempted to minimize the influence of external factors on study implementation, several factors interfered with the researcher's plans, because the host institution's IRB did not allow the researcher to select entire classes of students to participate in the study and asked the researcher to draw the subject pool from volunteer students. This researcher would have selected intact classes instead of allowing self-selection, because that, he believes, has jeopardized the results.
- b) Compensation for participating in the study. The compensation that the subjects received for their involvement in the study was very small, but IRB would not allow any other arrangement.
- c) Small sample sizes.
- d) The grammatical knowledge instruments need additional items for each linguistic context in order to provide a more reliable measure of linguistic changes within each given linguistic context.
- e) The "Dialog Completion Tasks" necessitate a total transformation including the addition of test items, greater variety of communication strategies, a larger number of test items for the different communication strategies, and the creation of a different instrument for each testing phase.
- f) Duration of the sessions. The average session lasted 45 minutes, which is now perceived as a shortcoming, because the learners did not have sufficient time to be exposed to opportunities for feedback and interaction, which coupled with the fact that the first ten and last five minutes were spent on interaction that was not relevant for research purposes (greeting, warm-up), took time away from engaging in the kinds of interaction of interest for the study.
- g) Distribution of written chat sessions. Written chat sessions were initially spaced out evenly so that

the time elapsed between sessions was approximately the same from session to session. However, last minute requests from the subjects resulted in having to hold two sessions on consecutive days.

1.11 Outline of the Dissertation

In Chapter II, Review of Related Literature, the reader will find an account of the key SLA theoretical and conceptual pillars upon which this dissertation rests. The chapter begins with a presentation of the theories and notions of comprehensible input and output, which are then discussed in connection with the notions of negotiation and the interaction theory. In continuation, the concept of feedback is reviewed both in general and, specifically, through an analysis focused on recasts, which is then followed by a discussion of the notions of attention, awareness and noticing as they pertain to SLA. Following the discussion on attention, awareness, and noticing is a review of the work that has been done in the area of VE or TypIE. Finally, the review describes the most recent advances in research on CMC applied to second and foreign language learning by focusing on the applications of the following CMC environments: MUDs, MOOs, e-mail, and written chat-rooms.

Chapter III, Methodology and Procedures, outlines the methods and procedures followed during the different phases of planning, preparing for, implementing and conducting the experimental study that was carried out for this doctoral dissertation. The study presented in this document is a modified version of a pilot study that was conducted in the Spring 2003 semester after taking into consideration the wise words from my advisory committee and my own experience while conducting the pilot. The current study was undertaken between late October and early December of 2003. In a pretest-posttest, experimental-control group design, the subject pool (N = 12) was divided into 2 experimental groups (F1 or Group A: recast without textual enhancement (TE); and F2 or Group B: recast with textual enhancement), and 1 control group (F3 or Group C: no feedback). Each subject was randomly assigned to one feedback condition (F1, F2, or F3). All subjects engaged in a series of 5 written chat room sessions with this researcher, but they were never told that the researcher was the person with whom they were chatting. The medium chosen to conduct the online conversations was Yahoo! Messenger, a computer program with an instant messaging function that allows the interlocutors to send and receive messages in quasi-real time. Data for the study were collected from several sources: 1) language knowledge tests, which were designed to measure language development in verb use in a

series of grammatical contexts that were practiced in the written chat sessions; 2) another instrument (Dialog Completion Task) measured subjects' use of communication strategies; 3) two "Learner Background Questionnaires", which, among other issues, tapped into the subjects' perception of corrective feedback and measured whether their views had changed after the treatment. Subjects completed these three tasks using computer software packages developed by the researcher; 4) written chat session data, and 5) written chat session report: all subjects were asked to pay attention to the manner in which they and the native speaker were interacting as they chatted and to write down their observations at the end of each session.

Chapter IV is devoted to presenting, summarizing, and discussing the main findings resulting from the analyses performed on the dataset obtained from the experimental procedure outlined in Chapter III. The data are organized and separated into three sections, each of which presents the datasets for a specific research group according to one of the three feedback conditions identified in Chapter III; the results are, therefore, presented and discussed in the following sequence: 4.2 Findings for Group A (+recast, -underline), 4.3 Findings for Group B (+recast, +underline), and 4.4 Findings for Group C (-recast, -underline). The data analyses in each group start out by presenting and discussing language development in the grammatical categories under investigation as evidenced in the learners' use of the target forms in the pretest and posttest. This is later followed by a description of the development in communication strategies and later follows a presentation of communicative act use and development throughout the written chat room sessions. Other areas explored include: learner self-reports on behavior and attitudes; their habits in chatting; their views about chatting as well as whether and how they anticipate that they might benefit from the written chat room experience; attitudes toward corrective feedback; desire to receive corrective feedback; attention to and noticing of corrective feedback in the written chat sessions; self-repair attitudes and behavior; and non-native speaker assessment of gains in language abilities due to the treatment.

Finally, Chapter V, Conclusions, presents a discussion of the conclusions to which this researcher came in light of the main findings derived from the study. The remainder of Chapter V focuses on describing the limitations that the researcher found after completing the study. The final section proposes a series of recommendations and suggestions as well as plans for future research.

CHAPTER II. REVIEW OF RELATED LITERATURE

2.1 Overview

The comprehensible input theory (Krashen, 1981, & later) posits that exposure to comprehensible input is a necessary and sufficient condition for triggering the language acquisition process. On the other hand, proponents of the comprehensible output theory (Swain, 1985; Swain, & Lapkin, 1995) contend that language acquisition will be successful only when the learner has been given a number of opportunities to produce comprehensible output. There is an ever-growing interest in assessing the effects of different types of corrective feedback. Recasts, which along with visual input enhancement are the special focus of this dissertation, are a special type of feedback that causes the target L2 forms to become more salient than they would be with other types of feedback. The notions of awareness and attention and their impact on learning have been widely studied in cognitive psychology. In most SLA research, noticing is viewed as conscious awareness. Tomlin and Villa (1994) suggest that noticing might play a less vital role while Schmidt's notion of "noticing" (Schmidt, 1990, & later) acknowledges the role of consciousness in language learning. Schmidt argued that noticing is a pre-requisite for any intake of input. Visual input enhancement is an attention-drawing mechanism which, to be effective, requires the learner to pay conscious attention to certain manipulated typographical elements. It involves manipulating typographical elements such as font size, boldfacing, italics, etc. in such a way that it will draw the learners' attention to some form or forms. A fairly new line of L2 research, CALL is concerned with the use of computer technology, and it assesses the potential benefits associated with the implementation of computer technologies such as CMC in fostering language acquisition. The most popular examples of text-based CMC tools are electronic mail and chat rooms; other less-known text-based CMC environments include MUDs, and MOOs, which are text-based, virtual environments and involve varying degrees of writing on the part of the user.

2.2 Comprehensible Input Theory

The input-output dichotomy has dominated much of the debate in SLA research. The origins of this

dichotomy can be traced back to Krashen's (1981, and later) comprehensible input theory. This theory claims that exposure to comprehensible language data (comprehensible input) is a necessary and sufficient condition for triggering the language acquisition process. Some researchers that have studied language acquisition from an input perspective include Chaudron (1985), Færch, & Kasper (1986), Gass, & Madden (1985), Krashen (1981, 1982, & 1985), Larsen-Freeman, & Long (1991), and VanPatten (1990, & later).

2.3 Comprehensible Output Theory

While acknowledging the unquestionable need that the learner has to be exposed to the language, studies conducted in Canada by Merrill Swain (1985) and her colleagues (Swain, & Lapkin, 1995) on the language produced by students in French immersion programs seem to indicate that just exposure to linguistic input does not necessarily suffice to trigger language acquisition. Proponents of the "comprehensible output" theory would note that the equation is missing an important factor: output, whereby the learner needs to be provided with opportunities to use the language. In their view, successful language acquisition will take place only when the learner has been provided with ample opportunities to produce comprehensible output while partaking in interaction with other speakers. In addition, these researchers suggest that producing output is extremely important in the language acquisition process as it helps the learner test their hypotheses about the second language.

Izumi, Bigelow, Fujiwara, and Fearnow (1999) addressed the following two research questions: 1) whether output promotes noticing of linguistic forms, and 2) whether output leads to any improvement in performance in the target form. There were two treatment phases. In treatment phase 1, participants were first exposed to a short passage, which they were then asked to reconstruct. This was then followed by a second exposure to the same material and another reconstruction. In phase 2, participants wrote on preassigned topics, followed by a model written by a native speaker. Participants then wrote again on the same topic. To test the noticing function of output, subjects underlined parts of the sentences that they believed were "particularly necessary" for later reproduction. The control group was exposed to the same input materials but did not have to produce any output. The conclusions of the study were that phase 1 tasks led to noticing and immediate incorporation of the target form, but posttest performance did not reveal those effects. In contrast, phase 2 tasks

improved on posttest 2, and, as a result, output was successful.

McDonough (2005) evaluated the impact of negative feedback on question formation in 60 EFL learners who had to carry out several communicative tasks with native English speakers in four treatment conditions where they received different negative feedback and were exposed to modified output opportunities. The subjects also did four oral production tests. Data analyses suggested that the only predicting factor of question formation was the prerequisite that the subjects produce modified output that involved advanced question forms when they were responding to negative feedback.

Shehadeh (2003) investigated how output can allow L2 learners to test their hypotheses about the language and how many hypothesis-testing attempts result in non-target like output that interlocutors challenge. Data were collected from 16 participants (8 NSs and 8 NNSs of English) by means of a picture-description task. Interactions were analyzed for hypothesis-testing episodes by NNSs. The conclusions of the study were: 1) that NNSs had tested one hypothesis about the target language every 1.8 minutes, and 2) that the hypothesis-testing episodes that resulted in non-target like output, which constituted over one third of all episodes, were not challenged by interlocutors.

Izumi (2002) studied the facilitative effects of output and visual input enhancement on the acquisition of English relativization by adult ESL learners. A computer-assisted reconstruction and reading task were used as the means of presentation of the target input materials. The major findings were: 1) those engaged in output-input activities outperformed those exposed to the input for the purpose of comprehension; 2) those who received visual input enhancement did not display measurable gains in learning, and 3) no support was found for the hypothesis that the effect of input enhancement was comparable to that of output.

Horibe (2002) conducted a study which compared two instructional treatment conditions (input only and input + output) to examine the effects of opportunities for output on the acquisition of the target forms, which were several syntactic structures. The subjects' thought processes in spoken output were elicited in think-aloud protocol interviews. Study participants were 31 college students in a Japanese course in 3 intact classes: input only (input group), input and output (output group), and no instruction (control group). The results indicated no

statistically significant difference between the input group and the output group in terms of the acquisition rates of the target forms.

In spite of the fact that most of the studies cited earlier seem to suggest that engaging in the production of target language forms has a facilitative effect for language acquisition, there is still no unanimous consensus regarding its ultimate implications in fostering the development of L2 competence. As to the claim that the need to produce output triggers the occurrence of L2 hypothesis-testing episodes, Shehadeh (2003) concluded that hypothesis-testing episodes occurred every 1.8 minutes. When it comes to the effectiveness of output in developing L2 competence, Izumi, Bigelow, Fujiwara, & Fearnow (1999) and McDonough (2005) came to the conclusion that the production of modified output by the learners in reaction to negative feedback was the only predictor of successful, later production of accurate L2 forms. In terms of the contention that output is key in developing L2 competence (as opposed to input theory proponents' claims that input is the answer), Izumi (2002)'s findings suggest that subjects engaging in output activities attained higher gain rates than those who participated in activities involving input (for the purpose of comprehension). Nevertheless, Horibe (2002) found no statistically significant difference between the input and output groups as far as the acquisition of the target forms is concerned.

As was noted above, the results from these studies point to the lack of overwhelming evidence supporting the claims put forth by Merrill Swain and her colleagues. While the comprehensible output theory has not yet been ruled out, further research is necessary to come to any definitive conclusions.

2.4 Interaction

The interaction theory is inextricably related to the output framework. This researcher believes that interaction is in fact a prerequisite for negotiation. Output-oriented research draws attention to the need to put the internalized language system into practice. Rather than viewing them as two independent processes, this writer suggests that output be viewed as a subcomponent of interaction; in other words, output occurs during and as a result of engaging in interaction.

Research on the role of output and interaction and their function in L2 acquisition began with the seminal work by Judy Wagner-Gough and Evelyn Hatch (1975). Five years later and starting with his doctoral

dissertation work in 1980, Michael Long opened up a novel theoretical approach to L2 research that has come to be known as the interaction theory or interaction hypothesis (Long, 1980, & later). Long claims that interaction must be borne in mind as yet another factor influencing the acquisition process. Long's (1980) doctoral dissertation work culminated in the preliminary formulation of his interaction theory, which attends to the role of conversational interaction. The interaction theory, which Long revised in 1996, states that producing language while partaking in conversational exchanges serves as a hypothesis-testing procedure that enables the learner to further refine his/her developing interlanguage system. Empirical research has been conducted on the role of negotiation in interaction to determine the characteristics of interactions involving both NS-NNS dyads (as exemplified in the works of Gass and Varonis (1985b), Long (1983a, & 1983b) as well as NNS-NNS dyads as illustrated by the studies conducted by such authors as Anton and DiCamilla (1999), García, & Asención (2001), Gass, Mackey, & Pica (1998), Gass, & Varonis (1986), Pica, Young, & Doughty (1987), and Varonis, & Gass (1985a, & 1985b).

As mentioned above, research in the role of interaction began with the work by Judy Wagner-Gough and Evelyn Hatch (1975), and other researchers such as S. Gass, E. Varonis, T. Pica, C. Doughty and R. Young have further explored this issue (cf. e.g. Gass, & Varonis, 1985a, 1985b, & 1989; Pica, 1988; Pica, & Doughty, 1985; Pica, Holliday, Lewis, & Morgenthaler, 1989; Pica, Young, & Doughty, 1987; Varonis & Gass, 1985b).

Other strands of interaction-based research have focused on classroom-based interaction (cf. e.g. Aston, 1986; Ellis, Tanaka, & Yamazaki, 1994; Færch, & Kasper, 1980; Pica, 1987; Pica, & Doughty, 1985; Swain, & Lapkin, 1998; and Takashima, 1995). Other researchers have investigated the role of NS input modifications for facilitating language processing and comprehensibility by the learner (cf. e.g. Pica, Doughty, & Young, 1986) while the general role of interaction in interlanguage development (cf. e.g. Mackey, 1995; and Sato, 1986, & 1999) has also been studied. Finally, general issues concerning interaction (cf. e.g. Liu, 1991) or the relationship between interaction and negotiation (e.g. Scarcella, & Higa, 1981) have also been explored.

Mackey (1999) studied the relationship between different types of conversational interaction and L2 acquisition. The central issue the study dealt with was whether conversational interaction can facilitate L2 development. 34 adult ESL learners with diverse L1 backgrounds were put into four experimental groups and

one control group and took part in task-based interaction. The results of the study suggest that there seems to be a relationship between interaction and the development of grammatical competence. The results also underscore the important role that active participation plays in interaction.

The interaction-based line of L2 investigation emphasizes the role of negotiated interaction within the context of conversational exchanges. As was seen, studies have been carried out on the nature and characteristics of interaction in dyadic exchanges involving dyads consisting of NSs and NNSs as well as NNS-NNS exchanges. As a hypothesis-testing procedure, interaction plays a decisive role in developing language competence.

2.5 Feedback

2.5.1 General Remarks

Feedback is operationalized in this dissertation as *additional information provided to the learner to the effect that he or she can notice a gap in their knowledge*. The mere provision of feedback is unequivocally barren unless the learners notice the gap. Noticing the gap will take place if and when the learners direct their attention to the new incoming input that is being provided to them in the form of feedback. Attention to the input determines whether a given feature will be successfully incorporated into the developing language system (cf. e.g. Long, 1991; Schmidt, 1990, 1993, 1994a, 1994b, & 1995; Sharwood Smith, 1981; Slobin, 1985; Tomlin, & Villa, 1994; and VanPatten, 1990, & 1994).

As to the feedback strategies used or types of error correction devices, i.e. feedback devices, most commonly used, Lyster and Ranta (1997) conducted a study in which they identified six types of feedback that teachers were giving the students in a study among French immersion classes in Canada. The first type was explicit correction which consisted of providing the learners with the correct form and telling them that their utterance was incorrect. Recasts, which are more implicit in that teachers reformulated the learner's utterances to eliminate the errors, came second. Next, clarification requests, which are also a fairly implicit type of correction in which responses by the teachers took the form of a reaction indicating that the teacher did not comprehend what the learner had said. Fourthly, elicitation techniques are feedback techniques that were used in an attempt to get the student to produce the correct form in one of two ways: a) by completing the teacher's

reformulation, which involved asking the learner questions about how something should be said, or b) asking the students to repeat the statement in a rephrased manner. Finally, repetition of the incorrect utterance was sometimes used, often with rising intonation or emphasis, to make students aware of the fact that it was necessary to make a correction.

Both form-focused and meaning-focused feedback have been the focal point of much research and discussion. Some scholars have approached the provision of feedback with skepticism (cf. e.g. Carroll, 1997); however, there is an abundant literature reflecting the ever-increasing interest in assessing different types of corrective feedback, negotiation in interaction sequences (cf. e.g. Gass, & Varonis, 1994; Demetras, Post, & Snow, 1986; Mackey, 1999; Pica, 1994, & 1996), and their implications for L2 teaching, learning, and SLA.

There is a voluminous body of literature on the matter of feedback and error correction. The focus and the scope of the research agendas vary widely. Table 2.1 summarizes the main trends found in the literature.

Table 2.1 Lines of Research in Feedback

Line of Research	Relevant Research Studies
error correction / corrective feedback	Calvé (1992); Carroll, Swain, & Roberge (1992); Gordon (1990); Kubota (1991); Lee (1997); Lyster, Lightbown, & Spada (1999); Schachter (1991); and Selinker, & Lamendella (1979)
error correction as feedback on L2 writing	Cohen (1991); Dheram (1995); Hedgcock, & Lefkowitz (1996); Ihde (1994); Kepner (1991); and Morris (1998, also dealing with error correction and gender differences)
error correction in NS-NNS conversation	Chun, Chenoweth, & Luppescu (1982); and Day, Chenoweth, Chun, & Luppescu (1984)
student preferences for error correction	Leki (1991)
error analysis	Dulay, & Burt (1974)
error treatment	Chaudron (1977); Hyland (1990); Ihde (1993); and Johnson (1988)
error reduction	Lalande (1982); and Semke (1984)
garden-path technique for error induction and correction	Beck, & Eubank (1991); Herron (1991); Herron, & Tomasello (1988); Kubota (1995); and Tomasello, & Herron (1988, & 1989)
negative feedback	Aljaafreh (1992); Aljaafreh, & Lantolf (1994); Lasnik (1989); and Oliver (1995)
negative evidence as feedback	Bohannon, Padgett, Nelson, & Mark (1996); Bohannon, & Stanowicz (1988); Farrar (1992); Izumi (1998, & 2000); Izumi, & Lakshmanan (1998); Saleemi (1990); and Vickers (2001)
negative vs. positive evidence/feedback	Ayoun (2001); Schwartz (1993); Schwartz, & Gubala-Ryzak (1992); and Trahey, & White (1993)
negative evidence and input salience	Bardovi-Harlig (1987)
negative feedback incorporation or feedback uptake in NNS discourse	Crookes, & Rulon (1985); Gass, & Varonis (1989); Lin, & Hedgcock (1996, which discusses uptake across competence levels); and Pica (1988)
recasts as negative evidence and learner uptake	Mackey, & Philp (1998)

(Table 2.1 continued)

Table 2.1 (Continued from previous page)

Line of Research	Relevant Research Studies
feedback and consciousness raising	Nagata, & Swisher (1995)
negotiation and corrective feedback	Brock, Crookes, Day, & Long (1986); and Nassaji, & Swain (2000)

2.5.2 Recasts

Recasts are a special type of feedback regarded as both positive evidence (a model of “good” language use) and negative evidence (an indication of “anomalies” in L2 production). A recast is a reformulation of an incorrect utterance (as in the example below) that incorporates a corrected version of a mistake (in the teacher’s conversational turn):

Little Johnny: No, no, I haven’t did it.*

Teacher: It’s great that you haven’t **done** that.

Like in the example, as they co-occur with ungrammatical forms, recasts cause the targeted L2 forms to become more salient, which it is hoped will draw the learners’ attention and lead them to notice those forms. It is this researcher’s belief that some level of attention to and awareness of linguistic data is crucial for successful L2 learning/development (cf. e.g. Leow, 1997-2001).

While not conclusively, some research studies have shown that recasts are generally an effective, non-invasive feedback technique (further details will be provided later in this section), but, due to the lack of unanimity in different studies, recasts are controversial because they have not been proven to always increase perceptual salience. If the recast is not salient, then the learner will not be able to notice the mismatch between his/her knowledge of the L2 and actual L2 use. The mere provision of recasts is barren unless the learners notice the gap in their output. The latter will take place if and when the learners direct their attention to the new incoming stimuli provided in the form of feedback (e.g. negative evidence or negative input of the recast type). Attention to and awareness of feedback-based input must be followed by learner (feedback) uptake, which leads to “learners’ modification of their original utterance following the NS’s ... feedback” (Mackey, Gass, & McDonough, 2000, p. 492).

This body of research draws on the assumption that, if negative input (corrective feedback) is “noticed” and incorporated through an utterance repair move (uptake), it is then more likely for this language feature to be “taken in”, i.e. become “intake”, and to become available for processing and further development of the interlanguage system (cf. e.g. Long, 1991; Schmidt, 1990-1995; Sharwood Smith, 1981, & 1990; Slobin, 1985; Tomlin, & Villa, 1994; VanPatten, 1990, & 1994; VanPatten, & Cadierno, 1993; and VanPatten, & Sanz, 1995). In order to test whether there is a way for recasts to become more effective as noticing devices, the study presented in this dissertation combines recasts with or without the presence of visual enhancements.

In a study conducted in 2004, Ishida investigated the effects of intensive recasting on L2 learners’ use of the Japanese aspectual form *-te i-(ru)*. The results suggest that overall accuracy increased significantly and that the accuracy rate was preserved. However, of both uses of this marker (progressive and resultative), the progressive one was less accurate than the resultative one. Ishida explains this by means of resorting to the greater presence of input in the classroom and the learner’s developmental readiness.

Lyster (2004) studied 179 fifth-grade students and 4 teachers who took part in a classroom study in which Lyster was trying to find out about the effects of form-focused instruction and corrective feedback on immersion students' ability to make appropriate assignment of grammatical gender in French. The focus-on-form treatment was designed to draw attention to a series of selected noun endings that generally predict grammatical gender and to offer opportunities for practice in associating these endings with gender assignment. Each of the three teachers provided a different feedback type: recasts, prompts, or no feedback. Analyses of the measurement tasks (pre-, post- and delayed-posttest) indicated that students exposed to focus on form were able to correctly assign grammatical gender. Results of the written tasks revealed that focus on form is more effective if it is used in combination with prompts than when it is combined with recasts or no feedback.

A matter that is still pending in SLA research is identifying with certainty whether recasts are an effective device for error correction purposes. The results are as varied as the attempts to do research in this area: the few studies that have seriously studied the effects of recasts on language acquisition are inconclusive. While some studies have concluded that recasts have positive effects, others claim the opposite holds true. This may be due in part to the lack of methodological uniformity in the research studies carried out thus far. It may

also be the result of the type of population being targeted, the results of which are sometimes extrapolated to other populations that share few if any characteristics with the original population; for example, a study may be conducted among grade-school children under a special set of conditions and circumstances, and, then, researchers attempt to compare those results with college-level students who were subject to entirely different conditions.

Some studies, e.g. Farrar (1992), have measured the impact of recasts by means of the extent to which children imitate adults' reformulated utterances, and not so much in terms of language acquisition. Morgan et al. (1995) tracked the presence in children's development of the forms targeted for recasts. In laboratory studies, researchers have found evidence of L2 change, at least in the short term (cf. e.g. Mackey, & Philp, 1998; Ishida, 2004). A few classroom studies have been conducted that assessed the impact of recasts on L2 development. For example, Doughty and Varela (1998) reported changes in learners' L2 use after receiving a period of recasts. Havranek (1999) found that recasts with no special focusing element did not lead to L2 change. More studies than not have failed to examine recasts in terms of L2 development at all; instead of concentrating their efforts on issues closely related to language acquisition such as the development of grammatical knowledge, they have focused on examining immediate reactions to recasts on the part of the learners: their tendency to repeat or repair their utterance (cf. e.g. Lyster, & Ranta, 1997), their speech while they were not on task (cf. e.g. Ohta, 2000), or their ability to perceive recasts as corrective feedback in stimulated recall (cf. e.g. Mackey, Gass, & McDonough, 2000).

2.6 Language Awareness, Attention, and Noticing

The notions of awareness and attention and their impact on learning have been widely studied in cognitive psychology (cf. e.g. Anderson, 1983; Dulany, 1991; Dulany, Carlson, & Dewey, 1984, & 1985; Ericsson, & Simon, 1984; Kihlstrom, 1984, 1987; Reber, 1976, 1989, & 1993; & Reber, Allen, & Regan, 1985). Some researchers have omitted the role of consciousness in language learning by supporting the view that learning and awareness must be kept separate (cf. e.g. Carr, & Curran, 1994; Curran, & Keele, 1993; Hardcastle, 1993; Rosa, & O'Neill, 1999; & Tomlin, & Villa, 1994).

In most SLA research, *noticing* is viewed as *conscious awareness*. Tomlin and Villa (1994) suggest that

noticing might play a less vital role in fostering language acquisition while Schmidt's notion of “noticing” (Schmidt, 1990, 1993, 1994, & 1995) acknowledges the role of consciousness in language learning. Schmidt argued that noticing is a prerequisite for any intake of input (1990, p. 139): before input becomes intake, i.e. a linguistic form ready to be processed, learners must first consciously "notice" (demonstrate conscious apprehension and awareness of) a particular form in the input (cf. e.g. Bigelow, 2001; Berne, 2000; Fotos, 1993; Izumi, & Bigelow, 2000; Izumi, Bigelow, & Fujiwara, 1999; Lehtonen, 2000; Murphey, & Kenny, n.d.; Overstreet, 1998; Sanz, 2000; Sharwood Smith, 1981, on consciousness raising, i.e. raising the learner's conscious awareness of the properties of language; Truscott, 1998; & Whitlow, 2001).

2.7 Textual/Visual/Input Enhancement

2.7.1 Introduction and General Background

Sharwood Smith (1991, 1993) defined input enhancement (IE) as a way of drawing the learners' attention to specific linguistic forms. He then categorized IE into two classes: 1) internal, or performed by the learners, and 2) external, or performed by the instructor, or some other expert figure outside the learner. The use of typographical cues, also called textual/typographical enhancement (TE) or visual enhancement (VE), is a type of IE that has received a great deal of attention from researchers in SLA in the past fifteen years. By using typographical cues, we are manipulating typographical elements such as font size, boldfacing, italics, etc. in texts that we are enhancing in that manner in the hope the enhancement these types of manipulation will cause the learners to notice the targeted form or forms and will draw the learners' attention to the linguistics forms the teacher or researcher wants them to learn.

2.7.2 The Studies

IE studies carried out in the ranks of SLA are few and have been rather contradictory in their results. The aim of this part of the review is to provide a historical overview of the use of typographical cues in research.

The pioneering study in this line of research is Doughty (1991). Doughty presented a group of 14 students with computerized reading activities. The activities consisted of three different stories distributed

among three or four episodes each and divided in 10 days. Each episode contained five or six relative clauses of the oblique type “with whom” as in the example “This is the girl with whom I spoke last week at the party” This is the only kind of information that the control group received. The other two groups received input flooding and metalinguistic explanation or typographical enhancement (capitalization or highlighting) on the relative portions of the sentences. The measurement tasks were: a) pretest: written pretest and oral production task administered to measure developmental readiness; b) 4 written posttests: 2 grammaticality judgment tests and 2 sentence combination tasks, and an oral production task. The results were that the two experimental groups had the same degree of improvement in their grammaticality judgment tests and in the production of relative clauses, but the group with exposure to typographical enhancement as part of the treatment showed an added superiority when it came to reading comprehension in relation to the group which was treated with metalinguistic explanation alone.

The results of Doughty’s study spurred on the interest in conducting further research in typographical enhancement as a technique for drawing attention to form. As a result, a growing number of studies, all of them published since the early 1990s, have implemented this technique for manipulating input with a variety of grammatical forms, in a number of different languages such as English, French, and Spanish as a L2, and with subjects that are either children in grade school years or college-level adults. In the next few pages, the most important contributions to the research in input/typographical enhancement since its inception in the early 1990s will be reviewed.

Shook (1994) studied 125 adult English speakers learning the Spanish present perfect tense and the relative pronouns *que / quien* (who) in the first and second year of instruction. Input was presented in reading passages: a) 185 words and b) 217 words. In each text the learners could find six instances of the target forms, which is very limited exposure to the input. He used short-term treatment that lasted under one hour. In experimental group 1, Shook combined boldfacing and uppercase letters; experimental group 2 had the same conditions as experimental group 1, except that, in addition, learners were instructed to attend to the grammatical structures presented this way. The control group had no enhanced input and no instructions to attend to form. Shook’s results indicate that attention (experimental group 2) had a significant main effect:

greater gains in experimental group 2 than those in experimental group 1; another finding was that the relative meaningfulness of a grammatical item (as perceived by the learners) had a main effect on rate of acquisition (present perfect forms experienced greater gains than relative pronouns). The study, therefore, yielded positive findings for the facilitative effect of the enhancement.

A year later, Alanen (1995) conducted a study on the effect of textual enhancement and explicit teaching on the acquisition of the alternation of consonants among 36 English-speaking adults studying Finnish locative suffixes. There were four different experimental groups based on the following principles: effect of textual enhancement versus textual enhancement plus rule presentation on the acquisition of Finnish locative suffixes. The four groups were subject to the following respective enhancement conditions: 1) use of italics as textual enhancement; 2) explicit teaching of the linguistic forms under investigation; 3) a combination of italics and explicit teaching; and finally, 4) presentation of the text without textual enhancement. Alanen used a short-term treatment with rather limited exposure to input: the treatment lasted 2 sessions, each of which had a duration of 15 minutes. In the treatment, the subjects had to read two passages 87 and 98 words long that contained 12-13 locative suffixes and 5-8 consonant changes, which is very limited exposure to the target forms. There was no pre-treatment task. There were seven post-treatment tasks: one think-aloud protocol analysis and written measurement tasks that included sentences to complete, grammaticality judgments, and rule formulation. The results of the study demonstrated that the effect of textual enhancement was limited and it was not strong enough to support any claims that the use of visual enhancement is unequivocally effective in improving grammatical knowledge.

Also in 1995, Jourdenais, Ota, Stauffer, Boyson, and Doughty studied the effects of input enhancement on preterite / imperfect forms in Spanish among 10 English-speaking adults in second semester Spanish. Exposure to the treatment input lasted a rather limited brief session of less than an hour. In the session, the subjects had to read a paragraph of 210 words. The enhancement forms were shadowing, underlining, boldface, and increase and change in font size and type. The treatment consisted of reading a paragraph which contained 18 preterite forms and 10 imperfect forms. There was no pretest measurement task. The post-treatment task involved a written story production task along with a think-aloud protocol. Jourdenais et al. found that: 1) the

subjects who received input enhancement would mention more of the highlighted forms in recall phases during think-aloud protocols than those who had not been exposed to enhanced input; and 2) textual enhancement increases the capacity to detect the target linguistic elements.

White (1996) studied 86 French-speaking children who are students of English learning the possessive determiners. The measurement tasks were a multiple choice recognition task, an oral description of an image, and correction of a written text. The enhancement was done by means of underlining, boldface, italics, and by an increase in the font size. The main conclusions were that textual enhancement increases the frequency of use of the target linguistic elements, but that it has little effect on precision.

Leow (1997) conducted a study with 84 English-speaking adult learners of Spanish. Leow studied the effect of text length and textual enhancement on formal imperatives in Spanish. The experimental groups were distributed as follows: a) enhanced long passage (631 words); b) enhanced short passage (384 words); c) non-enhanced long passage; and d) non-enhanced short passage. The short and long non-enhanced passages were the same length as their enhanced versions. The subjects experienced limited exposure to the targeted forms: the short text included 15 instances of the formal imperative whereas the longer text had 24 cases of the targeted items. The study involved a short-term treatment that lasted under an hour. The measurement tasks were a multiple choice recognition task and a reading comprehension task. The enhancement devices were underlining and boldface. Leow's main conclusion was that the enhancement had no effect.

Robinson (1997) conducted a study among 60 native speakers of Japanese. Subjects were randomly assigned to one of four training conditions: implicit, incidental, enhanced, instructed. In each condition, subjects had to read 55 stimulus sentences generated by a MacIntosh computer. Following each stimulus-sentence presentation, subjects were asked a follow-up question, which differed according to the training condition. Subjects in all conditions were allowed as much time as they needed to respond to each question. The enhancement took the form of a box drawn around verb stems. The number of syllables in each verb was boxed for each sentence. The conclusion that Robinson reached was that the enhancement had limited effects.

Overstreet (1998) studied 50 adult English-speaking learners of Spanish learning the preterit and the imperfect who were enrolled in third semester Spanish. The subjects read two different passages, depending on

the experimental group to which they belonged: a) enhanced familiar content; b) enhanced unfamiliar content; non-enhanced familiar content; and non-enhanced unfamiliar content. Each text had 210 words. The enhanced forms in the texts were distributed as follows: 18 for the preterite and 10 for the imperfect. The enhancement types were shadowing, underlining, boldface, increasing and changing the font size and type. The measurement tasks used were multiple choice recognition task, reading comprehension task, and written production task. Overstreet concluded that textual enhancement has no effect on intake, but it has a negative effect on comprehension.

White (1998) is a study with longer-term treatment and greater amount of input enhancement. It produced mixed results and showed only limited effects. It involved intact intensive grade 6 ESL classes (N=60) over a three-month period near Montreal and they were learning possessive determiners in English. The treatment consisted of a collection of reading passages that included possessive determiners as the grammatical forms under investigation, but the study focused on the effects of input enhancement on the acquisition of the third person singular possessive determiners (his/her). The enhancement was done in one of these forms: font enlargement and/or different combinations of bolding, italics, and underlining. There were three treatment groups: a) input flood as well as extensive listening and reading; b) E: typographically enhanced input flood; and c) typographically non-enhanced input flood. Exposure to the treatment lasted six instructional units over 10 hours for two weeks and 2 to 3 hours per week for a five-month period. Exposure to the input was done by means of a ten-hour instructional package consisting of different types of reading materials such as short stories, fables, and poems. The measurement tasks included a passage correction task, a multiple choice test and a picture description task. The pretest was administered to measure the learner's developmental stage. Two posttests were administered: an immediate posttest, which was administered following the treatment, and a delayed posttest which was administered during the nineteenth week of the course. White came to the conclusion that the enhancement had favorably affected the learners based on the test results and on production tasks. However, no long term memory effects were noted.

Wong (2000) studied 81 adult English-speaking learners of French studying past participle agreement. The post-treatment tasks were a recall task and identification and correction of errors. The enhancement types

used were boldface, underlining, italics, and font increases. The main conclusions of the study were that textual enhancement has no effect on language acquisition, but it does have an effect on comprehension.

Leow (2001) conducted a study among 38 adult English-speaking learners of Spanish who were enrolled in first year Spanish. The targeted forms in the treatment were formal imperative commands. The treatment consisted of reading one passage of 242 words, which was enhanced by means of underlining and boldface, and included 17 enhanced commands. The entire treatment lasted under an hour. The measurement tasks in which the subjects engaged included a think-aloud protocol carried out during the experimental task, a multiple choice recognition task, sentences to complete with a word, and a reading comprehension task. The main conclusion was that textual enhancement has no effect.

Izumi (2002) studied the use of relative clauses among 61 adult speakers of different L1s, all of whom were studying English as a second language. The measurement tasks consisted of a sentence combination test, a picture-cued sentence completion test, an interpretation test, and a grammaticality judgment test. The enhancement types were a combination of boldface, shadowing, and different fonts and font sizes. Izumi's main conclusion was that the visual enhancement group did not show any measurable effect on learning, but the enhancement had a significant impact on the noticing of the target form items in the input.

Leow, Egi, Nuevo, and Tsai (2003) led a study of 72 adult college-level students matriculated in the first year sequence of Spanish studies. The target linguistic items in the study were the Spanish present perfect and present subjunctive. The 72 participating subjects were distributed as follows: 41 participants were assigned to the experimental group (enhanced condition), whereas 31 participants belonged to the control, non-enhanced group. Of the 41 subjects in the experimental group, 17 were exposed to the present subjunctive and 24 subjects were exposed to the present perfect forms. Similarly, of the 31 subjects in the control group, 16 received exposure to the present subjunctive, whereas 15 were exposed to the present perfect. The treatment was carried out by exposure to separate reading passages: each experimental group received a separate reading text. Text A contained 10 instances of use of the present perfect while text B had 10 examples of the present subjunctive. Enhancement to the texts was done by means of: a) underlining the whole verb, b) bolding the tense morpheme only, and c) a larger font. The assessment task was a 16-item multiple-choice recognition task. There was a

pretest administered three weeks prior to treatment and a posttest administered immediately after treatment. In line with other studies conducted by Leow, the results of this study suggest that textually-enhanced input does not benefit learners who are exposed to the enhanced input.

2.7.3 Meta-analysis of the Studies

Before concluding this review of the literature on input enhancement, one should stop for a moment to examine the commonalities and the differences among these studies, and the limitations found in the studies reviewed on visual input enhancement.

Of the 14 studies reviewed, 8 drew their subject population from Spanish language learners: Shook (1994), Jourdenais et. al. (1995), Leow (1997), Robinson (1997), Overstreet (1998), Leow (2001), and Leow, Egi, Nuevo, and Tsai (2003). The remaining studies focused on English (Doughty, 1991; White, 1996, & 1998; & Izumi, 2002), French (Wong, 2002) and Finnish (Alanen, 1995). On the other hand, the subjects' first language was typically English with only a few exceptions: French (Doughty, 1991; White, 1996, & 1998; Wong, 2000), and Japanese (Robinson, 1997).

The number of subjects involved in these studies varied widely; however, they typically ranged from 30 to 80. The study with the greatest amount of subjects was conducted by Shook (1994), and it included 125 subjects while the study with the least number was Jourdenais et al. (1995). In terms of the age range of the subjects participating in the studies reviewed, all studies included adult college-level individuals whereas one case (White, 1996) involved children.

The linguistic items that were part of the enhanced input were typically verb forms; for example, the Spanish present perfect (Shook, 1994) or the preterite / imperfect distinction in Spanish (Jourdenais et al., 1995; & Overstreet, 1998). Other forms used in these studies include relative pronouns and clauses (Doughty, 1991; & Izumi, 2002), the Spanish imperative (Leow, 1997, & 2001), possessive determiners (White, 1996), or past participle agreement in French (Wong, 2000).

In the studies reviewed, the researchers used eight enhancement devices. However, only four of those devices were used in several studies, and it is fair to say that they are more common than the rest of the devices included in this paragraph: boldface (27.27%; n= 9), which was followed by underlining (21.21%; n= 7), font

size increase (18.18%; n= 6), and italics (12.12%; n= 4). The remaining four devices occurred less frequently in the reviewed studies: shadowing (9.09%; n= 3), followed by font size change (6.06%; n= 2), font type change (3.03%; n= 1), and, finally, a rather peculiar device involving drawing a box around the target form (3.03%; n= 1; Robinson, 1997). In line with the presentation of the types of enhancement devices used, this researcher would like to add here that the use of multiple enhancement devices in some of the studies may have been responsible for the negative results for input enhancement in these studies. It is very possible that the learner may have had to struggle in maintaining their attentional resources throughout the experimental task and to do so by/while attending to linguistic stimuli that were enhanced in different formats may have played an important role by diverting their attention away in different directions.

As to the choice of assessment instruments utilized in these studies, 60% of the studies used one or a combination of the following five assessment types: a) multiple choice recognition task (16.66%; n= 5), b) grammaticality judgment test (13.33%; n= 4), c) sentence completion task (10%; n= 3), d) reading comprehension task (10%; n= 3); and e) sentence combination test (10%; n= 3). In addition to these, the following other forms of assessment were found: a) correction of a written text (6.66%; n= 2), b) oral production task (6.66%; n= 2), c) written production task (6.66%; n= 2), d) think-aloud protocol (6.66%; n= 2), e) rule formulation (3.33%; n= 1), f) recall task (3.33%; n= 1), g) picture-cued sentence completion test (3.33%; n= 1), and h) interpretation test (3.33%; n= 1).

In reviewing these studies, it has become apparent that the results found are largely inconclusive and fairly mixed and do not allow the SLA community to encourage the use of input enhancement nor to discourage it. Most studies have yielded limited or no effects for visual enhancement. The following part of the literature review summarizes the conclusions reached by the studies reviewed.

A few studies have found facilitative effects for input enhancement, for example, Doughty (1991), Shook (1994), and Jourdenais et al. (1995). Doughty (1991)'s results indicate that her two experimental groups improved similarly in their grammaticality judgment tests and in the production of relative clauses; the group with exposure to typographical enhancement was, however, superior in reading comprehension to the group treated with metalinguistic explanation. Also positive were the results found by Shook (1994), whose results

indicated that attention had led to greater gains in experimental group 1. Shook also found that the relative meaningfulness of a grammatical item (as perceived by the learners) had a main effect on rate of acquisition: present perfect forms, perceived as more meaningful, experienced greater gains than relative pronouns. Jourdenais, Ota, Stauffer, Boyson, and Doughty (1995) found that: 1) the subjects who received input enhancement would mention more of the highlighted forms in recall phases during think-aloud protocols than those who had not been exposed to enhanced input; and 2) textual enhancement increases the capacity to detect the target linguistic elements.

The vast majority of studies yielded mixed or no positive effects for visual input enhancement. White (1996)'s conclusions were that textual enhancement increases the frequency of use of the target linguistic elements, but that it has little effect on precision. Along the same line of the little or no effectiveness of the enhancement treatment are the studies by Leow (1997, & 2001) that have all led to the conclusion that input enhancement had no positive effect on the learners participating in the studies. In the same vein is White (1998)'s study, which produced mixed results and showed only limited effects, but White came to the conclusion that the enhancement had favorably affected the learners based on the test results and on production tasks. However, no long term memory effects were noted. Like White (1998), Robinson (1997) also reached the conclusion that the enhancement had limited effects. Similar to Robinson's and White's results were those of Alanen (1995) whose study on Finnish locative suffixes and consonant alternations led to the conclusion that textual enhancement has a limited effect. Similarly, in his Spanish preterite/imperfect study, Overstreet (1998) concluded that textual enhancement has no effect on intake, but it has negative effect on comprehension. On the other hand, Wong (2000) concluded that textual enhancement has no effect on language acquisition; however, Wong's results disagree with Overstreet's, since, as she indicated, the enhancement has an effect on comprehension. Izumi (2002)'s conclusion was that the visual enhancement group did not show any measurable effect on learning, but the enhancement had a significant impact on the noticing of the target form items in the input. Finally, Leow, Egi, Nuevo, and Tsai (2003) suggest that textually-enhanced input does not benefit learners who are exposed to the enhanced input.

Before proceeding to the next section in this chapter, this researcher will make a few additional comments about the studies, specifically about their shortcomings.

None of the studies reviewed incorporated an instrument that measured whether the enhancement effect used was noticed, and what, if any, was the purpose, degree, and extent of noticing of the enhancement. In Alanen's (1995) study the learning seems to be explained away, if only minimally, as resulting from input enhancement. White (1998) notes that the learners indicated that they noticed the forms but were sometimes unsure as to the relevance or importance of the enhanced form. Future research studies need to include measures or instruments specifically designed to measure noticing. The study presented in this dissertation attempted to do that in the questionnaires and the post-written chat session report.

There has been discussion among researchers investigating input enhancement regarding the possibility of using input enhancement in combination with some additional type of meaning-oriented task involving some additional attention to form, for example a form-focused recall task that would include a text with textual enhancement (Izumi, 2002, p. 544). This type of research technique is far from being widely used in the literature reviewed; however, William's (1999) study, in which beneficial effects of visual enhancement were reported, resorted to a form-focused verbatim recall task along with visual enhancement. Doughty (1991) found positive effects from the meaning-oriented approach she took in her study that involved visual enhancement and comprehension questions after each sentence, and she also found beneficial effects.

Another limitation of most of the studies is the total time of exposure to the treatment, which in most cases lasted under an hour (e.g. Alanen, 1995; Jourdenais, et al., 1995).

Another issue that needs addressing is that some studies appeared not to have measured prior knowledge of the target linguistic forms to which the subjects were going to be exposed (e.g. Alanen, 1995; Jourdenais, 1995; Robinson, 1997) whereas others had a measurement task during the pretest (Doughty, 1991; Leow, 2001; White, 1998).

A startling discovery in the review process of these sources was that the degree to which the subjects were exposed to enhanced input was moderately low, and it was in some cases minimal, for example, Shook (1994) used 6 forms of the present perfect and 6 relative pronouns. It seems to be the case that in all of the

studies reviewed ten to twenty instances of the target form is a fairly standard number, for instance, Jourdenais et al. (1995) and Overstreet (1998) used 18 forms of the preterite and 10 of imperfect. In his studies on the Spanish imperative, Leow (1997) used 15 and 24 imperatives and in (2001a) he used 17 imperatives. Finally, Alanen (1995) used 12-13 examples of the locative suffixes and 5-8 of consonantal changes.

In coming to the realization that such a relatively small amount of instances of enhanced forms of the target linguistic items is commonly provided to the subjects in these studies, this researcher is left wondering whether the lack of a sufficient amount of enhanced input is not a contributing factor, if not the contributing factor, in the lack of success that most of these studies have experienced. A comparison of the number of enhanced target forms provided in the different studies reveals the following facts. Both Shook (1994), who used 6 enhanced forms of each of the target linguistic items (present perfect and relative pronouns), and Jourdenais et al. (1995), who introduced 18 preterite and 10 imperfect visually-enhanced forms, claim positive effects for input enhancement. But most of the remaining studies, which did not use very different numbers of enhanced target forms, concluded that the enhancement led to limited or no effect for input enhancement. For instance, Alanen (1995)'s study on the acquisition of Finnish locative suffixes (12-13 examples) and consonantal changes (5-8 instances) showed limited effect. Similarly, three studies involving visually-enhanced Spanish verb forms conducted by Leow (1997, 15 and 24 imperatives; & 2001, 17 imperatives) led to the conclusion that the use of visual enhancement had no effect on the intake of linguistic forms. Overstreet (1998)'s study focused on the Spanish preterite (18 forms) and imperfect (10) and, like Leow, concluded that textual enhancement had no effect on intake; this finding was also supported by Leow et al. (2003) in studying the intake of Spanish present perfect and present subjunctive (10 examples in each case).

As was shown above, the number of enhanced forms used in the different studies and the relationship between that number and the reported effects of the enhancements on intake of the target linguistic forms reveal that the amount of exposure only (determined in terms of the quantity of enhanced forms used in each study) does not seem to lead to greater rates of linguistic intake in a conclusive fashion. However, this researcher would like to note that other factors involving the characteristics of study design may have played an important role in determining study outcomes and, perhaps, not allowing fair conclusive comparisons among the studies.

Some of the factors alluded to include differences in: a) number of subjects; b) types of linguistic items used; c) types of enhancement devices used (N = 8); d) types assessment instruments; e) absence of a pretest in some studies; and f) assessment types (N = 13) that were often rather dissimilar in different studies. This researcher believes that the number of items to which the subject is exposed is an important factor, but the studies are sometimes so widely different in their design and in how they assess study outcomes that fair comparisons regarding the effectiveness of textual enhancement in these studies are not possible.

2.8 Use of Computer Technologies in the Development of L2 Competence

A fairly new line of L2 research, CALL, is concerned with the use of computer technology. Among other issues, CALL research aims to assess the potential benefits associated with the implementation of computer technologies and their role in fostering language acquisition. The Internet revolution led to the popularization of electronic means of communication known as computer-mediated communication (CMC).

2.8.1 MOOs and MUDs

The most popular examples of text-based CMC tools are electronic mail and written chat rooms; other less-known text-based CMC environments include Multi-User Domains/Dungeons/Dimensions (MUDs), and MUD Object Oriented (MOOs).

Some studies have appeared reporting the use of MUDs, most notably Cherny (1996), who focused on the interaction patterns that emerge in using MUDs as tools for communication in a collaborative learning environment. Some researchers have directed their attention toward the educational use of MOOs in general (Ingvarson, 1996) and in the L2/FL classroom, as can be seen in Table 2.2:

Table 2.2 Research in MOOs and MUDs by Language

Language studied	Source
ESL	Furst-Bowe (1996); Haas & Gardner (1999); Harris, & Wambeam (1996); & Rouzie (2000)
EFL	Conlon (1997)
German L2 and ESL dyads	Donaldson, & Kotter (1999a, & 1999b)

As Table 2.2 shows, the vast majority of studies in MOOs and MUDs have been conducted among ESL

subjects and less frequently within an EFL context. Some studies conducted to date have also involved learner dyads consisting of L2 German learners and ESL students.

2.8.2 E-mail and Chat Rooms

E-mail and chat room exchanges have also received attention (e.g. Rilling, 1998, in L2 Spanish; Roskams, 1998, in ESL; Cafolla, & Knee, 1999) in recent years. The next two sections will discuss the research that has been carried out within the context of communication using e-mail (2.8.2.1) and chat rooms (2.8.2.2). As will be seen, the effects of e-mail on L2 development still needs much effort on the part of researchers. The majority of the studies examined revolve around affective factors and linguistic gain deriving from the use of e-mail has still not been widely assessed.

2.8.2.1 E-mail

Empirical research on the use of electronic mail in language courses has been done for some of the most commonly taught languages around the world: Spanish (e.g. Cahill & Catanzaro, 1997; Calderón-Young, 1999; Flórez-Estrada, 1995; González-Bueno, 1998; González-Bueno, & Pérez, 2000); EFL/ESL (e.g. Backer, 1998; Biesenbach-Lucas, & Weasenforth, 2001; Cowie, 1997; & Liaw, 1998); German (e.g. Blatt, Voss, & Hartmann, 1998); and Japanese (e.g. Chapman, 1997).

With regard to the use of electronic mail in the L1/L2 classroom, empirical work has been done for the most commonly learned languages; however, the (beneficial) effects of e-mail on language proficiency development is still understudied. Most studies reviewed focus on affective factors and few or none focus on the linguistic gains associated with the use of e-mail. In the case of Spanish, several studies are worth mentioning. Cahill & Catanzaro (1997) discuss the teaching of an L2 college-level introductory course taught online that incorporates electronic messaging, multimedia, World Wide Web, and Internet assignments. They highlight the positive effects the approach had on the students' language gain and on their desire to learn Spanish. Calderón-Young (1999) reviewed how e-mail and other Internet-based technologies might be used to enhance student learning. Flórez-Estrada (1995) explores some of the ways in which a computer electronic exchange between NNSs and NSs may affect foreign language development, and in particular writing proficiency.

González-Bueno (1998) and González-Bueno and Pérez (2000) also studied the pedagogical

implications of using electronic mail. In their 2000 study, González-Bueno and Pérez investigated whether electronic dialogue journals produced greater quantity and accuracy of language than their paper-and-pencil counterparts. A total of 30 L2 Spanish learners participated. Results showed that the electronic dialogue journals had a substantially positive effect on the amount of language the students produced; it improved the students' attitudes toward learning and practicing the language, but it did not appear to pose any significant benefit over the paper-and-pencil version with regard to lexical and grammatical accuracy.

For ESL contexts, Backer (1998) describes how many Israeli English-as-a-Second-Language students use cyber-English to chat with peers worldwide via the Internet, suggesting that this is a useful addition to standard instruction, because it is a motivating and powerful means of communication. For EFL, two studies were identified: Cowie (1997), who was teaching English in Japan, describes the use of e-mail dialogue journal; however, he does not provide an assessment of the impact of e-mail on language learning.

Blatt, Voss, and Hartmann (1998) describe the design of courses for the study of German in primary and secondary schools, where students in Hamburg University's Department of Education cooperate with high school students via e-mail, message-board, and chat. The article discusses the theoretical framework and institutional setting and the results from text analyses and questionnaires examining students' attitudes.

Finally, a study by Chapman (1997) investigates the effect of oral and electronic media on interaction patterns by learners of Japanese as a second language using communicative act theory as the basic framework for analyzing the learners' interactional processes.

2.8.2.2 Chat Rooms

In addition to studies on electronic mail, empirical research concentrating on the foreign-language classroom use of chat rooms began to proliferate during the latter part of the 1990s, although it is still scarce. Kitade (2000) discusses the use of computer-mediated communication contexts by FL Japanese students considering the features of the learners' discourse and SLA theories as they apply to CMC environments.

Studies worth mentioning include: Bearden (2004); Fraser (1999), who investigated intermediate German literature students; Bohlke (2000), who reports on a study with fourth semester German FL students; Fidalgo (2001); Lee (2002a, 2002b); Salaberry (2000); and Yuan (2003).

Blake (2000) describes a study with fifty intermediate L2 Spanish learners who were asked to carry out networked discussions in pairs during their lab time using a synchronous chat program that records all textual entries. His findings suggest that computer mediated communication can provide many of the alleged benefits ascribed to the Interaction Theory, but with greatly increased possibilities for access outside of the classroom environment.

Darhower (2000) investigated the interactional and linguistic features of communication among intermediate level Spanish learners and their teacher in a synchronous CMC context. Vygotski's sociocultural theory was used to describe and explain how learners and their teacher collaborated with each other to construct meaning in chat rooms. General patterns of learner-learner and learner-teacher interaction were analyzed as well as learner and teacher perceptions of the use of chat as a language learning tool, and finally, changes in learner output over time. Darhower focused on the Spanish verbal morphology system for illustration and discussion of changes over time.

Other studies emphasizing the beneficial effects on student language gain include Altun (1998) focusing on interaction strategies, and Chaffee (1999), who describes the use of computer pen pals to invite foreign language students who are at different levels of instruction to participate in activities that involve real life situations. Designed to develop writing skills, these activities help students review vocabulary and to practice verb forms and grammatical structures.

Bohlke (2000) studied communication in a German language chat room environment. He found that in this environment: 1) students write as they would speak, and 2) the written output produced during the experiment shows features of oral language.

Finally, Lee (2001) reports on the opportunities for using the target language for negotiating form and meaning that the chat room has. She discusses the interaction between NNs in groups of three or four students of Spanish as an FL and the types of communication strategies they used. She also reports on the use of corrective techniques by the learners.

2.9 Summary

Earlier in this chapter, it was seen that the comprehensible input theory, which contends that exposure to

comprehensible language is a necessary and sufficient condition for language acquisition, has received support from a number of research studies such as those conducted by Chaudron (1985), Færch & Kasper (1986), and Krashen (1981, 1982, & 1985). Yet, other studies conducted by Merrill Swain (1985) and her colleagues appear to minimize the relevance of input-based research and to support the output theory, which explains that language is acquired by engaging in hypothesis testing while being involved in producing the target language. In spite that Swain's and other studies –e.g. Izumi et al. (1999), Izumi (2002), and McDonough (2005)– lend support to the output theory, other researchers (e.g. Horibe, 2002) have reported no statistically significant differences between input and output groups. While input and output have been reported to be important factors in developing language competence, the role of interaction –as proposed in Michael Long's interaction theory/hypothesis (Long, 1980, and later)– should not be overlooked. A number of studies such as Mackey (1999) have lent support to Long's theory.

Another important line of research discussed earlier deals with the investigation of the role of feedback in language acquisition. The role of feedback was discussed earlier with a special focus being made on the use of recasts as a feedback technique. The effectiveness of recasts has been shown in some studies such as Doughty and Varela (1998) while Havranek (1999) represents one of the cases when recasts did not lead to L2 improvement. Most studies have failed to assess the effectiveness of recasts as a tool for L2 grammatical development, and, instead, they have focused on studying learner reactions to the recasts, for example, the tendency to repeat or repair their utterance (Lyster & Ranta, 1997), the characteristics of their speech while not on task, (Ohta, 2000), or the ability to perceive recasts as corrective feedback (Mackey, Gass, & McDonough, 2000).

SLA research focus on the role of noticing in language acquisition has concluded that noticing is a prerequisite for any intake of input (Schmidt, 1990, p. 139) and that, before input becomes usable intake, it must be consciously perceived by the learner (cf. e.g. Bigelow, 2001; Izumi, & Bigelow, 2000; Izumi, Bigelow, & Fujiwara, 1999; Sharwood Smith, 1981).

According to the findings from existing studies, the effectiveness of visual input enhancement in leading to greater L2 gains cannot be conclusively determined. Shook (1994) is among the few who have found a

positive effect for the enhancement of input by means of typographical elements. While some studies report greater occurrence of the target linguistic forms in subsequent production they also conclude that visual input enhancement seems to have little effectiveness in improving precision (e.g. White, 1996). Mixed results (scarce or total lack of effectiveness) were also a common denominator among the studies conducted by a number of researchers (e.g. Leow, 1997, 2001, & Leow et al., 2003). In spite of having shown limited effects, White (1998) concluded that the enhancement had had favorable effects on the learners, but she did not note long term memory effects. As this researcher noted earlier, it should be pointed out that the characteristics of study design may have determined the outcomes of previous studies. The latter makes it difficult to establish comparisons among the studies and to draw any inferences as to the actual overall effectiveness of enhancing the input by means of adding special typographical features, because in many cases study design and, most importantly, the assessment of treatment effects, were radically different.

CALL research, a fairly new trend in language acquisition inquiry involving the assessment of the potential benefits of implementing computer technologies in language learning, has focused, among other areas, on computer-mediated communication (CMC) environments such as MOOs, MUDs, e-mail, and chat rooms. Very few studies conducted to date in CMC contexts concentrate their efforts on the effects of interaction in these environments on L2 accuracy. An example of the studies that do is González-Bueno (2000) on the use of e-mail among Spanish learners. She reports that e-mail had a clear impact in terms of increasing the amount of language produced by the subjects, but they did not show any improvement in accuracy. In the remaining CMC contexts (MOOs, MUDs, and chat rooms), studies primarily focus on patterns of interaction, but, with the exception of Darhower (2000), they do not investigate specific development of grammatical competence, an aspect the study presented in this dissertation sought to address.

2.10 Conclusions

Where does the research community stand and where is research headed? In light of this researcher's examination of the state of affairs in the different relevant areas of inquiry (comprehensible input and output, interaction, noticing, recasts, visual input enhancement, and CMC with a focus on chat rooms), this researcher concludes that input and output proponents ought to work collaboratively rather than discounting or overlooking

the claims from each other's line of research. Even though this researcher has not conducted a single study in any of those areas, he believes that it stands to reason and common sense that both input and output are crucial: if you are never exposed to a language (input), you will never have the raw material to establish what is or is not the accepted code in that language, and, consequently, you will never be able to utter (output) a single word in that language. Which of the two is more important? Personally, this researcher believes that neither is more important than the other and both are important, but, evidently, input always comes before output. Interaction (Long, 1980, & later) is where both input and output come into play, and, as Long and other researchers contend (e.g. Mackey, 1999), is key in language development. The research study presented in this dissertation was designed considering the crucial nature of interaction, which took place in a chat room, as the framework in which input, output and feedback (in the form of recasts with or without input enhancement) would come into play. The author of this dissertation believes that future research studies should be designed with the goal in mind of determining whether negative input (corrective feedback) -another kind of input- involving recasts and typographical forms enhancement is effective when it is provided in reaction to target L2 forms.

In terms of the use of visual enhancement, an important factor is that the learners notice the enhancement. Research in noticing has shown that the learner must be aware of the input before it can become intake (e.g. Schmidt, 1990; Bigelow, 2001; Izumi, & Bigelow, 2000). If the learners do not notice the characteristics of input in general and do not notice or fail to understand the presence and role of some kind of visual enhancement, then the intended target form will not become material for intake. To this researcher's knowledge, studies conducted to date in input enhancement have failed to look into whether the subjects notice the enhancements and what they believe their role is. The study presented in this dissertation sought to address these issues by including several questions in one of the questionnaires. Existing findings on the effectiveness of visual input enhancement in L2 acquisition are not conclusive, which perhaps may be attributable to the fact that visual input enhancement may not have as marked a noticing function as desired. While some studies (Shook, 1994) found a positive effect for the enhancement, many more conclude that it had little effectiveness in improving precision (e.g. White, 1996), and many others had mixed results (e.g. Leow, 1997, 2001; & Leow

et al., 2003). As noted earlier, the characteristics of study design and the assessment of treatment effects may have played a major role on the results.

Like the effectiveness of visual input enhancement, that of recasts has also been called into question. While some studies (e.g. Doughty & Varela, 1998) found recasts effective in leading to L2 development, others (e.g. Havranek, 1999) did not. As noted earlier, very few studies have assessed the effectiveness of recasts in triggering grammatical development, and most studies concentrate on learner reactions to the recasts. Before recasts can be conclusively ruled out as an effective feedback technique for developing grammatical competence and only that, more research in this area is needed.

Finally, CALL research, whose main focus has been CMC environments such as MOOs, MUDs, e-mail, and chat rooms, has seen the emergence of only a few studies investigating how interaction in CMC environments affects L2 accuracy (e.g. González-Bueno, 2000 -a study on e-mail use) while most other studies (notably, on MOOs, MUDs, and chat rooms) have dealt with patterns of interaction. It is clear that there is a dearth of studies taking advantage of CMC environments as communicative contexts -which they are- in which all of the remaining factors discussed in this Review can come into play in order to investigate the development of grammatical knowledge. In reaction to the aforementioned scarcity of studies, this writer decided to embark on the task of implementing his study. Needless to say, many more research studies are needed.

CHAPTER III. METHODOLOGY AND PROCEDURES

3.1 Overview

This researcher designed the study outlined in this chapter in order to answer the following research questions (also available in Chapter I, section 1.4):

Question group 1. Feedback and grammatical development

Question 1A) Does the type of feedback determine the amount of feedback uptake (incorporation) that will take place as measured by posttest results?

Assumption 1A) The more perceptually salient nature of enhanced (underlined) recasts will lead to greater amounts of feedback uptake, because increased perceptual salience leads to greater rates of noticing and uptake.

Question 1B) Does perceptual salience through visual enhancement increase the effectiveness of recasts as a feedback tool?

Assumption 1B) Perceptual salience through visual enhancement will increase the effectiveness of recasts because of their greater specificity as feedback and will lead to greater amounts of gain.

Question 1C) Does the provision of feedback result in increased grammatical accuracy?

Assumption 1C) The provision of feedback will result in increased grammatical knowledge, and the increase will be directly proportional to the explicitness of the feedback.

Question group 2. Development in communication strategies

Question 2A) Will chat room interaction bring about improvement in students' ability to identify the appropriate context for different communication strategies as measured by the communication strategies (dialog completion) test items?

Assumption 2A) Chat room interaction will have a small impact on the subjects' ability to determine when a given communication strategy is needed in the context.

Question 2B) Will the type of communicative strategy determine the subjects' ability to identify it?

Assumption 2B) Specific communication strategy types such as self-repair for form and self-repair for meaning will pose significant problems due to their inconspicuousness in comparison with other strategies are, and their infrequent use among the learners.

Question group 3. Development in communicative act use

Question 3A) Will overall quantity of communicative acts increase as a function of time spent in the chat sessions?

Assumption 3A) Overall production or quantity of communicative acts will increase as the sessions progress.

Question 3B) Will the variety of communicative act types used increase as the subjects engage in different sessions?

Assumption 3B) The variety in communicative act type use will change, but it will not increase just because the subjects are engaging in more chat sessions.

With the purpose of addressing these questions and finding an answer for them, this study has an experimental-control group research design consisting of 2 experimental groups (group A and Group B) and a control group (group C).

The subjects participated in a series of 5 chat room sessions with this researcher and were told that they would be interacting with a native speaker of Spanish who was chatting with them from Spain; however, they were never aware of the fact that, in reality, their chat partner was this researcher.

Online conversations were held using Yahoo! Messenger, a computer program with an instant messaging function that allows the interlocutors to send and receive messages in quasi-real time.

Data for the study were collected from several sources:

- 1) 2 grammatical knowledge tests, designed to gauge language development in verb assignment in 3 large grammatical contexts (noun clauses, adverbial time clauses, and conditional sentences), which were also practiced in the chat sessions;
- 2) Communication Strategies (dialog completion task) measured subjects' use of communication strategies;

- 3) 2 “Learner Background Questionnaires”, which, among other issues, tapped into the subjects’ perception of corrective feedback and measured whether their views had changed after the treatment. Subjects completed this and the previous 2 tasks using computer software packages developed by the researcher;
- 4) Chat session data, and
- 5) Chat Session Report: all subjects were asked to pay attention to the manner in which they and the native speaker were interacting as they chatted and to write down their ideas at the end of each session.

3.2 Research Method

This study involves an experimental-control group research design. There were 2 experimental groups (group A and Group B) and a control group (group C). The experimental groups correspond to the two feedback conditions with which the subjects were treated in the chat room: F1 or group A, non-enhanced recast condition, or recast without input enhancement (no underlining) vs. F2 or group B, enhanced recast, or recast with input enhancement (underlining). The control group (F3) received no kind of feedback while they engaged in interaction in the chat room sessions. Each subject remained in the same feedback condition throughout the experiment. Underlining refers to the fact that as part of the feedback in the chat room sessions, the researcher’s feedback would be enhanced by underlining the portions which he was correcting.

3.3 Research Design

The design of the study carried out for this dissertation is outlined in Fig. 3.1. in terms of treatment groups (enhanced recasts, non-enhanced recasts, and no feedback) and dependent variables. Grammatical knowledge refers to the knowledge of grammar that the subject has, and, in particular, it makes reference to gains in the subjects between pre- and posttest. Grammatical performance refers to correct assignment of tense/aspect/mood in subordinate noun and adverbial time clauses as well as conditional sentences. In this dissertation, by communication strategies it is meant a group of nine strategies that learners, who may be experiencing difficulties while communicating in the foreign language, use in order to resolve those difficulties.

An example of communication strategy is the use of the native language instead of the foreign language, typically known as use of English, whereby a learner who is lacking in a needed word in the target language may use the corresponding word in English.

The dialog completion tasks make up an instrument consisting of a set of 10 items that feature mini-dialogs presenting a context where part of or a full conversational turn is missing. The purpose of the task is to measure knowledge and use of communication strategies. Subjects were told that they had to complete the turn in a manner that was consistent with the context.

Language Use in Chat Room Sessions: Each experimental subject participated in a series of five chat room interaction sessions, 45 minutes long each, in which they interacted with this researcher, a native Spanish speaker.

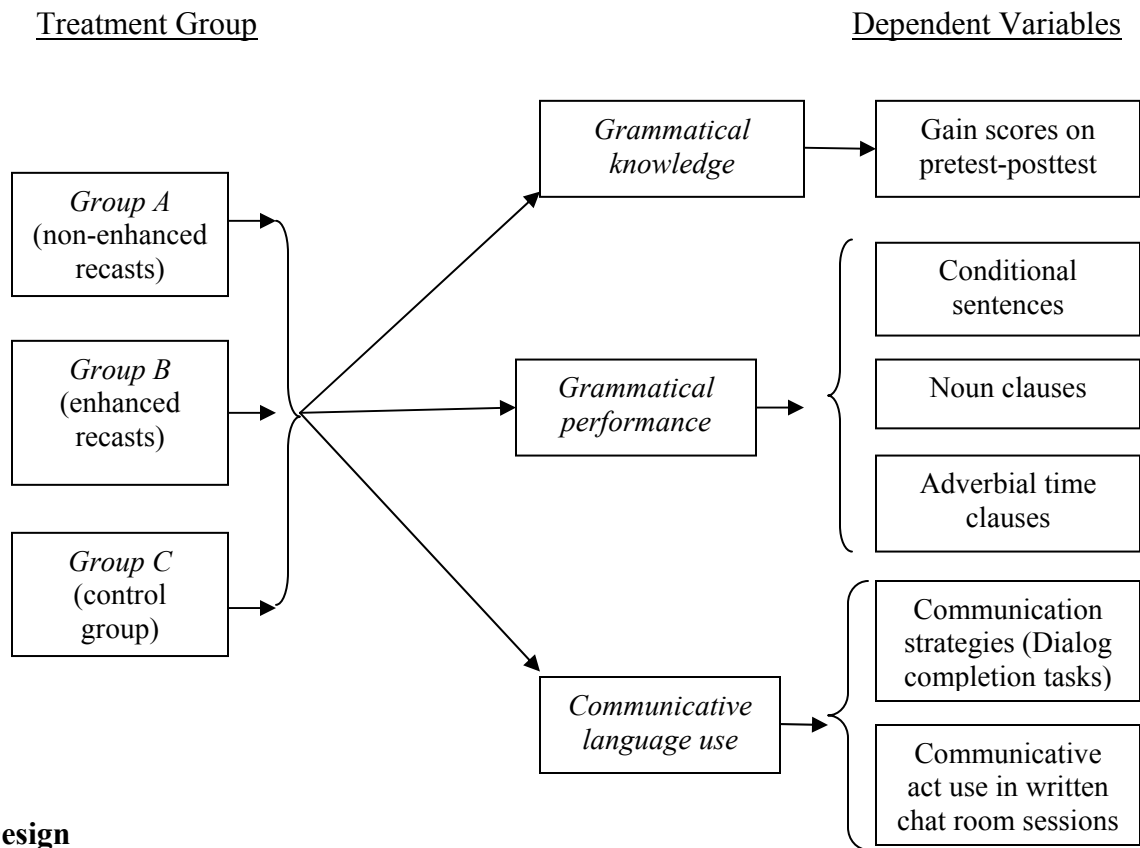


Figure 3.1
Research Design

The data analyzed for each subject come from the following four types of sources:

1) Measurement tasks:

a) Two “Grammatical knowledge tests”: “Survey 2” (pretest) and “Survey 3” (posttest);

For examples test items used in these test, please consult Appendix A: Sample Grammatical

Knowledge Test Items.

- b) Two “Communication Strategies” tasks, which assessed use of communication strategies;
- 2) Two “Learner Background Questionnaires”: “Survey 1” (pretest) and “Survey 4” (posttest).

Sample questions from both questionnaires are available in Appendix B: Sample Learner Background Questionnaire Items.

- 3) Five individual “Chat Session Logs” in which all entries resulting from participation in the chat sessions are recorded.

- 4) Five written “Chat Session Learner Reports” that asked the learners to report on what was happening during the sessions. After each session, they completed a sheet with five questions.

All instruments under 1 and 2 were designed in paper-based format. Subsequently, the researcher prepared a series of software packages that the student would use in the testing phases. The software packages were created using a multimedia, authoring tool called *Authorware*. The following sections describe how the materials were designed.

3.4 Research Variables

3.4.1 Grammatical Performance Variables

The developmental stage of acquisition of morphological encoding of tense/aspect/mood (TAM) was analyzed in the following 12 contexts:

- 1) Conditional Sentence, Type 1 (C1): use in a) if-clause, and b) main clause
- 2) Conditional Sentence, Type 2 (C2): use in a) if-clause, and b) main clause
- 3) Conditional Sentence, Type 3 (C3): use in a) if-clause, and b) main clause
- 4) Subordinate noun clauses introduced by main clauses involving two types of lexical units:
 - a) a verb or expression denoting (un)certainty
 - b) a verb or expression denoting influence
- 5) Adverbial time clauses

For nominal (NC) and adverbial (ADV) clauses, a distinction was made between past and future. This distinction is semantic in nature, but it affects morphological representation in Spanish. Unlike English, Spanish

verbs in many subordinate clauses involving future time reference are encoded using the present subjunctive instead of the future tense. Hence, the category identified as “future” refers to mood selection in a context involving reference to a moment in the future even though the verb form required is the present subjunctive and is, therefore, not technically the future tense.. In these clauses, the propositional content of the sentence triggers a change in modality.

The target linguistic contexts were reduced to the following:

- 1) NC (un)certainty (past vs. future): *creer/pensar que* (to think/believe that),
ser obvio que (to be obvious that), *no ser verdad que* (not to be true that),...
- 2) NC influence (past vs. future): *insistir en que* (insist on/upon [the fact.] that),
aconsejar/sugerir que (to advise/suggest that),...
- 3) ADV clauses of time (past vs. future)
- 4) conditional sentences, focusing separately on the use of morphology in either the main clause or the if-clause: the conditional sentence types were classified according to semantics, and they are:
 - a) C2, hypothetical, unreal or unlikely conditions in the present or future (e.g.
Si hablara chino, pasaría unas semanas en China [If I spoke Chinese, I would spend a few weeks in China.])
 - b) C1, real/likely conditions (e.g. *Si lo lees con cuidado, lo entenderás.* [If you read it carefully, you will understand it.]), and
 - c) C3, hypothetical conditions with reference to an event/situation in the past (e.g. *Si lo hubiera sabido, me habría comportado de forma diferente.* [If I had known it, I would have behaved differently.])

These were the target linguistic contexts used in designing the chat session scripts and the language knowledge tests administered during pre- and post-testing.

3.4.2 Communication Strategies

This researcher has identified a total of eight communication strategies that are likely to be used in the chat room sessions.³ Table 3.1 presents the strategies and provides definitions as well as examples.

Table 3.1
Summary of Anticipated Communication Strategies to be Used in the Chat Sessions

	Type of strategy	Definition/Purpose	Example(s)
1.	Comprehension check	A question asked to ensure that the message is understood by the listener.	“Do you understand me?” “Do you know the word “hypothesis”?”
2.	Confirmation check	To repeat parts of a statement to make certain that it is understood	-“ Bird?” You mean “Turkey.” - Yes, “turkey”.
3.	Clarification check	To express confusion because the words are unfamiliar or the message is incomprehensible; typically, they are accompanied by tag questions	I don't understand. Which one? I'm confused.
4.	Clarification request	To ask the other interlocutor about the intended meaning of a previous utterance or part of it because at least part of the message is not understood. The most common form they take is wh-questions	Which man are you talking about?
5.	Self-repair for meaning	To correct errors one has made on lexical items	Who paid for the story (el cuento)?
6.	Self-repair for form	To correct errors one has made on grammatical items	I used to speaked*, I mean, speak, a lot.
7.	Use of English	To use English to substitute words or ideas in Spanish when they do not know the Spanish counterpart.	El hombre “moved” a otro país. (The man moved to another country.)
8.	Topic shift	To give up the topic and switch to a new one, maybe due to a lack of interest or unfamiliarity with the topic	I don't know. I don't understand. Let's talk about when we were kids instead

³ Part of this information was adopted and adapted from p. 279 in Lee (2002b).

3.4.3 Communicative Acts

This researcher analyzed production of 12 communicative act types belonging to three main classes (assertives, directives, and expressives), all of which are gathered and defined in Table 3.2.

Table 3.2
Communicative Acts Under Investigation

Communicative act classes	Communicative act types	The interlocutor/speaker...
Assertives	Agree	signals agreement with what was just said
	Answer	responds to a question or a request
	Assertion	asserts his/her opinion
	Confirm	responds to a confirmation request
	Inform	the interlocutor provides information
	Object	signals opposition to the other speaker's opinion
Directives	Confirmation	provides confirmation in the absence of a confirmation request
	Question	asks a question
	Request	Asks the other interlocutor to do something for him/her
Expressives	Farewell	bids farewell using a verbal formula
	Greeting	greet the other interlocutor using a verbal formula
	Thanks	expresses gratitude

As seen in Table 3.2, each communicative act type belongs to one of three main communicative act categories (assertives, directives, and expressives). The communicative act types are organized and presented in Table 3.2 according to the main communicative act category to which they belong, and definitions are provided for them.

3.5 Selection and Characteristics of the Subjects

12 subjects participated in the study, but 2 of them had to be excluded from data analyses, since they failed to complete the posttest part; therefore, the data analyzed come from 10 subjects. All study participants were L1 English speakers studying Spanish as a Foreign Language enrolled in an advanced, third-year, conversation course and eighteen years of age or older.

3.5.1 General Background Information about the Learners

In a series of related questions, subjects were asked to provide information regarding their age, gender, and the languages they prefer to use in different domains, mainly the home and when surrounded by friends.

They were also asked to indicate the language or languages they are most comfortable using. The results are gathered in Table 3.3.

Table 3.3
General Background of the Subjects

Learner	Age	Gender	Preferences for Language Use		
			Feels Most Comfortable Using	Language Normally Spoken At home	Language Normally Spoken With friends
A1	18:3	M ^a	E ^b	E	E
A2	19:9	M	E	E	E
A3	20:1	F ^c	E	E	E
A4	18:3	F	E	E	E
B1	18:11	F	E	E	E
B2	19:2	M	B ^d	E	E
B3	19:8	M	E	E	E
C1	19:1	F	B	E	E
C2	18:9	F	B	E	E
C3	19:11	F	E	E	E

^amale ^bEnglish ^cfemale ^dboth English and Spanish

At the outset of the experimental procedure, subjects ranged from early 18 to early 20 years of age. 40% (N=4) were males and 60% (N=6) were females. As to their language preferences, B2, C1 and C2 feel equally comfortable using both English and Spanish but, like the rest of the sample, they speak English when communicating with Spanish-speaking acquaintances. All other individuals (N =7) are clearly English-dominant: in all cases, English is the language they feel most comfortable using and the one they tend to use regardless of linguistic domain.

3.5.2 Academic Background

A series of questions was designed to gather information about the subjects' academic background including their major as well as their experiences learning the Spanish language such as when they began learning, and how long they had been learning it when the experiment began. The main findings in these areas are shown in Table 3.4. The table shows individual learners' majors and their experiences learning Spanish focusing on three different aspects: where did they first start learning the language, how long had they been studying it when the study began, and where had they learned most of their Spanish.

Table 3.4
Comparisons on Academic Background

Learner	Major	Spanish Studies:		
		Began in	Length of Study (in years)	Most Spanish Learned in
A1	CompSci ^a	HS ^h	5	HS
A2	Psych ^b	HS	6	HS
A3	Psych	HS	6	HS
A4	Lit ^c	HS	7+ ^j	HS
B1	Und ^d	HS	7+	HS
B2	Bio ^e + SPAN-MI ^f	HS	6	HS
B3	Psych	HS	7+	HS
C1	Socio ^g	HS	7+	HS
C2	Spanish is 2 nd Major	HS	7+	HS
C3	Und, prob International Relations	HS	7+	HS

Note. ^cBiology
^aComputer Science ^fSpanish Minor
^bPsychology ^gSociology
^eLiterature ^hHigh School
^dUndecided ^jMore than seven years

All study participants claimed that they had begun learning Spanish while they were in high school and that most of the Spanish they knew when the experiment started had been learned there. 6 subjects (A4, B1, B3, and all in Group C) said that they had been learning the language for seven years or more; in the other cases, they ranged from 5 years (A1) to 6 years (A2, A3, and B2). A comparison of information regarding length of study with grammar test results reveals that having studied the language longer appears to have no bearing on how well the subjects performed on the pretest. Their major fields of study are: psychology (A2, A3, B3), computer science (A1), literature (A4), sociology (C1), biology with a minor in Spanish (B2), and double major with Spanish as a secondary major (C2), but the learner did not specify what her other major is. B1 and C3 had not decided what their major will be, but C3 added that she was considering International Relations as a likely major.

3.5.3 Spanish Language Background

In addition to providing general demographic information and information regarding their general academic background, the subjects were asked to rate their own language competence on five different areas of

linguistic proficiency: overall language competence, proficiency in speaking, competence in writing, and their ability to understand written as well as spoken language. Table 3.5 summarizes the main findings:

Table 3.5
Subjects' Self-assessment of Spanish Language Competence

Learner	Overall	Speaking	Writing	Comprehension	
				Listening	Reading
A1	A ^c	A	A	A	C
A2	C ^b	C	A	C	C
A3	B ^a	B	B	B	B
A4	A	A	C	A	A
B1	A	A	A	A	A
B2	N-L ^d	N-L	A	A	C
B3	A	A	A	A	A
C1	A	A	A	A	A
C2	A	A	A	A	C
C3	A	A	A	A	A

Note. ^abasic ^bcompetent ^cadvanced ^dnative-like

Responses varied within and between groups. In group A, A3 was the least confident in the group: her self-assessment placed her at the lowest end of the scale (basic) for all skill types. As will be seen when discussing her performance in the language tests and during the chat sessions, her perception of her language competence was very much on target, since, of all subjects in the entire sample, she performed lowest in almost all measures. Following closely but denoting more confidence than A3, A2 claimed to be competent in most areas except for writing, where he rated himself as being an advanced learner. Finally, A1 and A4 had the highest regard for their abilities in Spanish. Both learners think they are advanced language users in most areas, but they thought they were only competent in one of the skill types: reading comprehension (A1) and writing (A4). Group B subjects seemed more confident than those in group A, and their answers were also more alike. B1 and B3 rated themselves as advanced learners for all skills, but B2's responses denote varying degrees of confidence in each skill. For overall language knowledge and for speaking, B2 stated that he had native-like competence, he was a little less confident about his listening comprehension and writing skills (advanced) and even less about his ability to understand written Spanish (competent). Most subjects in Group C viewed

themselves as advanced learners for all skill types, but C2 felt a little less comfortable with her reading comprehension abilities.

3.5.4 Motivation for Learning Spanish

A group of questions was prepared in an attempt to gain insight into the reason or reasons why the subjects were learning Spanish. Statements presented to the learners focus on five categories that typically encompass the chief driving forces to learn a foreign language. Below are the statements the students read and rated. The numbers in parentheses refer to the questionnaire item(s)⁴ with which each statement is associated.

Employability (1-30): “Learning Spanish will make me a more qualified job candidate.”

Education (1-53): “I think foreign-language study is part of a well-rounded education.”

Culture (1-55): “I am interested in Hispanic culture, history, and literature.”

Travel (1-51): “I am learning Spanish to use it when I travel to a Spanish-speaking country.”

Socialization (1-38): “I am taking Spanish to be able to converse with Spanish-speaking friends or relatives.”

Table 3.6 displays the results for each of the areas of concern pertaining to the learners’ self-reports on their reasons for or motivation to learn Spanish.

Table 3.6
Comparison of Group Means on Motivation for Learning Spanish

Group Rank	Group A mean scores	Group C mean scores	Group B mean scores	Overall Sample Mean
1	Employability (4)	Employability (5)	Education (5.67)	Education (5.17)
2	Education (3.5) Travel (3.5)	Education (5.33)	Culture (5.33) Travel (5.33)	Employability (3.89)
3	Culture (2.75)	Culture (4)	Socialization (3.67)	Travel (3.83)
4		Travel (3.67)		Culture (3.69)
5	Socialization (1.75)	Socialization (2.67)	Employability (2.67)	Socialization (2.7)

Note. The figures in parentheses next to the categories represent a group’s mean score for that category.

As the group means in Table 3.6 indicate, the most critical factor leading many study participants to want to learn Spanish is having a well-rounded education (M= 5.17). While each group had different opinions

⁴ References to test/questionnaire items will be made as follows. First, you will find a number (1 or 2) followed by a dash [-], which indicates that the item is part of the pretest test/questionnaire (if 1- heads the reference) or 2- (for posttest items). The number following 1- / 2- points to the actual test item number in the order in which it was presented during the test-taking phase.

in this regard, education and the assumption that they will be better qualified when seeking employment (employability) were the top two choices in almost every group. Education ranked highest in Group B (M=5.67) while employability (M = 2.67) appears to be the least important reason for these learners. In contrast, within-group means on employability for learners in Groups A (M = 4) and C (M = 5) indicate that for the majority of subjects (N=7) employability is the leading factor to learn the language.

Groups A and C are much more alike in terms of their reasons to learn the language: the top two motivating forces for these learners seem to be instrumental (employment and education) rather than integrative (socialization). In contrast, Group B subjects gave much higher ratings to categories pertaining to integrative motivation (culture, travel, and socialization). However, groups B and C share an interest in learning about the target culture and the desire to use the target language while traveling, which is lacking in group A. Subjects in groups B and C tended to give higher ratings to all categories while Group A subjects showed a tendency to give lower ratings: the highest-ranking category for Group A was employability (M = 4), whereas, for the other two groups, 3 out of 5 categories had a mean rating of 4 or higher. The latter appears to indicate that, overall, Group A subjects are less motivated to learn the language than subjects in Groups B and C.

3.5.5 Opportunities for Travel Abroad

Table 3.7 shows relevant information for travel abroad experiences:

Table 3.7
Comparisons on Travel Abroad Experiences and Travel to Spanish-speaking Countries

Learner	Times Abroad	Spanish-speaking countries visited	
		# of Spanish-speaking countries visited	Countries
A1	2	- ^a	-
A2	4	-	-
A3	2	-	-
A4	4	-	-
B1	7	2	MEX ^b & SP ^c
B2	5	2	Costa Rica & MEX
B3	4	4	Costa Rica, MEX, Panama, & SP
C1	7	3	El Salvador, MEX, & Guatemala
C2	3	2	MEX & SP
C3	6	1	Dominican Republic

Note. ^a The subject had not visited any foreign countries ^b Mexico ^c Spain

All subjects indicated that most of their travels outside the United States were done for the purpose of vacationing. B2 and C2 are the only ones who have traveled to foreign countries to participate in a study abroad program, and in both cases the program involved living in a Spanish-speaking country; however, their reasons for participating in the program were different: while C2 went to learn/study the language, B2 claimed that the purpose for participating in the program was to study a subject matter, not the language itself. Learners were asked to specify which foreign countries they have visited when traveling abroad. As shown in Table 3.7, subjects in Groups B and C have traveled much more than those in Group A, who also noted that they have never been to a Spanish-speaking country. In contrast, subjects in Groups B and C seem to be the best traveled in the entire sample, with these groups having been to both Spanish-speaking and non-Spanish-speaking countries.

Considering all learner responses, 24 countries were mentioned in total, but the most popular destinations were: England and Mexico (5 subjects); France (4); Spain (3); and Australia, Canada, Costa Rica, Italy, and The Netherlands (2). In general, Europe appears to attract the interest of these subjects. Other European countries mentioned by at least one subject are Germany, Greece, Poland, Portugal, Switzerland, and Ukraine. Other countries and areas of the world cited as having been visited by at least one of the subjects include Africa, the Bahamas, Brazil, the Caribbean, China, Jamaica, and Thailand.

3.6 Instrumentation

3.6.1 Grammatical Knowledge Tests

Table 3.8 illustrates the distribution of test items for each target linguistic context.

Table 3.8
Distribution of Test Items per Target Linguistic context

General linguistic context	Temporal Reference		Total
	Past (N =)	Future (N =)	
Subordinate a) (un)certainly	4	4	8
Noun clauses: b) influence	4	4	8
Adverbial time clauses	5	5	10
	Clause Type		
	if-clauses	main clauses	
Conditional Sentences: a) Type 1	4	4	8
b) Type 2	4	4	8
c) Type 3	4	4	8

Each test consisted of 69 items divided into two types: a) 50 target items (using the linguistic contexts identified earlier) and 19 distracter items (6 for grammar and 13 for vocabulary). As Table 3.8 illustrates, the items were:

a) subordinate noun clauses: these involve verb choice and assignation in noun clauses involving two types of context based on two axes: a) time reference: sentences referring to a moment in the past (past) and sentences referring to a future time (future), and 2) propositional content of the verb or verbal expression in the main clause: a) certainty and b) influence. The combination of these two axes results in four target contexts:

- 1) subordinate noun clause, (un)certainty, past,
- 2) subordinate noun clause, (un)certainty, future,
- 3) subordinate noun clause, influence, past, and
- 4) subordinate noun clause, influence, future.

4 items were created for each of the target contexts shown above, which leads to a total of 16 test items for noun clauses.

b) adverbial time clauses: verb use and assignation in contexts involving past or future time reference: 5 items for past time reference and 5 items for future time reference were created, yielding a total of 10 test items and two different target contexts.

c) conditional sentences: three large contexts were investigated:

- 1) conditional type 1 involves situations whose completion is likely to occur, because they entail conditions that are likely to be met by the intervening speaker or speakers (in the literature they are often referred to as “real” conditionals).
- 2) conditional type 2, which will also be referred to as conditional 2 or C2, includes conditional sentences involving conditions that are contrary to the facts, and are also known in the literature as unreal conditionals or contrary-to-fact conditionals. In this type of conditional sentence, the situation presented in the main clause is seen as unlikely or impossible, because there is an underlying assumption that the condition presented in the if-clause is not materializing or will not materialize.

3) conditional type 3, which will also be referred to as conditional 3 or C3, involves conditional sentences that focus on contrary to fact situations in the past.

In each of the 3 conditional sentence types noted, the subjects were tested for knowledge of appropriate use of verb morphology for both clauses, but each test item only tested for either the main clause or the if-clause. This leads to 6 different types of target item for conditional sentences (conditional 1, if-clause; conditional 1, main clause; conditional 2, if-clause; conditional 2, main clause; conditional 3, if-clause; and conditional 3, main clause). Furthermore, 8 test items were developed for each sentence type: 4 items for verb usage in the main clause and 4 items for use in the if-clause, resulting in a total of 24 (= 6×4) test items for conditional sentences.

The pretest and posttest version of the Grammatical Knowledge Test have the same structure, scope, number and types of test items, and presentation sequence. The posttest target items are a structural replica of their respective pretest counterparts, yet they are not a mere repetition of pretest items. Each new item was designed by attempting to ensure that the resulting linguistic environment was as close as possible, if not identical, to its pretest counterpart. The propositional content and actual words are different in each case, but the posttest item preserves the syntactic pattern in terms of lexical slots (number of words, position of parts of speech and type of part of speech used in each slot) and the arrangement and types of syntactic units (types of phrases and their location within the sentence) found in the pretest.

The students responded by clicking on the word that matched the answer of their choice. Once they were finished answering, they clicked a button to tell the software to continue with the next item. To control for fatigue effects, which may lead to careless responses, the 69 items (plus an additional question that did not test anything) were divided into two smaller pieces: each piece consisted of 35 items and took a maximum of 23 minutes and 20 seconds to complete. Subjects were instructed to work on each part on two different days.

3.6.2 Dialog Completion Tasks

The dialog completion task was designed to measure student use of communication strategies. The same instrument (without any alterations) was administered on two occasions coinciding with pre- and posttest. The

rationale for using the same questionnaire twice was to determine if subjects would react differently to identical situations after having participated in the series of chat sessions. The instrument consists of 10 items. Each item features a mini-dialog presenting a context where a full conversational turn is missing. Subjects received instructions to complete the missing conversational turn in a manner that was consistent with the context. In each case, they had 90 seconds to read the context, make a decision and provide a suitable answer. Based on the manner in which subjects had to respond to each context, two types of items can be identified:

a) Turn Completion Items (4-10): in addition to the dialog featured in this kind of item, the subject was presented with 5 fully-formed ways in which they could complete the missing conversational turn. In those cases, they had to click on the answer that they thought best completed the context. Below is an example of this type of item; the student version only had the Spanish text (the English translations are provided here for your convenience):

Item 8 → Appeal for assistance

Carlos: *Bueno, ahora te entiendo. Y..., ¿qué hiciste ayer después de las clases?*
(Good, now I understand. And..., what did you do yesterday after classes?)

Johnny: *Ayer yo hablaste con mi novia. ----*
Yesterday I *speak[-you-preterite] with my girlfriend. ---

- A. *¿Me entiendes?* (Do you[-informal] understand me?)
- B.** *¿Se dice hablaste o hablé?* (Does one say speak[-you-pret.] or speak[-I- pret.]?)
- C. *¿Te digo eso?* (Do I say that to you[-informal]?)
- D. *¿Sabes lo que quiero decir?* (Do you[-informal] know what I mean to say?)
- E. *¿Cómo se lo digo?* (How do I say it to him/her/you?)

Carlos: *La forma correcta es “yo hablé”.*
(The correct form is “I speak[-I-preterite].”)

Johnny: *Muchas gracias.*
(Many thanks.)

In this example, the learner had to identify Carlos’ reaction to Johnny’s part (*La forma correcta es “yo hablé”*) as an indication that the missing part in Johnny’s turn was an attempt Johnny was making to get help from Carlos in using past tense morphology appropriately.

b) Turn Production Items (1-3): in this case, the subjects had to come up with and type the response themselves. Following is one of the items used:

Item 3 → Request for clarification

Anthony: *El otro día descubrí que mi vecino es un matador.*
(The other day I found out that my neighbor is a matador.)

Tú: *¿Es de España?*
(Is he from Spain?)

Anthony: *No, él mató a 20 mujeres.*
(No, he killed 20 women.)

Tú: _____

Anthony: *Sí, un asesino. Eso es.*
(Yes, an assassin. That's it.)

Tú: *¡Perdona! Es que... No te había entendido.*
(Sorry! [The thing] is that... I had not understood you.)

In this example, the conversation results from the use of the word *matador* and the misunderstanding it originates in the other person. The situation centers itself on the need for negotiation of meaning which arises from using the term *matador*.⁵

3.6.3 Learner Background Questionnaires

3.6.3.1 Structure and Contents

Questionnaire 1 (known to subjects as Survey 1, or Opinion Survey 1) consisted of 58 items, which, as in the case of the Language Knowledge Tests, were presented in two separate testing pieces with 29 items each. The maximum amount of time the subject could spend on each part was 19 minutes and 20 seconds.

Questionnaire 2 (known to the subjects as Survey 2) included 42 items in a single piece of software that took a maximum of 28 minutes to complete.

Both questionnaires, particularly the first one, were designed and presented to the learners as if they were opinion polls gathering the following information: 1) general background information about them as language learners, 2) their opinions about different language learning methods and activities, and 3) knowledge about venues for learning languages with and without the aid of computer technologies.

Of the 58 items in Survey 1, 46 items had been designed for incorporation as part of the data set included with this dissertation (1-25, 27-30, 32-33, 35-36, 38, 41, 43-44, 47, 49-51, 53-56 and 58). Among those items, this researcher had embedded 12 items that revolved around the following issues:

- 1) focus on form vs. content (27, 36, 41, 47, 49, and 58)
- 2) learners' awareness of their own errors and self-correction behavior
- 3) attention to corrective feedback
- 4) desire to receive corrective feedback when mistakes occur and the usefulness of feedback in improving skills in a foreign language.

Items 25, 29, 32, 35, 41, 43, 49, and 50 were used again in the posttest to determine whether their answers were consistent and to detect any changes that may have occurred as a result of the chat room experience. As with the Language Knowledge Test items, these Survey 1 items were modified in the posttest version to avoid a repetition/practice effect. In this case, posttest items differed in wording, but the content of the items was, in essence, faithful to the pretest version.

Other information gathered in Questionnaire 1 includes:

- 1) demographic data: data of birth and gender,
- 2) languages spoken and language of choice in different linguistic domains (home, family, friends, school,...)
- 3) Spanish language learning background
- 4) self-assessment of Spanish language skills (overall, speaking, reading, writing, and listening), perceived relative importance of different skills (writing vs. speaking),
- 5) students' knowledge of reference materials available on-line and off-line, usefulness and appeal to the students of learning with and without computers.
- 6) Travel abroad experiences
- 7) Study abroad opportunities

⁵ The contexts used in this instrument were invented by this researcher on the basis of data from transcripts of actual conversations among Spanish FL learners that were reported in Lee (2001), pp. 236-238.

Questionnaire 2 focused mostly on issues being investigated in this dissertation and was, therefore, narrower in scope than its pretest version. Questionnaire items revolved around several content areas including:

- learners' awareness of feedback provision or its absence in the chat sessions;
- potential advantages and/or disadvantages for their learning depending on whether they had (or had not) received feedback during the chat sessions;
- reflection on self-repair behavior when they perceived feedback was provided (acknowledgement with/without ensuing repair in the following turn);
- ability to transfer knowledge acquired in the chat sessions;
- actual transfer of knowledge to a different context (in and out of the chat sessions) even when no feedback uptake was apparent during a feedback provision event;
- perceived effect(s) of participating in the chat sessions on their overall language competence,
- increased awareness of weaknesses of which the learners were not aware prior to the experiment

3.6.3.2 Dynamics of the Learner Background Questionnaires

This instrument consisted of a series of statements that the subject had to rate. For each item, the subject had to read and rate a statement on a five-point scale on the basis of whether the subject strongly agreed (5) or strongly disagreed (1) with the content presented in the statement; for example:

“I liked it when the native speaker corrected my mistakes while chatting.”

3.7 Language Use in Chat Room Sessions

Each experimental subject engaged in a series of five chat room interaction sessions (hereafter referred to as “sessions”). Each session lasted 45 minutes and involved a conversation with this researcher, a native Spanish speaker. The sessions were implemented by using “Yahoo! Messenger”, instant messaging software that automatically archives the text messages sent and received by its users. The 12 subjects participating in the study were distributed among the three feedback conditions noted earlier, which led to three feedback groups: Group A (non-enhanced recast condition, F1); Group B (enhanced recast: F2); and, Group C (no feedback: F3).

Each subject remained in the same feedback condition throughout the experiment.

A chat session script was designed for each chat session. Chat session design involved identifying a variable number of grammatical features to target during the session. For each feature, a number of contexts were prepared aiming to elicit the target forms with the assumption that this would trigger errors that would in turn result in a repair episode. Before the on-line interview, the researcher wrote a chat session template/script that he used with all subjects. The template contained all text that the subjects would see from the beginning to the end of the conversation including: greeting, conversation starter, core of the conversation (or target contexts), conversation closure, and leave taking.

The rationale for having a session script is to maximize the consistency of results across subjects and to facilitate comparing responses to a target grammatical context. In designing the sessions, this researcher had two major concerns: comparability of results and naturalness of the conversations. Observations made in piloting the session scripts revealed that, in some contexts, subjects in the pilot study felt as if they were engaging in a scripted conversation. The revised version of the session scripts used in this experiment attempted to correct that problem by allowing the subjects to take a more active role in the conversation while ensuring that a sufficient number of error-inducing contexts was presented to the learners. As experience showed this researcher, adhering to both concerns (comparability and naturalness) all the time was nearly impossible. Most of the conversation involved cutting and pasting from a computer file where the session template had been stored prior to the actual session; however, the researcher was aware that, by the very nature of any conversation, some deviations from the session script would be necessary as the conversation unfolded.

3.8 Procedure for Feedback Provision During the Chat Room Sessions

This section describes what steps, if any, are to be taken in the course of general chat room interaction and, specifically, in those instances when the subjects make a mistake.

When members of one of the two feedback conditions (groups A and B) commit an error, the next step is to interrupt the natural flow of the conversation immediately in order to provide the appropriate version of recast assigned to the subject in question. An example from a group A subject (standard, non-enhanced recast)

would be:

Native speaker (1): ¿Estás de acuerdo con el uso de la fuerza física para erradicar los disturbios callejeros?
(Do you agree with the use of physical force to eradicate street riots?)

Subject C3: Sí, claro. Me parece que **sea***⁶ necesario hacerlo.
(Yes, of course. It seems to me that **it is*** necessary to do that.)

Native speaker (2): Ah, ya veo. Pues, a mí me parece que **es** menos necesario porque...
(Oh, I see. Well, to me it seems that **it is** less necessary because...)

As seen above, the native speaker's first conversational turn poses a question with the intention of eliciting an error from the subject in a specific/target linguistic area. In this case, the target linguist area under consideration is accurate mood selection within a subordinate noun clause (“*que es/sea* necesario hacerlo*” [that it is necessary to do it]) preceded by a main clause containing an expression introducing an opinion (“*Me parece...*” [It seems to me...]).

In the utterance provided by the subject (an affirmative opinion, because it is headed by an expression of opinion in the affirmative: “*Me parece...*” [It seems to me...]), appropriate mood selection within the subordinate noun clause entails using a verb form in the indicative mood (*es* –it/he/she is-); the opposite situation (use of a form in the subjunctive mood [*sea* –it/he/she is-]) applies when the main clause introduces a negative opinion (normally marked by the presence of “no”). In C3's answer, the subject does make the mistake that the researcher had anticipated (ungrammatical mood choice).

In the native speaker's second conversational turn, he takes the opportunity to stop the conversation and provide the appropriate type of recast. As the example shows, the recast is not a mere, obvious, verbatim rendition of the subject's original utterance that simply includes the corrected form; rather, it occurs in a more inconspicuous fashion. Seemingly, the native speaker is moving on with the conversation, because the recast is

⁶ The presence of **boldface** in the example above does not mean that this typographical feature was used in group A. No typographical enhancement was present in chat room interaction with these subjects. The use of boldfacing in this example serves the purpose of providing the readership of this dissertation with easy access to the problem area that needs addressing in the subject's utterance as well as to signal the correction provided by the native speaker.

embedded in the native speaker's next turn as if it belonged to an overall reaction on content to the subject's previous utterance. While simultaneously incorporating some new information, the recast is essentially reproducing the original linguistic context with only some minor changes and without any specific commentary regarding the reason(s) for the correction/change in the subject's initial utterance.

In sum, the basic steps in a typical episode leading to the provision of feedback are:

- 1) the native speaker presents the prompt question (attempting to elicit an error),
- 2) the student produces an ungrammatical utterance, and
- 3) the native speaker provides feedback in the manner shown above.

Once the three steps above are taken, any attempt on the part of the subject to talk about errors (if it occurs) is discouraged and the issue is dropped immediately. When students brought up grammatical terminology to rationalize or verbalize their thoughts about the correction they had seen or when they attempted to discuss with or obtain grammatical information from their native Spanish-speaking chat partner (this researcher), the subjects were told by the chat partner that he did not know the Spanish grammar even though (because he is a native speaker) he could use the language. Again, once the three main steps have been followed, the conversation proceeds with the next topic.

The procedure described above for the provision of feedback among group A subjects is identical to that employed among group B subjects. The only difference between both groups is that the target linguistic forms under consideration (in this example *sea* and *es*) are underlined (without any further typographical means of enhancing the text).

Finally, the three-step, error-correction procedure above does not apply to subjects in group C. When a subject in that group makes a mistake while in the chat sessions, the conversation is allowed to unfold and continue normally without even commenting on or hinting at the presence of errors in the learner's output.

3.9 Data Collection Procedures

Once permissions to conduct the experiment had been secured and all materials needed for the study had been prepared, this researcher contacted the student pool via e-mail to recruit volunteers to participate in the

study. Only 37 of the 94 individuals enrolled in the target course (advanced Spanish conversation) were contacted. At that point the potential subjects received “Preliminary Contact Letter” found in Appendix C. 20 students wrote back to express their interest in participating. Individual informational sessions were set up in which interested students received a packet with information about the study. The students had a few days to make a final decision and to e-mail the researcher to notify him of their decision. Out of an initial 20 students who wrote back to express their interest in participating, only 12 ended up being part of the study.

When confirmation was received, another round of individual meetings was arranged. During that meeting, students signed two copies of the student consent form (see Appendix D), one of which was returned to them. Subjects were asked to provide a set of times when they were available to engage in the chat sessions.

The questionnaires and dialog completion tasks were distributed to the learners as 2 separate testing packages: Testing Package 1 (pretest materials) and Testing Package 2 (posttest). Testing Package 1 consisted of a folder including a compact disk (CD), a floppy disk, and a paper-based “Technical Information Packet”. The pretest CD or CD1 contained the software needed to complete the pretest instruments: Language Test 1, Learner Background Questionnaire 1, and Dialog Completion Task 1. While the Technical Information Packet that subjects received explained how the testing software works, the CD also included a computer-based tutorial with a preview of each piece of software explaining: 1) the type of contents and structure of each piece; 2) the question formats subjects could expect to find; and 3) practice questions for each question format. The CD was set up to start with the tutorial. Once they logged on to the tutorial and went through it, the software took them directly to Background Questionnaire 1. CD1 also included a copy of the chat software they needed. Information on how to install the software and how to begin chatting was provided to the students on the Technical Information Packet (pages 12-13), which also included, among other issues, information on how to complete the instruments and submit the answers to the researcher as well as troubleshooting tips. They were given one week to complete the materials in the testing package and were informed that: 1) they would receive their chat schedule within five days of this meeting, and 2) they would not begin to chat until after they had submitted their answers to the testing materials or Surveys, which is how we referred to them.

Subjects completed the materials in the pretest package following the information provided in the information package they received. Then, they e-mailed the answers to the researcher. Chat session output logs were compiled in separate files for each student and session.

The students completed the post-test questionnaires and e-mailed the answers to the researcher. Testing Package 2 was a reduced version of the pretest package that only included a CD with the instruments (Language Test 2, Learner Background Questionnaire 2, and Dialog Completion Task 2) and a one-page paper-based sheet with instructions on how to complete the last set of instruments. The floppy disk they received with Testing Package 1 was used to record their answers to each question. Upon completion of each section of the testing packages, subjects e-mailed the documents with the answers to the researcher.

3.10 Justification of the Computer-Based Assessment Format

Developing and administering the assessment instruments using computer-managed assessment tools allows greater control over the testing conditions. The latter is particularly important when, as was the case here, subjects are completing the testing materials without the researcher being present. Each piece of software controlled the maximum amount of time subjects could spend on a single item (40 seconds for Language Tests and Learner Background Questionnaires, and 90 seconds for Dialog Completion Tasks): if the answer was not provided within the time limit, the software skipped to the next item. The subjects were not able to review their answers at any time nor could they return to the previous question. The software was designed to work only if a floppy disk was inserted into the computer: any kind of interaction the learners had with the software including any attempt to log on more than once to repeat the questionnaire or to review questions was stored by the software on the floppy without any user intervention. This degree of control over user access to the software allowed this researcher to feel quite confident in assuming that each learner was tested under fairly similar conditions. Study participants were informed of all the features described in this section when they received the CDs containing the testing software.

3.11 Research Questions and Assumptions

The preceding research framework was designed with the goal in mind that it will assist this researcher

in answering the following three research questions and assumptions:

Question group 1. Feedback and grammatical development

Question 1A) Does the type of feedback determine the amount of feedback uptake (incorporation) that will take place as measured by posttest results?

Assumption 1A) The more perceptually salient nature of enhanced (underlined) recasts will lead to greater amounts of feedback uptake, because increased perceptual salience leads to greater rates of noticing and uptake.

Question 1B) Does perceptual salience through visual enhancement increase the effectiveness of recasts as a feedback tool?

Assumption 1B) Perceptual salience through visual enhancement will increase the effectiveness of recasts because of their greater specificity as feedback and will lead to greater amounts of gain.

Question 1C) Does the provision of feedback result in increased grammatical accuracy?

Assumption 1C) The provision of feedback will result in increased grammatical knowledge, and the increase will be directly proportional to the explicitness of the feedback.

Question group 2. Development in communication strategies

Question 2A) Will chat room interaction bring about improvement in students' ability to identify the appropriate context for different communication strategies as measured by the communication strategies (dialog completion) test items?

Assumption 2A) Chat room interaction will have a small impact on the subjects' ability to determine when a given communication strategy is needed in the context.

Question 2B) Will the type of communicative strategy determine the subjects' ability to identify it?

Assumption 2B) Specific communication strategy types such as self-repair for form and self-repair for meaning will pose significant problems due to their inconspicuousness in comparison with other strategies are, and their infrequent use among the learners.

Question group 3. Development in communicative act use

Question 3A) Will overall quantity of communicative acts increase as a function of time spent in the

written chat sessions?

Assumption 3A) Overall production or quantity of communicative acts will increase as the sessions progress.

Question 3B) Will the variety of communicative act types used increase as the subjects engage in different sessions?

Assumption 3B) The variety in communicative act type use will change, but it will not increase just because the subjects are engaging in more chat sessions.

CHAPTER IV. FINDINGS

4.1 Introduction

In order to answer the research questions, the presentation of findings is organized into three sections, each of which presents the results for a specific research group according to the feedback condition to which the subjects were assigned; hence, the results are presented in the following sequence: 4.2 Findings for Group A (+ recast, - underline), 4.3 Findings for Group B (+ recast, + underline), and 4.4 Findings for Group C (- recast, - underline). The performance of the subjects in each group is described in relation to 1) grammatical knowledge, 2) communication strategies, and 3) communicative act use and development throughout the chat room sessions. In addition, a set of affective issues pertaining to language learning and relevant to the study will be addressed.

This chapter is mostly devoted to the presentation/summary of the results. In section 4.5, this researcher will summarize the findings for all of the areas of knowledge identified above –grammatical knowledge, communication strategies, and communicative acts– that are shown in sections 4.2, 4.3, and 4.4. In section 4.5, the researcher will also provide a preliminary discussion and interpretation of the results in those areas, but in-depth analyses including this researcher’s interpretations regarding the relevance or lack thereof of these findings in answering the research questions will be reserved for Chapter V.

4.2 Findings for Group A (+Recast, -Underline)

4.2.1 Language Development in Group A as Evidenced in the Use of Grammatical Categories in Pretest and Posttest

4.2.1.1 Overall Performance in Group A

In assessing language development, this section will begin by focusing on overall performance/accuracy on the pre- and posttest. The first step in capturing the effects that the treatment may have had on the subjects

comes from an examination of their individual performances on the measurement grammar tasks. Table 4.1 below summarizes the overall results for subjects in group A:

Table 4.1
Overall Accuracy of Responses on Pre- and Posttest for Group A (+Recast, -Underline)

Learner	Pre (%)	Post (%)	Change
A1	80	86	6
A2	72	74	2
A3	43	35	-8
A4	49	57	8
Group A Mean	61	63	2
Group A Mean Minus A3	67	72.33	5.33

Table 4.1 presents overall accuracy in individual learner's responses. Table 4.1 shows that the improvement attested to in three of the four subjects (A1, A2, and A4) in grammatical accuracy in the linguistic contexts under investigation as demonstrated by pre- and posttest results was not marked. The most important difference is the occurrence/existence of 2 very distinct groups within group A: on the one hand, subjects A1 and A2 who performed considerably better during the pretest phase (72% or greater), whereas, on the other hand, A3 and A4 were at or below an accuracy level of 49%. Subject A4 improved the most in the sample (pretest = 49%, posttest = 57%), whereas subjects that started out fairly high on the pretest (A1 and A2) improved minimally even to the point of apparent language attrition in A3. As will be seen later, A3 is a special case in the sample.

4.2.1.2 Language Development in the Use of Verb Forms in Group A

Table 4.2A summarizes the results for accurate usage in the contexts under investigation in subjects A1 and A2. The table gathers the data on verb TAM assignation in the contexts investigated (conditional sentences, subordinate adverbial time clauses, and subordinate noun clauses. Except for conditional sentences (the analyses for which revolve around assignation of tense-aspect-mood in main and if-clauses), the remaining two contexts are analyzed in terms of whether the propositional content of the entire sentence involves future- or past-time reference. The results are discussed on the pages following Table 4.2A.

Table 4.2A
Correct Use of Verb Forms in Group A

Learner		IF / Future		Main / Past		Change		
		Pre n (%)	Post n (%)	Pre n (%)	Post n (%)	IF/Future ^a n (%)	Main/Past ^b n (%)	
A1	Conditionals	Cond. 1	2	2	3	4	0	1
		Cond. 2	4	3	4	4	-1	0
		Cond. 3	4	4	4	4	0	0
	Adverbials of time	4 (80)	5 (100)	4 (80)	5 (100)	1 (20)	1 (20)	
	Noun	Un/cert.	4	3	0	1	-1	1
	Influence	3	4	4	4	1	0	
	Clauses	Total	7 (87.5)	7 (87.5)	4 (50)	5 (62.5)	0 (0)	1 (12.5)
	Conditional		10 (83.33)	9 (75)	11 (91.67)	12 (100)	-1 (-8.33)	1 (8.33)
	Non-conditional		11 (84.6)	12 (92.3)	8 (61.53)	10 (76.92)	1 (7.69)	2 (15.38)
	A2	Conditionals	Cond. 1	3	2	2	4	-1
Cond. 2			2	3	4	4	1	0
Cond. 3			4	4	4	4	0	0
Adverbials of time		3 (60)	1 (20)	4 (80)	3 (60)	-2 (-40)	-1 (-20)	
Noun		Un/cert.	2	3	1	1	1	0
Influence		4	4	3	4	0	1	
Clauses		Total	6 (75)	7 (87.5)	4 (50)	5 (62.5)	1 (12.5)	1 (12.5)
Conditional			9 (75)	9 (75)	10 (83.33)	12 (100)	0 (0)	2 (16.67)
Non-conditional			9 (69.23)	8 (61.53)	8 (61.53)	8 (61.53)	-1 (-7.69)	0

Note. Un/cert. = sentences whose main clauses express certainty or uncertainty regarding the content presented in the subordinate noun clause.

^a Depending on the row/grammatical feature, the information provided under this column refers to if-clauses or subordinate noun and adverbial clauses with future-time reference.

^b Similar to IF/Future, the information provided under this column refers to the main clauses of conditional sentences or subordinate noun and adverbial clauses with past-time reference.

During the pretest, A1 scored lowest on adverbials of time (80%) for both future and past-time reference contexts, followed by conditional sentences (83.33%, if-clauses; 91.67% -main clauses) and noun clauses with future-time reference (87.5%). When comparing conditional sentence contexts (83.33%) with non-conditional contexts (84.6%), non-conditional contexts appear to be marginally superior to conditional sentence contexts. Verb usage in non-conditional sentences (61.53%) is considerably lower than that of main clauses of conditional sentences (91.67%). A1's posttest results are similar with only some minimal fluctuations. The subject did improve in adverbials of time to the point of attaining a perfect score in both past- and future-time contexts (100%), a fact that also occurred in the main clauses of conditional sentences. The subject reached a near-perfect score in non-conditional past contexts (92.3%) while displaying a slight improvement in non-

conditional future contexts (76.92%) but decreasing in the if-clauses of conditional sentences (75%). Of all contexts investigated, this subject apparently had the greatest difficulty dealing with the contexts involving noun clauses entailing past-time reference (50%, pretest; 62.5% posttest). In conclusion, this subject displayed a moderate amount of gain in most of the contexts under investigation: adverbials of time (20%); noun clauses, future (0%); noun clauses, past (12.5%); conditional, if clauses (-8.33%); conditional, main clauses (8.33%); non-conditional, future (7.69%); non-conditional, past (15.38%).

A2 scored lower on most measures when compared to A1. A2's performance on adverbials of time for future-time reference was the second highest on the pretest (60%) but then dropped by 40% on the posttest (20%). Slightly better results were found for adverbials of time with reference to the past (80%, pretest; 60%, posttest), resulting in a 20% decrease in performance for this target linguistic context. The opposite trend, but this time toward a timid improvement, was found for noun clauses: future-time reference (pretest, 75%; posttest, 87.5%; gain= 12.5%) and past-time reference (pretest, 50%; posttest, 62.5%; gain= 12.5%). In this case, even though the gain appears to be the same, it is noteworthy that clauses with future-time reference seemed to be easier for this learner at the outset of the experiment when compared to the results obtained for their past-time reference counterparts. As to the use of verb forms in conditional sentences, it is clear that there was no apparent gain in verb usage for if-clauses; however, the subject obtained a perfect score on the posttest, which he reached from a pretest score of 83.33% (gain= 16.67%). When comparing A2's performance in conditional vs non-conditional contexts, A2 was superior in contexts involving the use of conditional sentences.

Table 4.2B (shown on the next page) is similar to Table 4.2A, but in this case it displays the results for the grammatical categories in subjects A3 and A4 for the grammatical performance variables under consideration in this research study.

Table 4.2B
Correct Use of Verb Forms in Group A

Learner		IF / Future ^a		Main / Past ^b		Change		
		Pre n (%)	Post n (%)	Pre n (%)	Post n (%)	IF/Future n (%)	Main/Past n (%)	
A3	Conditionals	Cond. 1	3	1	4	3	-2	-1
		Cond. 2	0	0	1	1	0	0
		Cond. 3	4	2	3	3	-2	0
	Adverbials of time	0 (0)	1 (20)	3 (60)	3 (60)	1 (20)	0 (0)	
	Un/cert.	0	0	0	0	0	0	
	Noun Influence	2	2	0	0	0	0	
	Clauses Total	2 (25)	2 (25)	0 (0)	0 (0)	0 (0)	0 (0)	
	Conditional	7 (50.33)	3 (25)	8 (66.67)	7 (50.33)	-4 (-33.33)	-1 (-8.33)	
	Non-conditional	2 (15.38)	3 (23.07)	3 (23.07)	3 (23.07)	1 (7.69)	0 (0)	
	A4	Conditionals	Cond. 1	3	1	4	3	-2
Cond. 2			0	0	1	1	0	0
Cond. 3			4	2	3	3	-2	0
Adverbials of time		0 (0)	1 (20)	3 (60)	3 (60)	1 (20)	0 (0)	
Un/cert.		0	0	0	0	0	0	
Noun Influence		2	2	0	0	0	0	
Clauses Total		2 (25)	2 (25)	0 (0)	0 (0)	0 (0)	0 (0)	
Conditional		7 (50.33)	3 (25)	8 (66.67)	7 (50.33)	-4 (-33.33)	-1 (-8.33)	
Non-conditional		2 (15.38)	3 (23.07)	3 (23.07)	3 (23.07)	1 (7.69)	0 (0)	

Note. Un/cert. = sentences whose main clauses express certainty or uncertainty regarding the content presented in the subordinate noun clause.

^a Depending on the row/grammatical feature, the information provided under this column refers to if-clauses or subordinate noun and adverbial clauses with future-time reference.

^b Similar to IF/Future, the information provided under this column refers to the main clauses of conditional sentences or subordinate noun and adverbial clauses with past-time reference.

Subject A3 is a special case in her group and in the entire sample, since she experienced language loss or scored very low in most of the contexts under investigation, which denotes deficient prior knowledge. For adverbials of time with future-time reference, the subject gained 20% (pretest, 0%; posttest, 20%), but, as the figures suggest, she started out apparently having little or no knowledge about verb usage in those contexts. Better results were encountered for adverbials of time with past-time reference; even though these results reveal no apparent language gain (pretest, 60%; posttest 60%), it is noteworthy that the raw scores were three times higher and that they were equally high at both test times, all of which denotes a moderately high level of improvement as a result of the treatment for future-time reference and a sustained level of performance for past-

time reference contexts. Performance in noun clauses indicates very low entry level knowledge, with a pretest score of 25%, and a similar score on the posttest for future-time reference noun clauses. On the other hand, this learner's pretest score (0%) and responses to noun clauses with past-time reference indicate that she had no prior knowledge of how to use them, based upon the score she obtained (0%), which was the same score she attained at the posttest. The area in which this subject performed better was conditional sentences and, specifically, their main clauses (pretest, 66.67%; posttest 50.33%) in contrast with verb usage in if-clauses where not only did she score low at the pretest (pretest, 50.33%) but her score dropped dramatically by 33.33%.

Subject A4 was, along with A3, on the lower end of performance, yet she performed better in some areas. In both past and future-time reference noun clauses, she scored lower on the posttest by 20%. She improved by 43.75% in noun clauses where future-time reference was involved, whereas her posttest score was lower than her pretest score by 12.5%. For conditional sentences, similar rates of improvement were found in both types of clauses, with an increase of 16.67%. A comparison of her responses for conditional and non-conditional contexts reveals that this subject had a much more developed knowledge of conditional sentences at the beginning of the experiment and maintained it throughout the experiment; however, the greatest rate of improvement in all contexts occurred in non-conditional contexts involving future-time reference with a 30.76%.

By way of an overall comparison of performance among the subjects in the grammatical contexts investigated, it was seen that performance of subjects A1 and A2 was considerably better than that of research participants A3 and A4. Data analyses also allowed this researcher to notice that verb tense-mood-aspect assignment in non-conditional contexts (subordinate adverbial clauses of time and subordinate noun clauses) was particularly problematic. Specifically, the greatest rate of difficulty was attested to in the subjects' use of verb morphology in the case of subordinate noun clauses, but it was particularly evident when it came contexts in which those clauses were part of sentences involving past-time reference.

4.2.2 Development in Communication Strategies as Evidenced in Pretest and Posttest

4.2.2.1 Responses to Turn Production Items in Group A

As was explained in 3.6.2, section b) Turn Production Items are 3 of a total of 10 items making up an instrument which was designed to assess the learner's knowledge and use of communication strategies. As indicated in that section, turn production items require that the learner type a full conversational turn so that it best completes the context provided. Three items were designed: all three items involve a situation in which there is a problem and a resolution to the problem needs to be found; in all cases, the resolution will come from negotiation of meaning and the use of a communication strategy. Before presenting the data, the main characteristics of each of the contexts found under each item will be explained. .

Item 1, which entails using a clarification request in a context where one speaker is using the Spanish word for cheetah (*guepardo*) and the other interlocutor behaves as though he/she does not know or understand. Negotiation of meaning involves that a request for clarification be made.

In item 2, there is also a problem using language, a problem that the speakers are trying to resolve. In this case, one of the speakers was attempting to use the Spanish word for "vest" (*chaleco*), but he/she used "vesto", instead. The problem arises when the other interlocutor is obviously unable to understand a non-existent word and has to ask for confirmation that he has understood correctly, which is the strategy for which the situation is testing.

Finally, item 3 presents a situation in which the speakers are talking about a murderer/killer (*asesino*) but one of them erroneously uses the word for bullfighter (*matador*) instead. A sequence of negotiation of meaning arises as a result of the confusion in using these lexical items incorrectly, and a clarification request is in order.

Table 4.3 (on the following page) summarizes the learners' responses to these three turn production items during the pretest and posttest. The original, unaltered responses in Spanish are provided alongside with English parenthetical translations below each response.

Table 4.3
Summary of Group A Responses to Turn Production Items

Learner	Turn Production Question #					
	1		2		3	
	Pre	Post	Pre	Post	Pre	Post
A1	Que es un guepardo?	D	Eso si, que es?	D	Es asesino?	Entonces no es matador de toros, sino asesino?
	(What is a cheetah?)	D	(That's it, what is it?)	(That's it, what is it?)	(Is he an assassin?)	(So, he is not a killer of bulls, but an assassin?)
A2	Que es un guepardo?	D	Si, es correcto.	Si. Hice un error?	El es un asesino?	D
	(What is a cheetah?)	D	(Yes, it is correct.)	(Yes, Did I make an error?)	(Is he an assassin?)	D
A3	que es esto?	D	no, esta vesto fue no chaqueta	Si	El que un asesino?	Es un asesion?
	(what is this?)	D	(No, this vesto no was jacket).	(Yes)	(He who an assassin?)	(Is he an assain*?)
A4	Que es un guepardo?	D	Refiero al vesto.	Si, el vesto	Es un matador?	Es un asesino?
	(What is a cheetah?)	D	(I refer to the vesto.)	(Yes, the vesto.)	(Is he a matador?)	(Is he an assassin?)

Note. Responses designated with a D under Posttest indicate that the posttest response was identical (in most cases) or very close to the pretest answer.

For item 1, most learners (except for A3) had the same reaction in both the pretest and the posttest. The response they typed was a clarification request “*Que es un guepardo?*” (What is a cheetah?), which indicates that they were able to identify with the listener (the person whose turn they had to complete), who was having trouble understanding speaker 1 (Carlos). In this context, all subjects saw that the missing speaker’s turn called for a clarification request. All subjects produced the same response in this context.

In contrast with item 1, the learners’ responses to items 2 and 3 displayed a greater degree of variability. The presentation of the results for turn production items will now turn to item 2. In this item, the strategy that was sought for was confirmation. Interestingly, subject A1 attempted to use confirmation at both test times;

however, A2's responses suggest that he understood the situation to involve a problem where a mistake in using the language had been made. Specifically, A2's pretest reaction was "*Si, es correcto.*" (Yes, it is correct.) while at the end of the experiment he moved on to wondering and asking whether he had made a mistake (*Si. Hice un error?*) in using "vesto" (*vest/chaleco*). It is clear from the preceding discussion that this subject did not quite understand the context. The data for subjects A3 and A4 for this item will not be discussed, because this researcher found no meaningful pattern of analysis in these data. Finally, in item 3 all subjects successfully identified the need to engage in clarification request. It is worth mentioning that while A3 met the communication strategy needs, she did so at the expense of improper grammar.

4.2.2.2 Responses to Turn Completion Items in Group A

Continuing with the discussion about communication strategies that was started in the preceding section, we will now proceed to their manifestation in Turn Completion Items. On the following pages, this researcher will engage in a discussion of the results obtained, which are gathered in Table 4.4.

Table 4.4
Group A Responses for Turn Completion Items

Target strategy / Test Item #	Attempted and on target (%)		Attempted and missed (%)	
	Pretest	Posttest	Pretest	Posttest
Clarification request / 10	4 (100)	4 (100)	0	0
Clarification check / 5	3 (75)	4 (100)	25	0
Self-repair for form / 9	2 (50)	3 (75)	50	25
Self-repair for meaning / 7	4 (100)	3 (75)	0	25
Confirmation / 6	3 (75)	4 (100)	25	0
Comprehension check / 4	4 (100)	4 (100)	0	0
Appeal for assistance / 8	4 (100)	4 (100)	0	0

3 of the 7 strategies investigated seemed to pose no problems for the learners: clarification request, comprehension check, and appeal for assistance. In all three cases, the learners answered correctly 100% of the time.

On the other hand, clarification check and confirmation seemed to be equally problematic, with only one case (25%) of incorrect responses during the pretest, a situation that was resolved at posttest (100% correct

responses). In the case of the clarification check, learner A3 provided a response that does not match a communication strategy. As far as the confirmation strategy is concerned, A3 resorted to self-correction, which is a good linguistic device to have and use but which did not match the context under consideration.

The two self-repair strategies presented to the learners, self-repair for form and self-repair for meaning, appeared to present greater difficulty than the remaining five strategies. Specifically, 50% of attempted uses of self-repair for form were on target during the pretest, a figure that improved during the posttest (75%). During the pretest, in the cases when the learners did not realize what the appropriate communication strategy was, they invariably resorted to using a comprehension check. During the posttest, the same learner (A3) who failed to answer correctly during the pretest also failed to answer appropriately; in this case, her response involved a clarification check, instead of a comprehension check, when the context was identical. Finally, self-repair for meaning was unusual in that one learner (again, A3) responded with the wrong strategy: in this instance, a clarification check.

4.2.3 Behavior Throughout the Chat Room Sessions in Group A

4.2.3.1 Behavior in Session 2 in Group A

Group A subjects' production of different communicative acts in session 2 is summarized in Table 4.5.

Table 4.5
Communicative Act Use for Group A in Session 2

Communicative act class	Act type	A1 n (%)	A2 n (%)	A3 n (%)	A4 n (%)
Assertives	agree	11 (20)	15 (18.51)	9 (20.45)	8 (11.94)
	inform	17 (30.90)	24 (29.62)	11 (25)	3 (4.47)
	answer	7 (12.72)	21 (25.92)	9 (20.45)	19 (28.35)
	object		1 (1.23)	1 (2.27)	
	confirm		3 (3.7)		1 (1.49)
	assertion		1 (1.23)		16 (23.88)
Directives	question	9 (16.36)	17 (20.98)	11 (25)	13 (19.4)
	confirmation	2 (3.63)	2 (2.46)		
	request	2 (3.63)			
Expressives	greeting	2 (3.63)	4 (4.93)	2 (4.54)	3 (4.47)
	farewell	2 (3.63)	2 (2.46)	1 (2.27)	1 (1.49)
	thanks	3 (5.45)	1 (1.23)		3 (4.47)
# of communicative act types used		9	11	7	9
Total # of communicative acts analyzed		55	81	44	67

Subject A1's production was characterized mostly by the presence of four communicative acts: agree (n = 11, 20%), inform (n = 17, 30.90%), question (n = 9, 16.36%), and answer (n = 7, 12.72%). Also present but much less common were: thanks (n = 3, 5.45%), and equally frequent were confirmation, request, greeting and farewell (n = 2, 3.63%, each category).

As in A1's case, the most common communicative act in A2 was inform (n = 24, 29.62%) followed by answer (n = 21, 25.92%), question (n = 17, 20.98%), agree (n = 15, 18.51%), greeting (n = 4, 4.93%), confirm (n = 3, 3.7%), confirmation and farewell (n = 2, 2.46%, each category), and object, assertion, and thanks (n = 1, 1.23%, each category). It is noteworthy that this subject (A2) used 11 out of the 12 communicative acts investigated, which most likely denotes that he has a much wider repertoire of communicative acts at his disposal and a higher level of language competence than his group members.

A3 was, as she has proven in other measures of her linguistic abilities, the weakest one in utilizing communicative acts. Not only does she use considerably fewer communicative acts but also the ones she did use did not occur as often as has been seen in other subjects of her own group. The most commonly occurring acts were inform and question (n = 11, 25%, each category) followed by agree and answer (n = 9, 20.45%, each category), greeting (n = 2, 4.54%), and object and farewell (n = 1, 2.27%).

Subject A4 is quite different from the other subjects in her group in that, unlike the other members, a fairly large number of her communicative acts were assertions (n = 16, 23.88%). She also produced a high number of answers (n = 19, 28.35%), questions (n = 13, 19.4%), and examples of agree (n = 8, 11.99%). All of this appears to indicate that she was taking a more active role in the chat session than her fellow group members did. Less common but also present were occurrences of inform, greeting and thanks (n = 3, 4.47%, each category) as well as confirm and farewell (n = 1, 1.49%).

4.2.3.2 Behavior in Session 3 in Group A

Performance of Group A subjects in producing communicative acts in session 3 is summarized in Table 4.6. As in the case of session 2, performance on the different communicative act classes and types is presented according to experimental subject (A1-A4).

Table 4.6
Communicative Act Use for Group A in Session 3

Communicative act class		Act type	A1 n (%)	A2 n (%)	A3 n (%)	A4 n (%)
Primary acts	Assertives	agree	16 (23.52)	2 (3.84)	2 (4.76)	2 (5.55)
		inform	13 (19.11)	21 (40.38)	10 (23.8)	15 (41.66)
		answer	17 (25)	4 (7.69)	15 (35.71)	12 (33.33)
		object				
		confirm	1 (1.47)	2 (3.84)		
	Directives	assertion	12 (17.64)	7 (13.46)	3 (7.14)	2 (5.55)
		question	5 (7.35)	13 (25)	9 (21.42)	3 (8.33)
		confirmation				
	Expressives	request				
		greeting	1 (1.47)	2 (3.84)	1 (1.38)	1 (2.77)
farewell		2 (2.94)	1 (1.92)	1 (1.38)	1 (2.77)	
	thanks	1 (1.47)		1 (1.38)		
# of communicative act types used			9	8	8	7
Total # of communicative acts analyzed			68	52	42	36

In this session, subject A1 produced more communicative acts than in session 2 even though the range of communicative act types was the same as in session 2 (N = 9). In this case, his production reveals a much more active role in the conversation, since he mostly used statements that involved the following act types: answer (n = 17, 25%), agree (n = 16, 23.52%), inform (n = 13, 19.11%), assertion (n = 12, 17.64%), question (n = 5, 7.35%), and confirm (n = 1, 1.47%). He also used politeness formulas in the conversation: greeting (n = 1, 1.47%), farewell (n = 2, 2.94%), and thanked the native speaker (n = 1, 1.47%) when appropriate.

Once the results for communicative act use in session 2 for group have been detailed, the discussion will now turn to examining group A performance in session 3. The results for that session are available in Table 4.6 (next page). Attention will now turn to subject A1. In this session, subject A1 produced more communicative acts than in session 2 even though the range of communicative act types was the same as in session 2 (N = 9). In this case, his production reveals a much more active role in the conversation, since he mostly used statements that involved the following act types: answer (n = 17, 25%), agree (n = 16, 23.52%), inform (n = 13, 19.11%), assertion (n = 12, 17.64%), question (n = 5, 7.35%), and confirm (n = 1, 1.47%). He also used politeness

formulas in the conversation: greeting (n = 1, 1.47%), farewell (n = 2, 2.94%), and thanked the native speaker (n = 1, 1.47%) when appropriate.

As to subject A2, the most highly occurring communicative acts and the vast majority of all communicative acts used by this subject correspond to two types: inform (n = 21, 40.38%), and question (n = 13, 25%). Following them with a big gap are most other communicative acts analyzed: assertion (n = 7, 13.46%), answer (n = 4, 7.69%), greeting, confirm and agree (n = 2, 3.84%, each category), and farewell (n = 1, 1.92%). The subject never thanked his fellow chat room session speaker.

In the case of subject A3, her performance in this session is fairly similar to that of session 2. She was the subject that produced the least amount of communicative acts in session 3. The most highly occurring forms of communicative act in this session were answer (n = 15, 35.71%), inform (n = 10, 23.8%), and question (n = 9, 21.42%) followed with a considerable gap by assertion (n = 3, 7.14%), agree (n = 2, 4.76%), and, finally, by all of the expressives: greeting, farewell, and thanks (n = 1, 1.38%).

As far as subject A4 is concerned, she performed considerably worse than all other Group A members in this session both in terms of the number of communicative acts produced (n = 36) and in terms of the range of communicative acts put into practice (7 out of 12). Her use of communicative acts was primarily devoted to the inform type (n = 135, 41.66%) and to the answer type (n = 12, 33.33%). The other communicative acts were barely used; for instance, question (n = 3, 8.33%), agree and assertion (n = 2, 5.55%, each category), and greeting and farewell (n = 1, 2.77%).

4.2.3.3 Behavior in Session 4 in Group A

Table 4.7 summarizes group A production of communicative acts in session 4. The table captures performance of each individual subject on the individual communicative act types under investigation in this dissertation.

Table 4.7
Communicative Act Use for Group A in Session 4

Communicative act class	Act type	A1 n (%)	A2 n (%)	A3 n (%)	A4 n (%)
Assertives	agree	2 (7.14)	1 (3.84)	1 (4)	6 (14.63)
	inform	11 (39.28)	6 (23.07)	11 (44)	3 (6.97)
	answer	5 (17.85)	6 (23.07)	8 (32)	24 (58.53)
	object confirm assertion	7 (25)	5 (19.23)		3 (6.97)
Directives	question	2 (7.14)	4 (15.38)	2 (8)	
	confirmation request				
Expressives	greeting	1 (3.57)	3 (11.53)	3 (12)	1 (2.43)
	farewell	1 (3.57)	1 (3.84)		1 (2.43)
	thanks				3 (6.97)
# of communicative act types used		7	7	5	7
Total # of communicative acts analyzed		29	26	25	41

The first fact to note about this group's behavior in session 4 is that there was a generalized drop both in the quantity of total communicative acts used and in how varied the use of the communicative acts under investigation was.

Subject A1 took a much more active role than he did in previous sessions, and his results in communicative act use denote a greater interest in having his voice heard. In particular, three communicative acts dominated his output in the session and explain this researcher's characterization of this subject: inform (n = 11, 39.28%), assertion (n = 7, 25%), and answer (n = 5, 17.85%). The remaining communicative acts were much less frequently used.

A2 produced considerably fewer communicative acts of the kinds under investigation than he did in sessions 2 and 3. In addition, of the communicative act types investigated, there were noticeably fewer instances of each. The vast majority of communicative acts he used involved: inform and answer (n = 6, 23.07%, each category), assertion (n = 5, 19.23%), question (n = 4, 15.38%), and greeting (n = 3, 11.53%). The remaining two communicative acts used occurred only once: agree and farewell (n = 1, 3.84%, each category).

As to subject A3, she basically limited herself to using two communicative acts alone during the entire conversation: inform (n = 11, 44%) and answer (n = 8, 32%). Other communicative acts were used (agree, question, greeting), but, in comparison to the other two, they occur so infrequently that they are almost negligible even though they account for 24% of all communicative act use in that session.

Unlike the performance rates found for subjects A1, A2 and A3 in this session, and unlike subject A4's performance during session 2, on this occasion subject A4 produced more communicative act types and a greater number of communicative acts than she did in session 2. The vast majority of her communicative act production corresponds to the answer communicative act type (n = 24, 58.53%). Less frequent was the use of agree (n = 6, 14.63%), inform, assertion and thanks (n = 3, 6.97%) as well as the occurrences of greeting and farewell (n = 1, 2.43%).

4.2.3.4 Summary and Conclusions of Chat Room Behavior in Group A

Table 4.8 provides a summary of the main findings for group A behavior in communicative act production throughout the chat room sessions. As can be seen in the table, the first finding that is worth noting is a sharp decrease in the total raw number of communicative acts under investigation that were produced by the subjects across the chat room sessions (session 2, n = 254; session 3, n = 198; and session 4, n = 121) as well as a narrowing in the range/scope and variety of communicative act types used when comparing the overall results of communicative act usage across the three sessions analyzed (session 2, n = 12; session 3, n = 9; and session 4, n = 8). A more detailed, session-by-session analysis of group performance for each session is presented on the following page alongside with the table.

Table 4.8
Overall Communicative Act Use for Group A Across Chat Room Sessions

Communicative act class	Act type	Session 2 n (%)	Session 3 n (%)	Session 4 n (%)
Assertives	agree	43 (16.92)	22 (11.11)	10 (8.26)
	inform	55 (21.65)	59 (29.79)	31 (25.61)
	answer	56 (22.04)	48 (24.24)	43 (35.53)
	object	2 (0.78)		
	confirm	4 (1.57)	3 (1.51)	
	assertion	17 (6.69)	24 (12.12)	15 (12.39)

(Table 4.8 continued)

Table 4.8 (Continued from previous page)

Communicative act class	Act type	Session 2 n (%)	Session 3 n (%)	Session 4 n (%)
Directives	question	50 (19.68)	30 (15.15)	8 (6.61)
	confirmation	4 (1.57)		
	request	2 (0.78)		
Expressives	greeting	11 (4.33)	5 (2.52)	8 (6.61)
	farewell	6 (2.36)	5 (2.52)	3 (2.47)
	thanks	4 (1.57)	2 (1.01)	3 (2.47)
# of communicative act types used		12	9	8
Total # of communicative acts analyzed		254	198	121

In session 2, the communicative acts most commonly used by most subjects were: answer (N = 56), inform (N = 55), question (N = 50), and assertion (N = 17). In session 3, the most common communicative act types were basically quite similar to those deployed in session 2 both in terms of relative frequency of use and in their ranking with respect to the other communicative acts: inform (N = 59), answer (N = 48), question (N = 30), and assertion (N = 24). As to session 4, most subjects displayed similar patterns of behavior than in sessions 2 and 3: answer (N = 43), inform (N = 31), assertion (N = 15), and question (N = 8). In spite of variations in number in each communicative act category type, it is noteworthy that the same category types occur consistently across sessions. Across all three sessions, the most commonly occurring communicative act was the answer type: session 4 (n = 43, 35.53%), session 3 (n = 48, 24.24%), and session 2 (n = 56, 22.04%). It was followed in its rate of occurrence by the inform type: session 3 (n = 59, 29.79%), session 4 (n = 31, 25.61%), and session 2 (n = 55, 21.65%). The next highest ranking communicative act is the “question” type with the following rates of occurrence: session 2 (n = 50, 19.68%), session 3 (n = 30, 15.15%), and session 4 (n = 8, 6.61%). Following moderately closely in terms of raw percentages is the communicative act identified in this research as “agree”: session 2 (n = 43, 16.92%), session 3 (n = 22, 11.11%), and session 4 (n = 10, 8.26%). The assertion type was also rather frequently used by the subjects in the group during their interaction with the native speaker: session 4 (n = 15, 12.39%), session 3 (n = 24, 12.12%), and session 2 (n = 17, 6.69%). As to the communicative acts in the category of expressives (greeting, farewell, and thanks), they appeared much less in the conversation across sessions than the other communicative acts investigated, and there is a logical

explanation for that. The greeting communicative act is logically not going to be used more than once or twice in a normal conversation, which is also true of the farewell. In spite of the latter, the subjects appeared to be quite eager to be polite: they used approximately three to four greeting formulas per subject in session 2, which declined drastically in session 3, but session 4 results reveal a sharp increase in use.

4.2.4 Learner Self-reports on Behavior and Attitudes in Group A

This section presents the results from a number of questions geared toward developing a better understanding of how their characteristics as language learners interact with the properties of the feedback they received in the experiment and how the subjects' characteristics may define or determine greater or smaller language gain.

4.2.4.1 Attitudes Toward Corrective Feedback in Group A

In a continued effort to understand where the subjects stand on issues of focus on form and on matters of emphasis on grammaticality over content, a group of test items was designed to assess how the learners feel about corrective feedback.

4.2.4.1.1. Desire to Receive Corrective Feedback (CF) in Group A

Table 4.9 focuses on whether: 1) the learners think that corrective feedback is the best way to learn a language, 2) they like receiving corrective feedback, 3) they dislike not receiving feedback from their teachers when they make mistakes, and 4) since their participation in the chat room experiment, does it bothers them less to receive corrective feedback? Table 4.9 captures the findings in these areas.

Table 4.9
Group A Preferences for Corrective Feedback (CF) and their Claims about Noticing the Provision of CF in the Chat Sessions

Lear- ner	CF is the best way to learn a language		Likes CF		Dislikes not Receiving CF from teacher when mistakes occur	Less Bothered by Receiving CF since chatting
	Pre (1-25)	Post (2-26)	Pre (1-32)	Post (2-4)	(1-43)	(2-1)
A1	2	3	4	4	4	4
A2	2	3	4	4	2	3
A3	4	3	3	4	1	3
A4	3	2	2	2	2	3

Note. 1 = Strongly Disagree; 5 = Strongly Agree

Subjects A1 and A2 began the study thinking that feedback is not the best way to learn a language (item 1-25, score = 2), but they slightly improved toward the end of the experiment (item 2-26, score = 3) to the point of moderately agreeing that receiving corrective feedback is the best way to learn. Similarly, their responses to items 1-32 and 2-4 (score = 4) are quite strong indicators that the subjects like receiving corrective feedback. A1 also seems to quite strongly dislike the fact that his teachers may not provide corrective feedback when mistakes occur (1-43, score = 4). Finally, A1 indicated that since his participation in the chat room study, he was much less bothered by situations in which someone was providing him with corrective feedback (item 2-1, score = 4). In the last two items, 1-43 and 2-1, A2's responses differed from A1's. In giving a lower/disagree score to the statement (1-43, score = 2), which says that the learner dislikes not receiving corrective feedback from the teacher when mistakes occur, A2 is actually saying that he likes not receiving corrective feedback. Like subject A1, A2 noted that he was more open to receiving corrective feedback than he was prior to the beginning of the experiment (2-1, score = 3). While his score was lower, it is in agreement with all other subjects in the group, all of whom responded the same way, which indicates that even if the improvement in the grammatical areas under investigation was not overwhelming, at least the subjects' attitudes towards feedback have improved. The latter is also true for many of the measures included in Table 4.9.

A3's first two responses (items 1-25 and 2-26) were unusual in that her opinion seemed to worsen slightly at the end of the experiment. Specifically, in item 1-25, which deals with whether corrective feedback is the best way to learn a language, her response was a 4 or quite strongly agree. However, during the posttest (2-26), her score decreased to a 3, or moderately agree, which would indicate that the subject believed at posttest that corrective feedback is not as good a tool as she initially thought. When it comes to the issue of whether she likes corrective feedback (items 1-32 and 2-4), the subject's opinion improved from moderately agree on the pretest (1-32, score = 3) to quite strongly agree on the posttest (2-4, score = 4). As to item 1-43, A3 was the most radical in the group in responding to this item, since she indicated that she strongly disagreed with the statement that she dislikes not receiving corrective feedback from a teacher when mistakes occur. Finally, like most other subjects in the group, she felt quite strongly about being less bothered by receiving corrective feedback since and perhaps as a result of her participation in the chat from sessions (2-1, score = 3).

Finally, subject A4 is the most unusual in the sample. Like A3, A4's responses for items 1-25, and 2-26, dealing with corrective feedback's role as the best way to learn a language, also showed a decrease at posttest (1-25, score = 3; 2-26, score = 2). The result can be interpreted as follows: at pretest, the learner has some doubts about the usefulness of feedback as a learning tool; apparently, something happened during the experiment or simply the learner was being more honest during the posttest, but the direct consequence is that this subject ended the experiment thinking that corrective feedback is *not* a good way to learn. The latter can be seen in the majority of her results for this area of knowledge. Specifically, she noted that she does not like corrective feedback (1-32, score = 2; 2-4, score = 2): in this case, a low score indicated quite strong disagreement with the statement that was presented to the learner, and, therefore, the fact that feedback is not well received by the learner. In a related questionnaire item (item 1-43), when asked whether she likes receiving corrective feedback from her teacher when mistakes occur, her answer (1-43, score = 2) clearly shows that she prefers not to receive corrective feedback. Finally, like all other subjects in this group, A4 indicated that since her participation in the study it bothers her less to receive corrective feedback.

4.2.4.1.2 Attention to and Noticing of Corrective Feedback in the Chat Sessions in Group A

This section discusses the findings pertaining to the general issue of whether the subjects attend to the provision of feedback and whether they noticed its presence. Two subsets of questions were presented to the learners with which one aims to further explore issues of error correction and noticing both in the learners' normal use of the language and in their use while participating in the on-line sessions.

Table 4.10 presents the results for the first set of data. Six questions were prepared to find out whether the learners noticed the presence of corrective feedback while they were engaged in conversation in the chat room sessions (items 2-35 and 2-41). In addition, an attempt was made to find out whether the subjects had noticed the fact that certain messages were corrective feedback (item 2- 8), whether they looked for clues or signals that would point out to the presence of corrective feedback in the immediate context (items 1-50 and 2-33) and whether or not they thought that all of their errors were corrected when they occurred (item 2-24). The results on these issues are summarized in Table 4.10.

Table 4.10
Group A Reports on Attention to and Noticing of Corrective Feedback (CF)

Learner	Noticing of CF in the Chats		Only some of my errors corrected in chat sessions (2-24)	Learner looks for CF clues in:		In chats, I could identify CF messages (2-8)
	Underline (2-35)	Recast (2-41)		General (1-50)	Chat sessions (2-33)	
A1	0 ^a	0	4	1	4	5
A2	+ ^b	+	3	3	5	4
A3	0	+	4	4	4	4
A4	+	+	5	4	2	3
Mean	n/a ^c	n/a	4	4	3.75	4

Note. ^aI did not receive any feedback; ^bI noticed the feedback; ^cnot applicable; 1 = Strongly Disagree; 5 = Strongly Agree

Given the characteristics of the feedback/treatment they received and given their answers to items 2-35 and 2-41 (see Table 4.10), all subjects should have responded like A3, because the feedback received was in the manner of recasts, but there was no underlining. The subjects' responses were often quite disparate. Even though all subjects received feedback while participating in the sessions, the subjects' responses display a high degree of variability including denial of the occurrence of any form of feedback. Individual responses appear to indicate that some of them were not able to recognize the presence of feedback. For some reason each subject perceived the feedback they received differently. Specifically, A1 claimed that he had not received any type of feedback, be them recasts or underlining. On the other hand, subjects A2 and A4 both agreed in their perception of the type of feedback they had received: they accurately noted that they had been exposed to recasts; however, they were both wrong in indicating that underlining had been one of the feedback types used in the experiment.

In item 2-24, which asked the subjects to indicate whether or not only a few of their errors had been corrected, most of the learners seemed to be under the impression that many of their errors had been left uncorrected. Most learners noted that in general language use they look for feedback (item 1-50), that they sought for it actively in the chat sessions (2-33), and that they were generally able to identify corrective feedback messages as such while those messages were being sent during the course of the chat room sessions (see item 2-8, the last column on right of Table 4-10).

Table 4.11 captures the data resulting from a number of questions revolving around the subjects' perception about the purpose of the primary feedback device (recast) used in the study as well as typographical enhancement device deployed in the experiment (underlining). The learners' subjective experience as to the use and the purpose of the feedback devices employed (on which aspect –grammar or content— the feedback tried to focus the subjects' attention) was explored and the answers were collected in Table 4.11 in the chat sessions.

Subject A1 was consistent with earlier responses (items 2-35 and 2-41, Table 4.10) in stating that he had not received any feedback during the chat room sessions. In a similar fashion, subject A3 noted that she had seen no underlining while she partook in interaction in the sessions. As to the presence of recasts (item 2-42), A1 and A2 pointed out the fact that they had not received any feedback of that kind while they engaged in the chat sessions, whereas both A3 and A4 indicated that whenever the feedback they received was in the form of a recast, the purpose of the native speaker in providing that kind of feedback was to signal a better way to word something they had previously said that could use some improvement and/or to correct a mistake they had made earlier in the conversation.

Table 4.11
Comparisons on Group A Subjects' Views about the Purpose of Feedback in Chats

Learner	Underlining			Recasts	Perceived purpose of underlining...	
	Focus ATTN on (2-37)	Whose Content? (2-38)	Grammar (2-39)	(2-42)	During experiment (2-36)	After experiment (2-40)
A1	Received No Feedback	Received No Feedback	Received No Feedback	Received No Feedback	Received No Feedback	Received No Feedback
A2	Content	NS & NNS	Received No Feedback	Received No Feedback	Pay attention to something	Comments made by NS
A3	Received No Feedback	Received No Feedback	Received No Feedback	Better Wording & Corrective Feedback	Received No Feedback	Received No Feedback
A4	Content & Grammar	Don't know	Signal mistakes	Better Wording & Corrective Feedback	Pay attention to something	Corrective Feedback

As seen in the answers to item 2-39, A2 thinks that the underlining focused on content while to subject A4 the focus was both content and problems in grammatical use. When asked to decide where the problem came from (the speaker or the learner) in terms of content, A2 indicated that it referred to both but A4 was not sure. When inquired about whether it could be related to grammar and what the source could be, the subjects had very little to say. Only A4 thought that the reason why feedback was being provided on the grammar was to signal mistakes that the non-native speaker had made.

The learners were told to note why they thought they may have sometimes seen underlining being used by the native speaker while chatting. Subjects A1 and A3 remained consistent in their assertion that no feedback was presented to them. On the other hand, subjects A2 and A4 did comment on what they thought were the reasons for providing that type of feedback. According to subject A1, its purpose (item 2-36) was to cause him to pay attention to something, whereas after the experiment he thought that their purpose was to make him focus on comments that the native speaker had made (item 2-40). Finally, subject A4 agrees with A2 in their preliminary assumption (item 2-36) that in using underlining the native speaker was trying to make them focus on something (an indefinite something without specifying what that something is) while A4 disagrees with A2 in their perception about the purpose of the underlining-based feedback at the end of the study, which in the opinion of A4 was to correct mistakes that they, the subjects, were making.

4.2.4.2 Self-repair Attitudes and Behavior in Group A

This section focuses on a series of issues having to do with learners' attitudes to self-repair and their behavior in self-repairing, i.e. whether or not they self-repair and what they do when they do. Table 4.12 below summarizes the responses to the questionnaire items that were presented to the learners, which reflect the issues under consideration in this research. The table summarizes questions dealing with behavior both inside and outside of the chat room. Several issues are of interest: 1) whether they normally attempt to self-repair (items 1-29, 1-35, and 2-29); and 2) questions about the learners' behavior in the chat sessions: specifically, a) did the corrective feedback help to detect the source of error (items 2-22 and 2-31)?; b) if so, did they know how to self-repair? (items 2-25, 2-28, and 2-17); and c) if so, did they attempt to self-repair? (items 2-34 and 2-14).

Table 4.12
Group A Reports on Self-repair (SR) Behavior with(out) Cuing in and out of the Chat Sessions

Learner	Typical Behavior			Behavior in Chat Sessions						
	SR attempted			CF Generally Useful to Detect the Source of Error		Knew how to SR if Source of Error Found			SR attempted	
	Yes (1-29)	No (1) (1-35)	No (2) (2-29)	Yes (2-22)	No (2-31)	Yes (1) (2-25)	Yes (2) (2-28)	No (2-17)	Yes (2-34)	No (2-14)
A1	5	2	1	5	2	5	4	2	4	2
A2	3	2	1	5	1	5	5	2	4	1
A3	3	4	5	4	3	3	5	4	5	3
A4	3	2	3	3	4	2	3	2	2	3

Note. 1 = Strongly Disagree; 5 = Strongly Agree

For the first question, they stated that they attempt to self-repair on a general basis. Subject A1 noted that he always does (1-29, score = 5), whereas the remaining three subjects indicated that they do so moderately (1-29, score = 3). The other two related questions (items 1-35 and 2-29) rendered similar results. For the second set of questions (items 2-22 and 2-31), where the subjects had to discuss whether they found useful the provision of feedback in the chats in order to detect the source of the error, it seems that a majority of them did in fact say so (subjects A1, A2, score = 5; A3, score = 4, A4, score = 3). These results suggest that they indeed were able to detect the source of error by using the feedback.

As to whether they knew how to self-repair if they found the source of error (items 2-25, 2-28, 2-17), subjects A1 and A2 stated that quite categorically with scores of 4 or 5 in both items. On the other hand, subjects A3 and A4 were a little more tentative in their responses; A3's responses suggest that sometimes she found it very easy (score = 5), whereas other times it was more difficult without being too difficult (score = 3). Subject A4 was the most reticent to say that the feedback helped him. In fact, it seems that she did not find the feedback helpful. Finally, when asked whether they attempted to self-repair in the chat sessions after receiving and noticing feedback and knowing how to self-repair, the majority of the subjects, except for A4, noted that they did in fact try to self-correct.

4.3 Findings for Group B (+Recast, +Underline)

4.3.1 Language Development in Group B as Evidenced in the Use of Grammatical Categories in Pretest and Posttest

4.3.1.1 Overall Performance in Group B

The first step in capturing the effects that the different treatment types may have had on the subjects comes from an examination of their individual performances on the measurement grammatical tasks. Table 4.13 below gathers the overall results attained by the subjects in group B and focuses on the subjects' performance on the pre- and posttest instruments as well as showing the changes occurred, if any, as a result of interaction in the chat room sessions or due to the treatment type applied to the subjects.

Table 4.13
Overall Accuracy of Responses on Pre- and Posttest for Group B (+Recast, +Underline)

Learner	Pre (%)	Post (%)	Change
B1	78	90	12
B2	80	90	10
B3	50	50	0
Mean	69.33	76.66	7.33

Table 4.13 presents overall accuracy in individual learner's responses. An examination of the subjects' posttest results reveals that the three subjects that made up this group performed rather differently on the pretest. B3 was the lowest performing with a 50%, whereas the remaining two scored fairly high. Two out of three subjects (B1 and B2) experienced clear gain, with subject B1 gaining 12% and subject B2 gaining 10%.

4.3.1.2 Language Development in the Use of Verb Forms in Group B

Table 4.14 summarizes the results for accurate usage in the contexts under investigation. The results are discussed on the pages following Table 4.14.

Table 4.14
Correct Use of Verb Forms in Group B

Learner		IF / Future ^a		Main / Past ^b		Change		
		Pre n (%)	Post n (%)	Pre n (%)	Post n (%)	IF/Future ^c n (%)	Main/Past ^d n (%)	
B1	Conditionals	Cond. 1	1	3	4	4	2	0
		Cond. 2	3	4	3	4	1	1
		Cond. 3	4	4	3	4	0	1
	Adverbials of time		5 (100)	4 (80)	4 (80)	5 (100)	-1 (-20)	1 (20)
	Noun Clauses	Un/cert.	4	4	4	4	0	0
		Influence	2	2	2	3	0	1
		Total	6 (75)	6 (75)	6 (75)	7 (87.5)	0 (0)	1 (12.5)
	Conditional		8 (66.67)	11 (91.67)	10 (83.33)	12 (100)	3 (25)	2 (16.67)
	Non-conditional		11 (84.61)	10 (76.92)	10 (76.92)	12 (92.3)	-1 (-7.69)	2 (15.38)
	B2	Conditionals	Cond. 1	3	3	2	4	0
Cond. 2			4	3	4	4	-1	0
Cond. 3			4	4	4	4	0	0
Adverbials of time		4 (80)	5 (100)	4 (80)	3 (60)	1 (20)	-1 (-20)	
Noun Clauses		Un/cert.	2	4	3	4	2	1
		Influence	3	3	3	4	0	1
		Total	5 (62.5)	7 (87.5)	6 (75)	8 (100)	2 (25)	2 (25)
Conditional		10 (83.33)	11 (91.67)	10 (83.33)	12 (100)	-1 (-8.33)	2 (16.67)	
Non-conditional		9 (69.23)	12 (92.3)	10 (76.92)	11 (84.61)	3 (23.07)	1 (7.69)	
B3		Conditionals	Cond. 1	2	3	2	3	1
	Cond. 2		0	0	4	2	0	-2
	Cond. 3		4	2	0	1	-2	1
	Adverbials of time		1 (20)	2 (40)	5 (100)	3 (60)	1 (20)	-2 (-40)
	Noun Clauses	Un/cert.	3	1	1	3	-2	2
		Influence	3	4	0	1	1	1
		Total	6 (75)	5 (62.5)	1 (12.5)	4 (50)	-1 (-12.5)	3 (37.5)
	Conditional		6 (50)	5 (41.67)	6 (50)	6 (50)	-1 (-8.33)	0 (0)
	Non-conditional		7 (53.84)	7 (53.84)	6 (46.15)	7 (53.84)	0 (0)	1 (7.69)

Note. Un/cert. = sentences whose main clauses express certainty or uncertainty regarding the content presented in the subordinate noun clause.

^a Depending on the row/grammatical feature, the information provided under this column refers to if-clauses or subordinate noun and adverbial clauses with future-time reference.

^b Similar to IF/Future, the information provided under this column refers to the main clauses of conditional sentences or subordinate noun and adverbial clauses with past-time reference.

Subject B1's pretest responses for adverbials of time in contexts involving future time reference (100%) denote a very strong command of verb tense assignment in these constructions in spite of the fact that there was a decrease on the posttest (80%). The opposite situation holds true for their past time reference counterparts: on the pretest, the score was still fairly high (80%) and the learner experienced a 20% improvement on the posttest. As to his performance on noun clauses, it was also fairly high. For noun clauses involving future time reference, his score was 75% during both the pretest and posttest, which indicates no gain throughout the experiment. As to their past time reference counterparts, the pretest (75%) and posttest (87.5%) results denote very small improvement in this area (12.5%). When it comes to conditional sentences, one can clearly observe the most dramatic change. The learner experienced gain in both if-clauses and main clauses. On the if-clauses, there was a gain of 25% (pretest, 66.67%; posttest, 91.67%), whereas on the main clauses the learner went from an 83.33% during the pretest to a 100% at posttest.

Subject B2 improved on adverbials of time for future time reference by a 20% from an 80% score on the pretest. The opposite situation occurred with adverbials of time used in the past: (pretest = 80%; posttest = 60%). As to the use of verb forms in noun clauses, both contexts involving future time reference and past time reference experienced a 25% gain. When it comes to the use of conditional sentences, the change is not dramatic. Specifically, as far as the use of if-clauses is concerned, during the pretest the score was fairly high (83.33%), and it increased slightly during the posttest (91.67%). The results were more noticeable on the main clauses, where the learner experienced a 16.67% increase.

As to B3, the most striking feature of his responses to the grammar test are the answers to sentences involving adverbials of time, specifically those involving future time reference in which he obtained the lowest scores in the entire sample. He began by providing one correct answer on the pretest and improved by one answer (20%) on the posttest. His responses for the past time counterparts were in line with the responses found in other learners; he started out with a perfect score and suddenly dropped 40% during the posttest. His performance on noun clauses denotes a deficient command of verb assignment in those contexts. Specifically, for noun clauses involving future time reference he began with a moderately high pretest score (75%) which decreased during posttest (62.5%). As to his use of verb forms in the past time counterparts of noun clauses, the

pretest was very low (12.5%), and there was a significant increase during the posttest (50%). Finally, when it comes to his ability to use conditional sentences, it is notable that no change occurred for main clauses. In addition, for if-clauses the results (pretest: 50%; posttest: 41.67%) seem to indicate that language attrition appears to have occurred in this learner for these structures.

4.3.2 Development in Communication Strategies as Evidenced in Pretest and Posttest in Group B

This section discusses the development in communication strategies and, like in section 4.2.2, it focuses on communication strategy development according the item type and communication strategy.

4.3.2.1 Responses to Turn Production Items in Group B

As was explained in 3.6.2, section b), Turn Production Items were designed to assess the learner's knowledge and use of communication strategies. Table 4.15 summarizes the responses.

Table 4.15
Summary of Group B Responses to Turn Production Items

Learner	Turn Production Question #					
	1		2		3	
	Pre	Post	Pre	Post	Pre	Post
B1	Que es un guepardo?	D	No, hablo de otro tipo de ropa.	Si, es parte de mi ropa.	El es un asesino, no un matador que mata los toros.	Aye, el es un asesino, no un matador.
	(What is a cheetah?)	D	(No, I speak of other type of clothing.	(Yes, it is part of my clothing.)	(He is an assassin, not a matador that kills the bulls.)	(Oh, he is an assassin, not a matador.)
B2	Cual tipo de animal es?	Que es un guepardo?	si, y a mi me gustan los vestos.	si, por supuesto	De veras?	el ha asesinado a viente mujeres?
	(What type of animal is it?)	(What is a cheetah?)	(yes, and I do like the vestos*)	(yes, of course)	(Really?)	(he has assassinated twenty women?)
B3	Que es un guepardo?	D	Si	D	Es un asesino?	D
	(What is a cheetah?)	D	(Yes)	D	(is he an assassin?)	D

Note. Responses designated with a D under Posttest indicate that the posttest response was identical (in most cases) or very close to the pretest answer.

In responding to these items, specifically to item 1, the subjects' responses were quite in line with those provided by subjects in group A. Particularly, like those subjects, study participants in group B correctly identified that the context called for clarification request and, with the exception of the pretest response from subject B2, all other responses from the remaining subjects were exactly identical and were also the same answers group A subjects had provided. The diverging answer was still a clarification request “*Cual tipo de animal es?*” (What type of animal is it?). In the second item (confirmation), where the problem arises from a confusion resulting from the inappropriate use of an invented word, all subjects without exception were easily capable of determining that the communication strategy they were expected to use in that context was confirmation. Finally, in item 3, which like item 1 involved usage of the communication strategy known as clarification request, B2 and B3 experienced no difficulty in determining what the correct communication strategy was, whereas B1 was not.

4.3.2.2 Responses to Turn Completion Items in Group B

In this section, the discussion is centered on turn completion items that, as was explained in 3.6.2 section a), page 60, require that the learner complete a portion of a conversational turn by selecting one of five possible answers that are supplied to him or her. On the following pages, a discussion of the results for turn completion items, which are gathered in Table 4.16, will be presented on the following pages.

Table 4.16
Summary of Group B Responses for Turn Completion Items

Target strategy / Test Item #	Attempted and on target (%)	
	Pretest	Posttest
Clarification request / 10	2 (66.6)	3 (100)
Clarification check / 5	2 (66.6)	2 (66.6)
Self-repair for form / 9	2 (66.6)	1 (33.3)
Self-repair for meaning / 7	2 (66.6)	2 (66.6)
Confirmation / 6	3 (100)	3 (100)
Comprehension check / 4	3 (100)	3 (100)
Appeal for assistance / 8	3 (100)	2 (66.6)

When it comes to performance on the turn completion items measuring the remaining communication strategies, the main findings were that for item 4, which involved a comprehension check, and item 6, which

entailed a confirmation, all subjects were able to answer correctly. In item 5, which consisted of a clarification check, B2 and B3 answered by providing the expected communication strategy, but B1 responded with an item that did not correspond with a particular communication strategy. As to item 7, which involved self-repair for meaning, it led to a fairly high degree of ambivalence among the subjects. Except for subject B1, who was able to properly assign the correct communication strategy both during the pre- and the posttest, the other two subjects had different opinions in each case even when the contexts were the same. In both subjects, it was found that they chose a non-strategy for their response to this item. In item 8 (appeal for assistance); B2 responded with a non-strategy and B2 failed to respond appropriately in item 9 (self-repair for form). On the pretest, B2's answer was a clarification check, whereas the subject's response on the posttest was a comprehension check. On the other hand, B1 and B3 answered with a comprehension check on the posttest. Finally, in item 10, only B3's pretest response did not match the expected communication strategy (a clarification request). His response was a politeness formula instead of a communication strategy.

In conclusion, some of these learners had difficulty with the strategies tested. All of them successfully identified the contexts involving confirmation and comprehension check, but they had difficulty with appeal for assistance and clarification request. The strategies posing the greatest difficulty were self-repair for form, self-repair for meaning and clarification check.

4.3.3 Behavior Throughout the Chat Room Sessions in Group B

4.3.3.1 Behavior in Session 2 in Group B

The results for group B subjects' use of communicative acts are summarized in Table 4.17 below. As in section 4.1.3, the findings are presented according to the specific communicative act types and individual subject performances as well as taking into consideration the number of communicative acts deployed throughout the sessions and the number of communicative acts used across the sessions.

Table 4.17
Communicative Act Use for Group B in Session 2

Communicative act class	Act type	B1 n (%)	B2 n (%)	B3 n (%)
Assertives	agree	14 (17.94)	12 (26.66)	3 (5.88)
	inform	4 (5.12)	2 (4.44)	2 (3.99)
	answer	15 (19.23)	2 (4.44)	9 (17.64)
	object		1 (2.22)	
	confirm			
Directives	assertion	24 (30.76)	17 (37.77)	10 (19.6)
	question	14 (17.94)	9 (20)	18 (35.29)
	confirmation	1 (1.28)		
Expressives	request	1 (1.28)		
	greeting	2 (2.56)		2 (3.99)
	farewell	1 (1.28)		3 (5.88)
	thanks	2 (2.56)	2 (4.44)	4 (7.84)
# of different communicative act types used		10	7	8
Total # of communicative acts analyzed		78	45	51

Subject B1 used ten different communicative act types and a total of 78 communicative acts corresponding to the act types under investigation. The most commonly occurring act type for this subject in this session is assertion (n = 24, 30.76%) followed by answer (n = 15, 19.23%) as well as question and agree (n = 14, 17.94%, each category) and inform (n = 4, 5.12%). The remaining communicative acts she used were: greeting and thanks (n = 2, 2.56%, each category) and confirmation, request, and farewell (n = 1, 1.28%, each category).

As to subject B2's performance, he used seven communicative act types and a total of 45 communicative acts, which is considerably less than B1. Three types of communicative act dominated his production in session 2: assertion (n = 17, 37.77%), agree (n = 12, 26.66%), and question (n = 9, 20%). Each of the remaining communicative acts used (inform, answer, object, and thanks), when considered individually, represented 4.44% or less of the total usage of communicative acts in session 2.

In the case of subject B3, he used slightly more communicative acts and more act types than B2 but less than B1. As was the case with subject B2, the communicative act types with the highest usage (17% or higher)

in B3 are limited to three act types: question (n = 18, 35.29%), assertion (n = 10, 19.6%), and answer (n = 9, 17.64%). Following in importance due to their relative frequency are: thanks (n = 4, 7.84%), agree and farewell (n = 3, 5.88%, each category) as well as inform and greeting (n = 2, 3.99%).

4.3.3.2 Behavior in Session 3 in Group B

The findings resulting from the data analyses pertaining to communicative act use in session 3 by subjects from group B are gathered and summarized in Table 4.18 below. Unlike what was seen in session 2, this group's results reveal considerably fewer uses of communicative acts in session 3. Subjects' performance in producing communicative acts appears to present a pattern. B1 produced the largest amount of communicative acts in both sessions (session 2, n = 78; session 3, n = 46) followed by B3 (session 2, n = 51; session 3, n = 37), and, finally, subject B2 produced the smallest quantity of communicative acts in the group (session 2, n = 45; session 3, n = 28). The latter is also true in terms of the variety of communicative acts produced by all three subjects in this group. Specific details for performance of each group B subject in session 3 are presented after Table 4.18.

Table 4.18
Communicative Act Use for Group B in Session 3

Communicative act class	Act type	B1 n (%)	B2 n (%)	B3 n (%)
Assertives	agree	3 (6.52)		
	inform	22 (47.82)	3 (10.71)	11 (29.72)
	answer	12 (26.08)	17 (60.71)	13 (35.15)
	object			
	confirm			
Directives	assertion	2 (4.34)		3 (8.1)
	question	2 (4.34)	6 (21.42)	7 (18.91)
	confirmation			
Expressives	request			
	greeting	2 (4.34)	1 (3.57)	1 (2.7)
	farewell	1 (2.17)	1 (3.57)	1 (2.7)
	thanks	2 (4.34)		1 (2.7)
# of communicative act types used		8	5	7
Total # of communicative acts analyzed		46	28	37

Subject B1 mostly used two types of communicative act: inform (n = 22, 47.82%) and answer (n = 12, 26.08%). Other communicative act types occur much less frequently, for example, agree (n = 3, 6.52%), assertion, question, greeting, and thanks (n = 2, 4.34%, each category) as well as farewell (n = 1, 2.17%). In the case of B2, only 5 communicative act types occurred during the session: 82.13% of communicative act usage involved the answer type (n = 17, 60.71%) and the question communicative act (n = 6, 21.42%). The remaining three communicative act types consisted of three occurrences or less of the communicative act: inform (n = 3, 10.71%), and greeting and farewell (n = 1, 3.57%, each category). In contrast to B2, B3 produced a much wider variety of communicative act types (n = 7) and a larger amount of instances of each communicative act category. Three communicative act categories dominated the bulk of the conversation: answer (n = 13, 35.15%), inform (n = 11, 29.72%), and question (n = 7, 18.91%). On the other hand, the relative frequency of the remaining four communicative act categories used in the session was much lower: assertion (n = 3, 8.1%), which is followed by greeting, farewell, and thanks (n = 1, 2.7%, each category).

4.3.3.3 Behavior in Session 4 in Group B

Table 4.19 gathers the findings in communicative act use for Group B in session 4. The upcoming examination of the data displayed in Table 4.19 will reveal that, in comparison with the previous two sessions, the results from session 4 denote a significant drop in both individual subject and overall use of the communicative acts under investigation. As in sessions 2 and 3, subjects B1 and B3 produced both more communicative acts and a slightly wider variety of communicative act types than subject B2 did. The results are further discussed after Table 4.19.

Table 4.19
Communicative Act Use for Group B in Session 4

Communicative act class	Act type	B1 n (%)	B2 n (%)	B3 n (%)
Assertives	agree		3 (14.28)	2 (7.69)
	inform	10 (41.66)	8 (38.1)	8 (30.76)
	answer	5 (20.83)	7 (33.33)	7 (26.92)
	object confirm			
	assertion	2 (8.33)	1 (4.76)	3 (11.53)

(Table 4.19 continued)

Table 4.19 (Continued from previous page)

Communicative act class	Act type	B1 n (%)	B2 n (%)	B3 n (%)
Directives	question	5 (20.83)		1 (3.84)
	confirmation request			
Expressives	greeting	1 (4.16)	1 (4.76)	2 (7.69)
	farewell	1 (4.16)	1 (4.76)	1 (3.84)
	thanks		1 (4.76)	2 (7.69)
# of communicative act types used		6	7	8
Total # of communicative acts analyzed		24	22	26

Most communicative act production in subject B1 (83.32%) is associated with three categories: inform (n = 10, 41.66%), answer and question (n = 5, 20.83%, each category). The remaining instances of communicative act usage correspond to three types: assertion (n = 2, 8.33%) followed by greeting and thanks (n = 1, 4.16%).

As far as subject B2 is concerned, he used more communicative act types than B1 but fewer examples of each act type were found in this session. Two communicative act categories dominated his production in session 4 (71.43% of the total communicative acts used): inform (n = 8, 38.1%) and answer (n = 7, 33.33%). The other five communicative acts occurring in the session are much less important in that their presence in the conversation was rather sporadic: agree (n = 3, 14.28%) followed by assertion, greeting, farewell, and thanks (n = 1, 4.76%).

As to subject B3, his output in session 4 was greater than that of the remaining two group members even though it was so by a very narrow margin. Three communicative act categories take up the majority of communicative acts present in this session (69.21% of all uses): inform (n = 8, 30.76%), answer (n = 7, 26.92%), and assertion (n = 3, 11.53%). All other cases of communicative act used (5 categories) involved one or two occurrences of each category: agree, greeting and thanks (n = 2, 7.69%, each category) followed by question and farewell (n = 1, 3.84%).

4.3.3.4 Summary and Conclusions of Chat Room Behavior in Group B

After group B results for use of communicative acts on a session-by-session basis, this section will show the combined results of group B performance by individual subject across the sessions. A summary of those findings is gathered in Table 4.20.

Table 4.20
Overall Communicative Act Use for Group B across Chat Room Sessions

Communicative act class	Act type	B1 n (%)	B2 n (%)	B3 n (%)
Assertives	agree	29 (16.66)	3 (2.72)	5 (6.94)
	inform	8 (4.59)	36 (32.72)	26 (36.11)
	answer	26 (14.94)	42 (38.18)	19 (26.38)
	object	1 (0.57)		
	confirm			
Directives	assertion	51 (29.31)	5 (4.54)	6 (8.33)
	question	41 (23.56)	15 (13.63)	6 (8.33)
	confirmation	1 (0.57)		
	request	1 (0.57)		
Expressives	greeting	4 (2.29)	3 (2.72)	4 (5.55)
	farewell	4 (2.29)	3 (2.72)	3 (4.16)
	thanks	8 (4.53)	3 (2.72)	3 (4.16)
# of communicative act types used		11	8	8
Total # of communicative acts analyzed		174	110	72

As shown in Table 4.20, overall production of communicative acts across sessions among these subjects is clearly marked by a steep decline in use both in terms of the diversity of communicative act categories deployed and in the relative frequency of individual occurrences for each category. In session 2, four communicative acts prevailed: assertion (n = 51, 29.31%), question (n = 41, 23.56%), agree (n = 29, 16.66%), and answer (n = 26, 14.94%). In comparison with communicative act behavior in session 2, use of the question communicative act decreased considerably in session 3 (n = 15, 13.63%), which was also found to be the case in the assertion type (n = 5, 4.54%). In contrast, the answer category experienced a sharp increase (n = 42, 38.18%) and the inform act type (n = 36, 32.72%) increased remarkably as well. The trend to increase found for the inform communicative act in session 3 continues in session 4 (n = 26, 36.11%). While still being one of the most highly occurring communicative acts, the answer type has decreased in terms of raw figures in this session

even if the percentage of occurrence (n = 19, 26.38%) is still the second highest in all three sessions. The remaining six category types are used much less frequently than inform and answer, and their individual occurrences cluster around a narrow range of occurrences: assertion and question (n = 6, 8.33%, each category), agree (n = 5, 6.94%), greeting (n = 4, 5.55%), and, finally, farewell and thanks (n = 3, 4.16%, each category).

4.3.4 Learner Self-reports on Behavior and Attitudes in Group B

This section presents the results from a number of questions geared toward developing a better understanding of the learners' cognitive profile and their language learner profile in an attempt to better understand how their characteristics as language learners interact with the properties of the feedback they received in the experiment and how all of the above in turn may determine greater or smaller language gain.

4.3.4.1 Attitudes toward Corrective Feedback in Group B

In an effort to understand where the subjects stand on issues of focus on form and on matters of emphasis on grammaticality over content, a group of test items, included in this section, was designed to assess how the learners feel about corrective feedback and any differences that may have occurred at posttest that may be due to treatment effects. Tables 4.21-4.23 below show a summary of the main findings.

4.3.4.1.1 Desire to Receive Corrective Feedback (CF) in Group B

In this section, group B preference for corrective feedback will be explored in terms of: 1) whether they consider it to be the best way to learn the language, 2) whether they like receiving corrective feedback, and 3) whether it bothers them more or less when they are provided with corrective feedback, particularly after their participation in the chat room sessions. A summary of the findings for these issues is presented in Table 4.21.

Table 4.21
Group B Preferences for Corrective Feedback (CF)

Learner	CF is the best way to learn a language		Likes CF		Dislikes not Receiving CF from teacher when mistakes occur	Less Bothered by Receiving CF since chatting
	Pre (1-25)	Post (2-26)	Pre (1-32)	Post (2-4)		
B1	2	4	2	4	2	4
B2	3	4	4	2	3	3
B3	2	2	4	4	3	4
Mean	2.33	3.33	3.33	3.33	2.67	3.67

Note. 1 = Strongly Disagree; 5 = Strongly Agree

For the first set of items (1-25, and 2-26), the subjects were asked whether they thought that corrective feedback is the best way to learn a language. While the subjects' pretest responses to these items were quite low (item 1-25, $M=2.33$; B1 & B3, score= 2; B2, score = 3), which is indicative of a lack of preference for corrective feedback, the posttest answers after the treatment represent a significant boost for the desire to receive corrective feedback. For example, subject B1 started with a score of 2 or disagree during the pretest and ended up providing a score of 4 or quite strongly agree at the posttest. On the other hand, subject B2 also seemed to change his opinion toward a more marked desire to be provided corrections for his errors (pre-test, item 1-25, score = 3; posttest, item 2-26, score = 4), but subject B3 thought that corrective feedback is not a good way to learn a language both at pre- and posttest times (pre-test, item 1-25, score = 2; posttest, item 2-26, score = 2).

As to whether they like to receive corrective feedback (item 1-32 and 2-4), the group means are both moderately high and the same during the pretest and posttest ($M=3.33$). B3's opinion remained the same throughout the experiment (pre-test, item 1-32, score = 4; posttest, item 2-4, score = 4), and it seems that the subject viewed corrective feedback as an important part of the learning process. Subjects B1 (pre-test, item 1-32, score = 2; posttest, item 2-4, score = 4) and B2 (pre-test, item 1-32, score = 4; posttest, item 2-4, score = 2) improved their opinions rather drastically from pretest to posttest. In the case of B1, he went from disliking the provision and reception of corrective feedback during the pretest (score = 2) to being receptive and probably wanting to get feedback (score = 4). On the other hand, B2's case represents the opposite situation, i.e. he went from liking and expecting feedback to not liking it.

The next question (item 1-43) may seem frivolous and/or unnecessary, but it is yet another measure of how important corrective feedback is or is not for these learners. It focuses on whether the learner dislikes not receiving corrective feedback when a mistake occurs. The group mean for this item was very low ($M=2.67$), which indicates that these learners have high tolerance levels for cases in which feedback is not provided. Subject B1 indicated that he does not mind not receiving corrective feedback from his teacher (score = 2). On the other hand, subjects B2 and B3's response denotes that in cases when the need arises for feedback to be provided and the instructor does not give it, they probably get moderately frustrated (score = 3).

Finally, item 2-1 involves whether the learners get less upset by receiving feedback since their participation in the chat room sessions, which ultimately would answer the question, are they more open to corrective feedback because of the exposure to it while in the chat sessions? In this case, most learners answered moderately agree (B2) or quite strongly agree (B1 and B3). The group mean was quite high (M=3.67). This result allows this researcher to conclude with the observation that the learners viewed the experimental conditions as being conducive to a non-threatening environment, which is also consonant with the earlier results about the intimidation that they may or may have not experienced while chatting with the native speaker.

After examining the data for desire to receive feedback, the following section will explore the results for attention to and noticing of corrective feedback in the chat room sessions.

4.3.4.1.2 Attention to and Noticing of Corrective Feedback in the Chat Sessions in Group B

This section discusses the findings pertaining to the general issue of whether the subjects attend to the provision of feedback and whether they noticed its presence. Two subsets of questions were presented to the learners for the purpose of further exploring issues of error correction and noticing both in the learners' normal use of the language and in their use while participating in the on-line sessions.

Table 4.22 presents the results for the first set of data. Six questions were prepared to find out whether the learners noticed the presence of corrective feedback while they were engaged in conversation in the chat room sessions (items 2-35 and 2-41). In addition, it was investigated whether the subjects had noticed the fact that certain messages were corrective feedback (item 2- 8), whether they looked for clues or signals that would point out to the presence of corrective feedback in the immediate context (items 1-50 and 2-33) and whether or not they thought that all of their errors were corrected when they occurred (item 2-24).

Table 4.22
Group B Reports on Attention to and Noticing of Corrective Feedback (CF)

Learner	Noticing of CF in the Chats		Only some of my errors corrected in chat sessions (2-24)	Learner looks for CF clues in:		In chats, I could identify CF messages (2-8)
	Underline (2-35)	Recast (2-41)		General (1-50)	Chat sessions (2-33)	
B1	+ ^b	+	4	4	4	5
B2	+	+	2	4	4	5
B3	+	+	4	3	3	4
Mean	n/a ^c	n/a	3.33	3.67	3.67	4.67

Note. ^a I noticed the feedback; ^b not applicable; 1 = Strongly Disagree; 5 = Strongly Agree

The first set of questions in Table 4.22 deals with whether the subjects noticed the presence of corrective feedback in the chat sessions. As the columns under items 2-35 and 2-41 show, the results could not be more overwhelming; all subjects without exception noticed both the underlining and the presence of recasting. Subjects in the study were asked whether they had noticed if not all their errors were being corrected in the chat sessions. Subjects B1 and B3 quite strongly agreed (score = 4), and subject B2 seemed to think that all of his errors were indeed subject to correction (score = 2). Two questions were presented to the learners to find out if they look for telltale signs that corrective feedback is being given or has been given. The first question was given to them during the pretest (item 1-50), whereas the second one (item 2-33) appeared during the posttest, and it refers specifically to feedback searching during the chat sessions. The learners' responses in both cases are identical and so are the means for the group ($M=3.67$). For item 1-50, subjects B1 and B2 noted that they commonly look for clues that feedback is being provided (item 1-50, score = 4) while B3 was more tentative (item 1-50, score = 3). In a similar fashion, for item 2-33, subjects B1 and B2 indicated that in the chat sessions they typically looked for signs of corrective feedback (item 2-33, score = 4), whereas B3 said he would do it less often (item 2-33, score = 3). Finally, the subjects were asked to tell whether they could identify corrective feedback messages as such while in the middle of the chat sessions. The group mean ($M=4.67$) is sufficient enough as an indicator that, overwhelmingly, the group was indeed capable of telling apart the messages whose intended purpose was to provide feedback. Subjects B1 and B2 indicated that they always knew when a feedback message they were receiving was in fact feedback (item 2-8, score = 5). On the other hand, B3 was the group member who seemed to have a little more difficulty making that determination (item 2-8, score = 4).

Table 4.23 (see next page) gathers the results for a group of questions regarding the subject's views about what they thought the purpose of the feedback techniques used in the sessions was. The results for item 2-42, 2-37 and 2-39 are discussed first. The remainder of the discussion for Table 4.23 will appear after the table.

In the item dealing with recasts (item 2-42), when subjects were asked what they thought the purpose of the reformulations was, all three of them answered without exception that the reformulations were done for the purpose of showing a better way of wording a sentence or longer string and as an error-correcting tool, i.e. corrective feedback.

In item 2-37, the subjects were asked to tell whether they could identify what aspect(s) the underlining was focusing on when it was being used. Two subjects (B1 and B3) said that the focus was the grammar, whereas subject B2 noted that he thought the focus was both content and grammar. In a related item (2-39), which serves as a follow-up, subjects were asked: if the focus is the grammar, why focus on the grammar? Their responses were for the most part similar. Subjects B1 and B3 indicated that the purpose of focusing on the grammar was to signal mistakes and to provide corrective feedback. B2, on the other hand, noted that in his opinion the reason why grammar was being focused on was to signal mistakes. When asked to consider why the underlining could focus on content and whose content it would be, subjects B1 and B2 noted that it would be focusing on something the native speaker had said, whereas B3 said that he did not know.

Table 4.23
Comparisons on Group B Subjects' Views about the Purpose of Feedback in Chats

Learner	Underlining			Recasts	Perceived purpose of underlining...	
	Focus ATTN on (2-37)	Whose Content? (2-38)	Grammar (2-39)	(2-42)	During experiment (2-36)	After experiment (2-40)
B1	Grammar	NS	Signal Mistakes & Corrective Feedback	Better wording & Corrective Feedback	Pay attention to something	Corrective Feedback
B2	Content & Grammar	NS	Signal Mistakes	Better wording & Corrective Feedback	Pay attention to something	Corrective Feedback
B3	Grammar	Unknown	Signal Mistakes & Corrective Feedback	Corrective Feedback	Pay attention to something	Corrective Feedback

Finally, two questions were presented to the learners that aimed to find out what they believed the purpose of the underlining was while they were chatting (item 2-36) and after the chatting had concluded (item 2-40). As to the first question (item 2-36) the answer was a unanimous “pay attention to something”. The options the learners had were: I did not see any visual effects; I could not tell why they were being used; They

were irrelevant; They drew my attention to something. Clearly, while involved in the chat sessions and while receiving the feedback in the form of underlining, the learners were able to notice the noticing effect that the underlining was intended to have. They were also capable of ascribing the appropriate intended function (attending to linguistic form in the input) which it had in the message emitted by their interlocutor. When asked a similar question, this time focusing on what they thought the purpose was after completing the experiment (item 2-40), all subjects indicated in this case that the purpose was corrective feedback.

4.3.4.2 Self-repair Attitudes and Behavior in Group B

As described in the section for group A, this section focuses on a series of issues having to do with learners' attitudes to self-repair and their behavior in self-repairing, i.e. whether or not they self-repair and what they do when they do. Table 4.24 below summarizes the responses to the questionnaire items that were presented to the learners, which reflect the issues under consideration in this research.

Table 4.24
Group B Reports on Self-repair (SR) Behavior with(out) Cuing in and out of the Chat Sessions

Learner	Typical Behavior			Behavior in Chat Sessions						
	SR attempted			CF Generally Useful to Detect the Source of Error		Knew how to SR if Source of Error Found			SR attempted	
	Yes (1-29)	No (1) (1-35)	No (2) (2-29)	Yes (2-22)	No (2-31)	Yes (1) (2-25)	Yes (2) (2-28)	No (2-17)	Yes (2-34)	No (2-14)
B1	5	2	2	4	2	5	5	1	3	1
B2	5	1	1	5	4	5	2	2	1	2
B3	4	2	3	3	4	2	4	2	2	3
M	4.67	1.67	2	4	3.33	4.67	3.67	1.67	2	2

Note. 1 = Strongly Disagree; 5 = Strongly Agree

As Table 4.24 shows, these subjects claim that they engage in self-repair on a fairly regular basis (item 1-29). Subjects B1 and B2 noted that they do so always (score = 5) or they strongly agree. B3, on the other hand, pointed out that he may do it a little less frequently or that he is a little less sure about doing it (score = 4). In two related items (1-35 and 2-29), subjects were presented with the negative counterpart of item 1-29 to determine if they would engage in internal contradiction and to find out if their responses for that item could be

considered valid. The results for these additional items suggest that, with some minor differences, the learners' responses for these items are consistent with item 1-29.

The next two items, 2-22 and 2-31, focus on whether the learners found the feedback useful for detecting the source of the error. In item 2-22, B3 was the least convinced in the group that it had helped, B1 said that it had been quite helpful (score = 4) and subject B2 thought it had been very helpful (score = 5). 2-31, which is the negative counterpart of 2-22, yielded quite puzzling results. B1 does not pose any problems, since he moderately agrees first and then he moderately disagrees in the second item. The problem comes with the other two subjects. In both cases, B2 and B3 appear to be contradicting themselves, and this is why. In item 2-22, B2 stated very strongly that he thought that he was generally able to detect the error because of the feedback, but in a similar statement, 2-31, in which he is told that he is not capable of detecting errors in spite of the feedback, he also quite strongly agrees. So this leaves this researcher wondering which answer to take as a valid answer and the real answer. The same situation applies to subject B3.

Items 2-25, 2-28 and 2-17 dealt with whether the learner knew how to self-repair if he could find the source of the error after utilizing the information available in the feedback. Items 2-25 and 2-28 are both affirmative, whereas item 2-17 is the negative counterpart. B1's response for 2-25 and 2-28 was that he always knew (score = 5) and his response for the negative statement was exactly the opposite (score = 1), which indicates consistency and validity of the response. B2's answer for 2-25 was the same as that for B1 (score = 5). B2's answer for item 2-28 denotes some sort of contradiction, since in this case he noted that he rarely knew how to self-repair (score = 2); his response to item 2-17 (score = 2) represents a fairly high degree of consistency with item 2-25. Finally, B3 was an example of an exercise in contradiction. In item 2-25, he indicated that he rarely knew how to self-repair (score = 2); then, in its positive counterpart (item 2-28), he noted that he almost always knew how to correct himself. Finally, in the statement which noted that the learner did not know how to correct himself (2-17), he expressed disagreement or remarked that it rarely happened.

Finally, items 2-34 and 2-14 tried to probe into the matter of whether once the learners had figured out how to self-repair if they indeed attempted to make the correction themselves. The results are consistent with a cursory look at the chat session transcripts. Most learners do not try to correct the error and their responses are a

mere reflection of that. For item 2-34, the subject who provided the highest rating was B1 (score = 3), which shows that he sometimes did it, and the subject with the lowest rating was B2 (score = 1), a score denoting that he never corrected himself even if he knew how. It is interesting to notice, though, that the responses for the negative item (item 2-14), which denotes a trend to self-correction, are quite low and suggesting that in this case the learners are saying that they made an attempt to correct their own errors once they understood the purpose of the feedback.

4.4 Findings for Group C (-Recast, -Underline)

4.4.1 Language Development as Evidenced in the Use of Grammatical Categories in Pretest and Posttest in Group C

4.4.1.1 Overall Performance in Group C

This section focuses on group C subjects' linguistic development evidenced in the use of the target grammatical categories. A summary of the main findings can be found in Table 4.25.

Table 4.25
Overall Accuracy of Responses on Pre- and Posttest for Group C (-Recast, -Underline)

	Pre (%)	Post (%)	Change
C1	44	70	26
C2	44	66	22
C3	80	78	-2
Mean	56	71.33	15.33

Of all groups, subjects in group C had the highest rate of gain in the sample. Subjects C1 and C2 started out with a very low score (44%), but they improved quite sharply on the posttest; subject C1's score was a 70, whereas subject C2 score was a 66. Subject C1, who had a pretest score of 80% dropped by two points during the posttest. With the exception of subject C3, who apparently experienced language loss, the remaining two subjects experience language gain: C1 (26%); C2 (22%.)

4.4.1.2 Language Development in the Use of Verb Forms in Group C

Table 4.26 (p. 113) summarizes the results for accurate usage of verb forms in the different contexts under investigation that were found among group C subjects before and after participating in the chat room

sessions. As in sections 4.2.1.2 and 4.3.1.2, this section (4.4.1.2) gathers the results for performance in pretest and posttest for subordinate noun and adverbial clauses as well as conditional sentences. In the case of subordinate clauses, the results are presented considering verb tense/aspect/mood assignment depending upon whether the propositional content of the sentence points to a moment in the past or whether reference involves the future.

Table 4.26
Correct Use of Verb Forms in Group C

Learner		IF / Future ^a		Main / Past ^b		Change		
Language feature		Pre n (%)	Post n (%)	Pre n (%)	Post n (%)	IF/Future n (%)	Main/Past n (%)	
C1	Conditionals	Cond. 1	2	2	3	4	0	1
		Cond. 2	0	4	3	4	4	1
		Cond. 3	1	3	0	1	2	1
	Adverbials of time	2 (40)	3 (60)	3 (60)	3 (60)	1 (20)	0 (0)	
C1	Noun Clauses	Un/cert.	1	2	2	2	1	0
		Influence	1	3	2	1	2	-1
		Total	2 (25)	5 (62.5)	4 (50)	3 (43.75)	3 (43.75)	-1 (-12.5)
	Conditional	3 (25)	9 (75)	6 (50)	9 (75)	6 (50)	3 (25)	
	Non-conditional	4 (30.76)	8 (61.53)	7 (53.84)	6 (46.15)	4 (30.76)	-1 (-7.69)	
C2	Conditionals	Cond. 1	1	2	3	2	1	-1
		Cond. 2	2	3	2	2	1	0
		Cond. 3	2	4	1	3	2	2
	Adverbials of time	3 (60)	3 (60)	2 (40)	4 (80)	0 (0)	2 (40)	
C2	Noun Clauses	Un/cert.	2	4	1	2	2	1
		Influence	1	3	2	1	2	-1
		Total	3 (43.75)	7 (87.5)	3 (43.75)	3 (43.75)	4 (50)	0 (0)
	Conditional	5 (41.67)	9 (75)	6 (50)	7 (58.33)	4 (33.33)	1 (8.33)	
	Non-conditional	6 (46.15)	10 (76.92)	5 (38.46)	7 (53.84)	4 (30.76)	2 (15.38)	
C3	Conditionals	Cond. 1	4	3	4	3	-1	-1
		Cond. 2	4	4	4	3	0	-1
		Cond. 3	1	3	3	4	2	1
	Adverbials of time	5 (100)	4 (80)	3 (60)	3 (60)	-1 (-20)	0 (0)	
C3	Noun Clauses	Un/cert.	4	4	2	1	0	-1
		Influence	3	3	3	4	0	1
		Total	7 (87.5)	7 (87.5)	5 (62.5)	5 (62.5)	0 (0)	0 (0)
	Conditional	9 (75)	10 (83.33)	11 (91.67)	10 (83.33)	1 (8.33)	-1 (-8.33)	
	Non-conditional	12 (92.3)	11 (34.61)	8 (61.53)	8 (61.53)	-1 (-7.69)	0 (0)	

Note. Un/cert. = sentences whose main clauses express certainty or uncertainty regarding the content presented in the subordinate noun clause.

^a Depending on the row/grammatical feature, the information provided under this column refers to if-clauses or subordinate noun and adverbial clauses with future-time reference.

^b Similar to IF/Future, the information provided under this column refers to the main clauses of conditional sentences or subordinate noun and adverbial clauses with past-time reference.

Subject C1 performed rather poorly on adverbials of time. Specifically, her performance was worse in contexts involving future time reference and, particularly, during the pretest (40%) while she experienced a moderate improvement (20% gain) on the posttest, where she scored a 60%. Her performance on adverbials of time with past time reference was similar to that of future time reference, and in both cases it indicates a not very strong command of verb assignment in these contexts. As to the use of noun clauses used for future time reference, the subject started out very low in performance (25%) but increased significantly during the posttest (62.5%; gain = 43.75%). Her initial performance on noun clauses involving past time reference was considerably better (50%) than that of noun clauses involving future time reference, but it declined at the conclusion on the study (43.75%). As to the use of conditional sentences, this is the area in which this subject experienced the highest rate of gain. Specifically, he experienced to 50% increase in if clauses and a 25% gain in main clauses. A comparison between the gain attained in conditional sentences and non-conditional contexts reveals that the highest gain occurred in the if-clauses of conditional sentences (gain = 50%) followed by non-conditional contexts involving future time reference (gain = 30.76%) and main clauses of conditional sentences (gain = 25%).

As to subject C2, her results for adverbials of time with future time reference indicate moderate rates of acquisition. On the other hand, she experienced a 40% improvement in the past time reference counterparts. As far as noun clauses with future time reference, the learner experienced a fairly pronounced gain (50%), whereas there was no gain in the past time sentences where she also scored quite low both during the pre- and the posttest. In the case of the if-clauses of conditional sentences, the learner also experienced a fairly remarkable gain (33.33%), whereas the improvement was minimal for the main clauses (8.33%). By comparing the results obtained by this learner, it is possible to see that the highest rate of acquisition took place in the if-clauses of conditional sentences (gain = 33.33%) followed by future time contexts of non-conditional sentences (gain = 30.76%), then followed by the past time contexts of non-conditional sentences (gain = 15.38%), and finally by the main clauses of conditional sentences (gain = 8.33%). Subject C3 scored very high on adverbials of time with future time reference on the pretest (100%) and apparently lost on the posttest (80%). On the past time reference counterparts, her results are similar to results found in other members of the group. As to the use of noun

clauses, the learner scored very high on the contexts involving future time reference and her results did not change at the posttest. A similar situation, except that this time her score was moderately low, was found for contexts involving noun clauses with past time reference. The subject's highest scores were on conditional sentences. She had a very high entry level and maintained it throughout the study; however, she did not experience any remarkable gain, except for an 8.33% on if-clauses.

4.4.2 Development in Communication Strategies as Evidenced in Pretest and Posttest in Group C

This section will explore the subjects' development in communication strategies that was observed in their pre- and posttest responses.

4.4.2.1 Responses to Turn Production Items in Group C

After examining the results for turn production items in subjects from group C, the results were captured in Table 4.27, which shows responses for all three turn production items both during pre- and posttest.

Table 4.27
Summary of Group C Responses to Turn Production Items

Learner	Turn Production Question #					
	1		2		3	
	Pre	Post	Pre	Post	Pre	Post
C1	No se que es un guepardo, lo siento.	Lo siento, no se lo que es un guepardo.	Si, de verdad, exactamente.	Si, de verdad, sin mangas.	El mato a personas para razones politicas?	El mato a personas, no a toros?
	(I don't know what a cheetah is, I'm sorry.)	(I am sorry, I don't know what a cheetah is.)	(Yes, really, exactly)	(Yes, really, without sleeves)	(He killed people for political reasons?)	(He killed people, not bulls?)
C2	que tipo de felino vistas? (what type of feline did you see?)	que es un guepardo? (what is a cheetah?)	Si, exacto (Yes, exactly)	si exacto! (Yes exactly!)	Es un asesino? (Is he a killer?)	El es un asesino? (Is he a killer?)
C3	Que es un guepardo? (what is a cheetah?)	D	NA ^a	No, no, yo significo un vestido! Lo siento! (No, no, I mean a dress, sorry!)	NA	AY! Que horror! El es un criminal peligroso! (Au! How terrible! He is a dangerous criminal!)

Note. ^a No answer; D = Posttest response was identical (in most cases) or very close to the pretest answer.

Subject C1's reaction in context 1 involves an apology, but it is not a communication strategy of the kind that was being sought for, clarification request. On the other hand, subjects C2 and C3 reacted appropriately for

the context by providing questions in which it was clear that the subjects were trying to find out more information about the type of feline that was being talked about in the dialogue. As to the second item, which entailed the use of the confirmation strategy, first of all, it is noteworthy that subject C3 did not provide a response during the pretest and her posttest response was not a confirmation, it is worded as a self repair for meaning. The other two subjects provided very succinct responses, but they were all forms of confirmation. Finally, as far as the third context is concerned, which involves clarification request, like in the first case, the pattern of responses is similar to that found for item 2. There is, however, a significant difference in the degree of elaboration between C1 and C2: C1 provided a much more elaborate form of clarification request than C2. On the other hand, C3, like in item 2, did not provide a pretest answer and her posttest answer was an exclamation that did not involve a clarification request.

4.4.2.2 Responses to Turn Completion Items in Group C

The results for group C subjects' responses to turn completion items are gathered in Table 4.28, which shows the group's success rates in each of the communication strategies investigated.

Table 4.28
Group C Responses to Turn Completion Items

Target strategy / Test Item #	Attempted and on target : n (%)	
	Pretest	Posttest
Clarification request / 10	3 (100)	3 (100)
Clarification check / 5	2 (66.6)	2 (66.6)
Self-repair for form / 9	1 (33.3)	2 (66.6)
Self-repair for meaning / 7	1 (33.3)	2 (66.6)
Confirmation / 6	3 (100)	3 (100)
Comprehension check / 4	3 (100)	2 (66.6)
Appeal for assistance / 8	2 (66.6)	3 (100)

As the results in Table 4.28 suggest, the subjects did not have any difficulties at all with clarification requests and confirmations. The results were a little less favorable for clarification checks, where at least one learner failed to recognize the appropriate strategy. Appeal for assistance experienced improvement during the posttest and comprehension check showed some attrition. Finally, there were two strategies with which the

learners experienced considerable difficulty: self-repair for form and self-repair for meaning; in both cases, the group started out with a very low achievement level and improved moderately towards the end of the experiment.

Some of the specific problems that the learners had in answering these questions should be noted here. For item 4, comprehension check, subject C3 reacted by providing an answer that is a non-strategy. As for item 5, which involved a clarification check, subjects C2 and C3 also responded with an answer that also involved a non-strategy. Similarly, the responses that C1 and C2 provided for item 7 (self-repair for meaning) were completely unlike what was expected and were very far from being a communication strategy. As to item 8 (appeal for assistance), C1 responded not with a strategy but with a politeness formula. Finally, subjects C1's and C3's answers for item 9 (self-repair for form) consisted of a comprehension check.

4.4.3 Behavior Throughout the Chat Room Sessions in Group C

4.4.3.1 Behavior in Session 2 in Group C

Group C behavior in using communicative acts appears in Table 4.29 below. Following Table 4.29, the reader will find the analyses of the results.

Table 4.29
Communicative Act Use for Group C in Session 2

Communicative act class	Act type	C1 n (%)	C3 n (%)
Assertives	agree	1 (2.12)	8 (18.18)
	inform	6 (12.76)	2 (4.54)
	answer	12 (25.53)	2 (4.54)
	object		
	confirm		
	assertion	9 (19.14)	6 (13.63)
Directives	question	12 (25.53)	14 (31.81)
	confirmation		
	request	1 (2.12)	2 (4.54)
Expressives	greeting	2 (4.25)	3 (6.81)
	farewell	2 (4.25)	1 (2.27)
	thanks	2 (4.25)	6 (13.63)
# of communicative act types used		9	9
Total # of communicative acts analyzed		47	44

Subject C1's use of communicative acts gravitated around four of the categories under investigation: answer and question (n = 12, 25.53%, each category), assertion (n = 9, 19.14%), and inform (n = 6, 12.76%). All other five categories present in his discourse were used rather sporadically: greeting, farewell, and thanks (n = 2, 4.25%, each category) followed by agree and request (n = 1, 2.12%). As to subject C3, she mostly used the following communicative act types: question (n = 14, 31.81%), agree (n = 8, 18.18%) as well as assertion and thanks (n = 6, 13.63%, each category). As far as the remaining communicative act types are concerned, they occurred much less frequently: greeting (n = 3, 6.81%), inform, answer and request (n = 2, 4.54%, each category), and farewell (n = 1, 2.27%). In the case of C3, it is worth noting that in this session and in comparison with all subjects' use of communicative acts in all sessions, she used the thanks communicative act type more than anyone else in any given session.

4.4.3.2 Behavior in Session 3 in Group C

After examining group C performance in using communicative acts during session 2, this researcher will present the results for behavior in session 3.

Table 4.30
Communicative Act Use for Group C in Session 3

Communicative act class	Act type	C1 n (%)	C3 n (%)
Assertives	agree		1 (1.85)
	inform	16 (42.1)	22 (40.74)
	answer	12 (31.57)	13 (24.07)
	object		
	confirm		1 (1.85)
Directives	assertion		2 (3.7)
	question	9 (23.68)	9 (16.67)
	confirmation		
Expressives	request		
	greeting		1 (1.85)
	farewell		1 (1.85)
	thanks	1 (2.63)	3 (5.55)
# of communicative act types used		4	9
Total # of communicative acts analyzed		38	54

In session 3, subject C1's production of communicative acts is marked by a considerable reduction in the number of both instances of communicative act and types of communicative act. Out of an initial 4 communicative act categories used, 3 of them represent 97.35% of all uses: inform (n = 16, 42.1%), answer (n = 12, 31.57%), and question (n = 9, 23.68%). Last is an expressive/politeness formula: thanks (n = 1, 2.63%). C1 and C3 produced a much broader variety of communicative act types with a higher number of occurrences in several communicative act categories (C3, inform -n = 22, 40.74%-, answer -n = 13, 24.75%-, and question -n = 9, 16.67%). C1 and C3 differ in that C3 produced 5 additional communicative acts: thanks was again much more frequently found in C3 than in C1 (n = 3, 5.55%). In addition to assertion (n = 2, 3.7%), agree, confirm, greeting and farewell (n = 1, 1.85%, each category) were found among the communicative acts analyzed for this subject.

4.4.3.3 Behavior in Session 4 in Group C

As in the case of sessions 2 and 3, Table 4.31 below displays the results for communicative act production by group C subjects in session 4.

Table 4.31
Communicative Act Use for Group C in Session 4

Communicative act class	Act type	C1 n (%)	C3 n (%)
Assertives	agree	2 (4.54)	4 (10.81)
	inform	21 (47.72)	12 (32.43)
	answer	12 (27.27)	14 (37.83)
	object		
	confirm assertion		
Directives	question	7 (15.9)	5 (13.51)
	confirmation		
	request		
Expressives	greeting		
	farewell	2 (4.54)	2 (5.4)
	thanks		
# of communicative act types used		5	5
Total # of communicative acts analyzed		44	37

Unlike what happened in session 3, the subjects' production has seen a reversal in the amount of individual communicative acts found; in this case, it is subject C1 that produced more communicative act examples overall. In subject C1's production, the most prevalent communicative acts are inform (n = 21, 47.72%), answer (n = 12, 27.27%), and question (n = 7, 15.9%). The other two communicative acts present, agree and farewell (n = 2, 4.54%), were much less common. Like C1, C3 focused most of her production on the use of the communicative acts that C1 mostly used: inform (n = 12, 32.43%), answer (n = 14, 37.83%), and question (n = 5, 13.51%). Like C1, C3 also produced examples of agree (n = 4, 10.81%) and farewell (n = 2, 5.4%).

4.4.3.4 Summary and Conclusions of Chat Room Behavior in Group C

Table 4.32 presents the main findings for the subjects' production of communicative acts across the chat room sessions for each of the communicative act classes investigated in this study.

Table 4.32
Overall Communicative Act Use for Group C across Chat Room Sessions

Communicative act class	Act type	Session 2 n (%)	Session 3 n (%)	Session 4 n (%)
Assertives	agree	9 (9.89)	1 (1.09)	6 (7.4)
	inform	8 (8.79)	38 (41.75)	33 (40.74)
	answer	14 (15.38)	25 (27.47)	26 (32.09)
	object			
	confirm		1 (1.09)	
Directives	assertion	15 (16.48)	2 (2.19)	
	question	26 (28.57)	18 (19.78)	12 (14.81)
	confirmation			
Expressives	request	3 (3.29)		
	greeting	5 (5.49)	1 (1.09)	
	farewell	3 (3.29)	1 (1.09)	4 (4.93)
	thanks	8 (8.79)	4 (2.19)	
# of communicative act types used		9	9	5
Total # of communicative acts analyzed		91	91	81

A quick examination of the results displayed in Table 4.32 reveals that two communicative act categories (answer and question) are more commonly used by all subjects in all three sessions. While there are

differences as far as which category is the most widely used in a given session, there appears to be some sort of consensus or preference for certain communicative act types. In the case of the answer act type, it was used more in session 4 (n = 26, 32.09%), it decreases between session 4 and session 3 (n = 25, 27.47%), and it does that even more so in session 2 (n = 14, 15.38%). As regards the communicative act labeled question, it starts with fairly high levels of occurrence (the most common type in session 2: n = 26, 28.57), and it diminishes with each passing session: session 3 (n = 18, 19.78%), and session 4 (n = 12, 14.81%). Other highly occurring communicative acts were: 1) inform: it enjoyed rather low frequency in session 2 (n = 8, 8.79%), yet it increased exponentially in the ensuing two sessions: session 3 (n = 38, 41.75%), which makes it the most widely used act type in that session, and session 4 (n = 33, 40.74%); b) assertion (session 2, n = 15, 16.48%; session 3, n = 2, 2.19%; session 4, n = 0), and c) agree (session 2, n = 9, 9.89%; session 3, n = 1, 1.09%; and session 4, n = 6, 7.4%). The remaining communicative act categories occur at a much lower rate and are sometimes present across the sessions in just a few instances.

4.4.4 Learner Self-reports on Behavior and Attitudes in Group C

4.4.4.1 Attitudes Toward Corrective Feedback in Group C

4.4.4.1.1 Desire to Receive Corrective Feedback (CF) in Group C

In this section, the results for group C subjects' preferences for corrective feedback will be presented and explored. A summary of group results can be found in Table 4.33.

Table 4.33
Group C Preferences for Corrective Feedback (CF) and their Claims about Noticing the Provision of CF in the Chat Sessions

Learner	CF is the best way to learn a language		Likes CF		Dislikes not Receiving CF from teacher when mistakes occur (1-43)	Less Bothered by Receiving CF since chatting (2-1)
	Pre (1-25)	Post (2-26)	Pre (1-32)	Post (2-4)		
C1	2	4	4	5	5	3
C2	5	5	5	5	5	3
C3	4	3	4	4	4	3
Mean	3.67	4	4.33	4.67	4.67	3

Note. 1 = Strongly Disagree; 5 = Strongly Agree

When asked whether corrective feedback is the best way to learn a language (items 1-25 and 2-26), C1's pretest reaction was to disagree (score = 2), but on the posttest she agrees quite strongly (score = 4). C3, on the other hand, began thinking that it was quite the case (score = 4) and changed her mind for the worse on the posttest (score = 3). Finally, C2 was of the same opinion in both cases (score = 5). As far as whether they like corrective feedback (1-32 and 2-4), it seems clear that all subjects like it quite a lot (score = 4) or very much (score = 5) both during the pretest and the posttest with only minimal differences between both test times.

When it comes to the idea of disliking the fact of not receiving corrective feedback from a teacher when mistakes occur (item 1-43), all subjects quite strongly agreed (score = 4) or strongly agreed (score = 5) that they do not like it when they make a mistake and they do not receive corrective feedback from a teacher.

As to whether they are now less bothered by receiving corrective feedback since their participation in the chat sessions (item 2-1), all subjects indicated moderate agreement (score = 3)

4.4.4.1.2 Attention to and noticing of Corrective Feedback in the Chat Sessions in Group C

Subjects were asked to report on whether they attended to and noticed corrective feedback while they participated in the chat room sessions and how they reacted to the feedback. Their answers are in Table 4.34.

Table 4.34
Group C Reports on Attention to and Noticing of Corrective Feedback (CF)

Lear- Ner	Noticing of CF in the Chats		Only some of my errors corrected in chat sessions	Learner looks for CF clues in:		In chats, I could identify CF messages
	Underline (2-35)	Recast (2-41)		General (1-50)	Chat sessions (2-33)	
C1	- ^a	+ ^b	1	4	5	5
C2	-	+	2	3	3	5
C3	-	+	4	4	3	5
Mean	n/a ^c	n/a	2.33	3.67	3.67	5

Note. ^a I did not notice the use of underlining; ^b I noticed the presence of recasts; ^c not applicable
1 = Strongly Disagree; 5 = Strongly Agree

When asked whether they were noticing the use of underlining (item 2-35), all subjects denied it. They did, however, say that they noticed the use of recasts (item 2-41). As to whether some of their errors were being left uncorrected in the sessions (2-24), subjects C1 (score = 1) and C2 (score = 2) seemed to think that it was not the case, whereas C3 believed it was quite the situation (score = 4).

When inquired about whether they look for corrective feedback clues in general situations (1-50), subjects C1 and C3 seemed to think so to a fairly large extent (score = 4) while C2 appeared to do it less often (score = 3). When asked whether they did it in the sessions (2-33), it seems clear that C1 claims to have done it always (score = 5), whereas his fellow group members apparently were doing it only moderately or less frequently (score = 3).

Finally, when the subjects were asked whether they could identify corrective feedback messages when they saw them in the chats (item 2-8), all subjects unanimously and overwhelmingly noted that they had been able to identify feedback messages. To conclude this section, Table 4.35 summarizes the subjects' responses for the perceived purpose of feedback in the chat sessions.

Table 4.35
Comparisons on Group C Subjects' Views about the Purpose of Feedback in Chats

Learner	Focus ATTN on (2-37)	Underlining	Grammar (2-39)	Recasts	Perceived purpose of underlining...	
		Whose Content? (2-38)		(2-42)	During experiment (2-36)	After experiment (2-40)
C1	0 ^a	0	0	Better wording & Corrective Feedback	0	Corrective Feedback
C2	0	0	0	Better wording & Corrective Feedback	0	NSC ^b
C3	0	0	0	Better wording & Corrective Feedback	0	Corrective Feedback

Note. ^a I did not receive any feedback; ^b Native Speaker's comments

None of the subjects reported seeing any underlining (items 2-37, 2-38 and 2-39), which is natural, since underlining was not a corrective feedback strategy used with these subjects. According to C1 and C2 the purpose of the recasts (2-42) was a better way to word a prior sentence (better wording) and corrective feedback, whereas, according to C3 the purpose was better wording. When inquired about what they perceived the purpose of the underlining was during the experiment (2-36), all subjects indicated that they had not received any feedback. When posed the same question again, this time referring to their point of view after the experiment (2-40), C1 and C3 noted that it was corrective feedback, whereas C2 indicated that it was comments made by the native speaker. Ironically, this group of subjects was the control group, and none of them received corrective, regardless of type.

4.4.4.2 Self-repair Attitudes and Behavior in Group C

The last set of data to be presented for this group involves the subjects' reports on their attitudes and behavior when it comes to correcting themselves in the event that they make a mistake. The findings on these issues are summarized in Table 4.36 below.

Table 4.36
Group C Reports on Self-repair (SR) Behavior with(out) Cueing in and out of the Chat Sessions

Lear- ner	Typical Behavior			CF Generally Useful to Detect the Source of Error		Behavior in Chat Sessions Knew how to SR if Source of Error Found			SR attempted	
	SR attempted		No (2) (2-29)	Yes (2-22)	No (2-31)	Yes (1) (2-25)	Yes (2) (2-28)	No (2-17)	Yes (2-34)	No (2-14)
	Yes (1-29)	No (1) (1-35)								
C1	5	2	2	5	1	5	4	1	2	3
C2	5	1	2	5	2	3	3	1	4	1
C3	4	2	1	5	2	4	4	3	5	2
Mean	4.67	1.67	1.67	5	1.67	4	3.67	1.67	3.33	2

Note. 1 = Strongly Disagree; 5 = Strongly Agree

Most subjects stated that they typically tend to correct themselves (items 1-29, 1-35 and 2-29); specifically, C1 and C2 indicated that they tend to do it always (score = 5), whereas C3 does it almost always (score = 4). As to whether they generally found the corrective feedback useful in detecting the source of errors (items 2-22 and 2-31), all subjects unanimously agreed that they did (score = 5). It is worth noting that in the

negative counterpart statement (item 2-31), subjects C2 and C3 showed some hesitation even though they still disagreed. In terms of whether the subjects knew how to self-repair if they could find the source of error (items 2-25, 2-28, and 2-17), subject C1 declared that he was always able to do so (score = 5), whereas C3 had more difficulties (score = 4) followed by C2 (score = 3). Finally, when asked whether they tried to correct themselves while they were participating in the chat sessions (items 2-34 and 2-14), the results clearly indicate that subject C1 did not try while subjects C2 and C3 did.

4.5 Chapter Summary and Preliminary Conclusions

In the remainder of this chapter, an account and summary of the main findings and preliminary conclusions will be provided. Over the next three sections, performance of each treatment group on each of the three dependent variables –grammatical knowledge (section 4.5.1.), communication strategies (section 4.5.2.), and language use in communicative acts (section 4.5.3.) – will be compared and contrasted. The reader is reminded that more elaborate discussions, interpretations and conclusions regarding the findings on all dependent variables will be offered in Chapter V (section 5.2).

4.5.1 Development in Grammatical Knowledge Across Treatment Groups

This section provides a summary and some preliminary conclusions for the findings on overall development of grammatical knowledge (4.5.1.1) as well as a preliminary discussion of the specific results for language development in the individual grammatical contexts investigated (4.5.1.2).

4.5.1.1 Overall Development in Grammatical Knowledge

Grammatical knowledge test results for group A, whose treatment in the chat room sessions involved correcting their errors by means of standard recasts without any further commentary or feedback, reveal that subjects A1, A2, and A4 did not have a dramatic improvement in grammatical accuracy; overall results for group A show that they had the lowest levels of improvement in the entire sample. No subject experienced any substantial improvement: the highest rate of improvement was found in A4 (gain = 8%). As noted earlier, 2 distinct groups can be identified in group A: A1 and A2, who performed considerably better during the pretest

phase (72% or greater) and improved minimally on the posttest, and, on the other hand, A3 and A4, who were at or below an accuracy level of 49% during the pretest.

Group B subjects were the second highest of all groups in their rate of development in grammatical categories. Except for B3, the lowest performing in the sample (50%), B1 and B2 scored fairly high on the pretest and experienced clear gain during the posttest: B1 (gain = 12%) and B2 (gain = 10%).

Of all groups, subjects in group C had the highest rate of gain in the sample. C1 and C2's pretest score (44%) was rather low, but their performance improved remarkably on the posttest: C1 (posttest = 70%; gain = 26%) and C2 (posttest = 66%; gain = 22%). With a pretest score of 80%, C3 dropped to a 78% during the posttest, which indicates that she apparently experienced minimal language loss. These inexplicable results will be further explored in Chapter V (5.2.1.1 Overall development in grammatical knowledge); however, suffice it to say here that overall results suggest that, in spite of the fact that group C received no kind of feedback, their rate of gain was considerably higher than that of subjects in the feedback condition groups: group A (+recast, -underline) and group B (+recast, +underline). In spite of this finding that, in theory, runs counter to this researcher's assumptions (particularly, assumption 1C), it is true that group B (+recast, +underline) outperformed group A (+recast, -underline), which suggests that, even if not by a wide margin, recasts with underlining helped some students. As mentioned earlier, these matters are discussed in greater detail in Chapter V (section 5.2.1.1).

4.5.1.2 General Trends Detected in the Development of Grammatical Knowledge Across Treatment Groups

The following patterns of gain and loss in grammatical knowledge (across treatment groups and chat room sessions) emerge after analyzing the results from all groups.

In the case of subordinate adverbial time clauses, there appears to be a great deal of variation in performance levels across groups and depending upon whether the context involves future- or past-time reference. In contexts involving past time reference, two groups have experienced gain: group A (20%) and group C (20-40%), whereas group B, while experiencing considerable loss, displayed a great deal of variability (-20% to -40%). In future-time contexts, groups A and B improved equally over time (gain = 20%), yet, group

C members performed differently among themselves (range = -20% to 20%). The results for these two grammatical contexts do not provide a clear pattern of behavior within and among groups that allows this researcher to come to a definitive conclusion in relation to the role of the different types of feedback in promoting language gain. While it is clear that group A (+recast, -underlining) experienced the same rate of gain, this researcher cannot conclude from group B and C results that the presence of recasts with underlining significantly helped the subjects in group B in spite of this researcher's assumption that it should. Similarly, this researcher is puzzled by group C behavior/gain in the two contexts (with gain in adverbials of time with past time reference and overall loss in the contexts involving future time reference). A more detailed analysis and interpretation of these findings is available in Chapter V (section 5.2.1.2.1 Development in adverbial subordinate clauses).

As far as subordinate noun clauses are concerned, the sentences were once again classified in terms of whether they referred to a moment in the past or to a future time. For subordinate noun clauses in sentences involving past-time reference, subjects in group B (gain = 20-37.5%) outperformed those in groups A (gain = 12.5%) and C (no gain in two cases and -16.25% in one). In this case, it appears that the provision of feedback in the form of recasts with underlining led to significantly greater gain in group B than in groups A and C, which conforms to this researcher's research questions 1A (enhanced recasts will lead to greater feedback uptake) and 1B (perceptual salience through visual enhancement will increase the effectiveness of recasts). When it comes to the subjects' performance in subordinate noun clauses used in contexts entailing future-time reference, group C performed significantly better (gain = 43.75% to 50%) than the remaining treatment groups: group A (gain = 0%) and group B (widespread lack of uniformity, range of gain = - 12.5% to 25%). The fact that group C (against this researcher's research assumptions) outperformed the other two groups and the fact that group B was rather inconsistent in their rate of gain seem to indicate that, at least in this context, exposure to recasts with underlining did not seem to have as significant an effect on group B subjects as predicted.

Finally, the subjects' prior grammatical knowledge and later improvement or deterioration in conditional sentences was examined considering changes in both the main clause and the if-clause of all basic conditional sentence structures. As far as main clauses are concerned, group B subjects were consistently and uniformly

superior (gain = 16.67%) to those in groups A (gain = 8.33%) and C (no gain -2 subjects- to 25%). Group performances point to the fact that presence of underlining in group B feedback had a marked, positive effect on the group's overall gain; particularly, the rate of gain in group B was greater than that in group A (+recast, - underlining) for this grammatical context. On the other hand, the situation in the case of subject performance in if-clauses was rather different from what was found for the main clauses of conditional sentences: group C (gain range = 8.33% to 50%) was generally superior to group A (gain = -8.33%) and group B (gain range = -8.33% to 25%). These results mirror the findings for subordinate noun clauses entailing future-time reference in that the following sequence of gain and loss is found in both grammatical contexts: group C outperforms group A, which, in turn, outperforms group B. The findings do not correlate this researcher's prediction (at least not in this grammatical context). In conclusion, this finding appears to call into question the validity, if any, of feedback condition 2 (+recast, +underlining) that, according to this researcher's assumptions, should have aided group B subjects in furthering their grammatical knowledge in these contexts. As indicated for other grammatical contexts, additional details regarding conditional sentences are available in the in section 5.2.1.2.3 (Development in conditional sentences).

4.5.2 Development in Communication Strategies across Treatment Groups as Evidenced in Pretest and Posttest

This section summarizes the subjects' use of communication strategies in terms of their performance in turn production items and turn completion items provided in the dialog completion task.

For item 1, most group A subjects (except for subject A3) and all group B subjects had the same reaction (provided exactly the same answer) in both the pretest and the posttest. They were able to correctly identify that the strategy they needed to use was a clarification request and, except for the pretest response from B2, the answers were identical for both groups. In group C, all subjects but C1 (who apologized) reacted appropriately to the context.

In item 2 (confirmation), group A subjects generally experienced a great deal of difficulty. All group B subjects were able to determine that the communication strategy expected was confirmation. In group C, response patterns for items 2 and 3 were similar in that all subjects provided very succinct, yet appropriate,

utterances. On the other hand, C3's responses were neither pertinent to the context nor consistent between pre- and posttest.

As to item 3, all group A subjects and most group B subjects successfully identified the strategy needed in the context (a clarification request) while B1 was unable to do so.

As to the remaining seven items (turn completion items), the following communication strategies posed no problems for the learners: clarification request (item 10; groups A and C), comprehension check (item 4, groups A and B), and appeal for assistance (item 8, group A had no problems while group B experienced minor difficulty). Group C found it quite problematic to use the appropriate communication strategy in the case of comprehension check (item 4) and appeal for assistance (item 8). In the context involving clarification check (item 5), group B and C subjects failed to identify the strategy necessary in that context, whereas group A subjects did not experience any difficulties in correctly identifying the strategy and answering accordingly. While confirmation (item 6) did not pose any challenges for any of the groups, all subjects (regardless of group assignment) experienced the greatest difficulty in the contexts involving self-repair for form (item 9) and self-repair for meaning (item 7).

According to research assumption 2A, it was anticipated that chat room interaction would have a positive, yet small, impact on the subjects' ability to better determine when to use a given communication strategy. The findings described above appear to indicate that the fact that the subjects engaged in interaction did not have any positive effect on their ability to identify whether and which communication strategy was needed in the contexts used and, if they did detect the need to use a communication strategy, it is not clear whether the mere fact of having been engaged in a series of interactive chat room sessions enabled them to better determine what the appropriate strategy was in each context. While the findings do not appear to support research assumption 2A, this researcher has confirmed, as was stated in research assumption 2B, that several strategies (specifically those involving self-repair), were very problematic for most subjects.

4.5.3. Communicative Act Use Across Sessions and Groups

Before entering into a discussion of specific usage of the communicative acts under investigation, the general trends in production of communicative acts are worth noting. Table 4.37 summarizes the main findings.

Table 4.37**Overall Production of Communicative Act Categories and Total Production of Communicative Acts According to Group and Session**

Session #	Production of communicative acts (# of act types found)		
	Group A (n=4 Ss)	Group B (n=3 Ss)	Group C (n=2 Ss)
2	254 (12)	174 (11)	91 (9)
3	198 (9)	110 (11)	91 (9)
4	121 (8)	72 (8)	81 (5)
Mean	143	118	131.5

Note. Ss = Subjects

As Table 4.37 shows, the findings reveal the existence of a downward trend in the overall number of communicative acts produced across sessions and treatment groups. The most dramatic changes were found among groups A and B. Specifically, group A production in session 4 (n = 121) was less than half the number of communicative acts produced in session 2 (n = 254), which is approximately the same situation found in group B. In contrast, group C production of communicative acts remained fairly stable throughout the sessions, yet it must not be overlooked that the largest number of communicative acts (n = 91) produced by group C in a single session (both sessions 2 and 3) is still considerably lower than the lowest number of communicative acts produced by group A in session 4 (n = 121). The latter was also found to be the case in group B, except that group B's lowest rate of raw production (session 4, n = 72) was smaller than of group C in that session (n = 81). As far as the variety of communicative act types used by the subjects, groups B and C produced the same kinds and number of communicative act types in session 2 and 3 even though there was greater variety in group B. Group A's variety of communicative act types used was richer during session 2, but, as was the case with raw production of communicative acts, there was a reduction in their repertoire of communicative act production in subsequent sessions.

The next paragraphs will compare and contrast the use of specific communicative act types among the treatment groups in sessions 2, 3 and 4. Only the 5 most-widely used communicative acts of an initial group of 12 communicative act types and 3 communicative act categories are presented. The entire set of communicative acts on which this researcher based his analyses of communicative act production in the sessions were: assertives (agree, inform, answer, object, confirm, and assertion), directives (question, confirmation, and

request), and expressives (greeting, farewell, and thanks). Definitions for these communicative act categories are provided in Table 3.2 (section 3.4.3, p. 51).

While differences were found as far as which communicative act categories are most widely used across sessions and groups, there appears to be some sort of preference for certain communicative act types. Table 4.38 presents the main findings according to communicative act type, chat room session and treatment group.

Table 4.38
Summary of Production of Communicative Acts by Communicative Act Category, Session and Treatment Group

Speech/communicative act types					
	Answer N (%)	Inform N (%)	Question N (%)	Assertion N (%)	Agree N (%)
Group A					
Session 2	56 (22.04)	55 (21.65)	50 (19.68)	17 (6.69)	
Session 3	48 (24.24)	59 (29.79)	30 (15.15)	24 (12.12)	
Session 4	43 (35.33)	31 (25.61)	8 (6.61)	15 (12.39)	
Group B					
Session 2	26 (14.94)		41 (23.56)	51 (29.31)	29 (16.66)
Session 3	42 (38.18)	36 (32.72)	15 (13.63)	5 (4.54)	3 (2.72)
Session 4	19 (26.38)	26 (36.11)	19 (26.38)	6 (8.33)	5 (6.94)
Group C					
Session 2	14 (15.38)	8 (8.79)	26 (28.57)	15 (16.48)	9 (9.89)
Session 3	25 (27.47)	38 (41.75)	18 (19.78)	2 (2.19)	1 (1.09)
Session 4	26 (32.09)	33 (40.74)	12 (14.81)		6 (7.04)

Individual communicative act type results for session 2 show the following trends. Three communicative act categories dominated the subjects' production: answer (A, n = 56, 22.04%; C, n = 14, 15.38%; B, n = 26, 14.94%), question (C, n = 26, 28.57%; B, n = 41, 23.56 A, n = 50, 19.68%), and assertion (B, n = 51, 29.31%; C, n = 15, 16.48%; A, n = 17, 6.69%). The remaining two communicative act types occurred unevenly among the groups: agree (B, n = 29, 16.66%; C, n = 9, 9.89%) and inform, which was only used in group A (n = 55, 21.65%).

In session 3, inform (C, n = 38, 41.75%; B, n = 36, 32.72%; A, n = 59, 29.79%) and answer (B, n = 42, 38.18%; C, n = 25, 27.47%; A, n = 48, 24.24%) appear to be the most prevalent forms of communicative act used by all groups while question (A, n = 30, 15.15%; C, n = 18, 19.78%; B, n = 15, 13.63%) and assertion (A,

n = 24, 12.12%; C, n = , %; B, n = 5, 4.54%) were less commonly found. As in the case of session 2, agree only occurred in groups B and C with a remarkable drop in use in both groups.

The results from group production of communicative acts reveal that two communicative acts prevailed in session 4: answer (A, n = 43, 35.33%; C, n = 26, 32.09%; B, n = 19, 26.38%) and inform (C, n = 33, 40.74%; B, n = 26, 36.11%; A, n = 31, 25.61%). On the other hand, question (B, n = 19, 26.38%; C, n = 12, 14.81%; A, n = 8, 6.61%), assertion (A, n = 15, 12.39%; B, n = 6, 8.33%), and agree (C, n = 6, 7.4%; B, n = 5, 6.94%) occurred in the subjects' production but much less frequently than in previous sessions.

The preceding presentation allows this researcher to provide the following preliminary conclusion about group behavior. The most prevalent communicative act categories in all three sessions and among all three treatment groups were: answer, question, and inform. The presence of assertion, which was typically found among all groups in session 2 but only in groups A and B during session 3, was less widespread; however, agree occurred mostly in sessions 2 and 4 among subjects in groups B and C. A thorough explanation regarding the relevance of the findings in this section (4.5.3) as they relate to research questions 3A and 3B will be provided in Chapter V (section 5.2.3).

By way of a general conclusion to this chapter, Table 4.39 summarizes the results for performance of each treatment group in the linguistic variables analyzed: grammatical knowledge (subordinate adverbial clauses of time –AdvT–, subordinate noun clauses –NC–, and conditional sentences –Cond.–) as well as in communication strategies (Comm. Strat.) and communicative/communicative acts (Comm. Acts). The groups are characterized in terms of their relative (high –H–, mid –M–, or low –L–) performance in each variable in comparison to other groups. Performance in some instances is categorized as equal –E–, which refers to the fact that the group performed identically –or very close– to another group.

Table 4.39
Summary of Gains in Performance in the Language Variables Investigated by Treatment Group

Treatment Group	Performance in Language Variables				
	Overall Gains	Sentence Types		Comm. Strat.	Comm. Acts
		AdvT	NC	Cond.	
A	5.33 (L)	20 (H)	6.25 (L)	0 (L)	0.42 (H) (143) H
B	7.33 (M)	-10 (L)	7.5 (M)	15.46 (H)	-0.14 (L) (118) L
C	15.33 (H)	15 (M)	46.37 (H)	15.25 (M)	0.28 (M) (131) M

Note. H = highest-performing; M = mid-performing; L = lowest-performing

As to subordinate noun clauses (NC) and conditional sentences, the groups ranked in exactly the same manner: subjects in group C ranked the lowest, group A subjects ranked in the middle and group B subjects' performance was superior to that of the remaining groups. When it comes to group performances in communication strategies (Comm. Strat.) and communicative acts (Comm. Acts), a clear pattern of performance is found among the groups in both cases: group A ranked highest followed by group B (mid) that outperformed group C (low). In sum, while performance in specific sentence types does not paint a clear picture of group standing in each of the contexts investigated, it is clear that in terms of overall gain group C was superior and group A ranked lowest; this finding was also the case when considering the number of times when a group ranked highest in the sample for individual contexts. Finally, it was just pointed out that communication strategies and communicative acts showed a clear pattern of performance with group A ranking highest and group C being the lowest one in the sample.

CHAPTER V. CONCLUSIONS

5.1 Introduction

Before discussing the findings derived from the experimental study, this introduction will:

- 1) recapitulate the central issues introduced in Chapters I, II, and III,
- 2) offer an overview of those key issues within the context of the chapter(s) in which they are presented, and
- 3) revisit the research questions and research assumptions. These kinds of information will serve as the theoretical framework upon which the discussion of the results in section 5.2 will be based.

As noted in Chapter I, Introduction, this dissertation revolves around a study concerning itself with investigating whether the specific properties of two types of corrective feedback technique (standard recasts vs. visually-enhanced recasts) have a differential effect on the acquisition rates of verb tense assignation for conditional sentences, subordinate noun clauses and subordinate adverbial time clauses among three groups of advanced, Spanish as a foreign language learners after interacting in a series of five chat room sessions with a native speaker of the Spanish language. Another goal of the study was to endeavor to measure development in communication strategies and communicative acts.

Chapter II, Review of Related Literature, reviewed the key theoretical and conceptual themes upon which this dissertation is based such as, to name a few, output (the subject's production of linguistic material), feedback (information provided to the learners to indicate the presence of some type of ungrammaticality), recasts (a feedback type consisting of a reformulation of an ungrammatical utterance by including the grammatical form in the reformulation), visual enhancement or typographical input enhancement (a way of making input more perceptually salient by means of enhancing portions of language material –typically, isolated words or, less frequently, phrases– with typographical elements such as italics, boldface, etc.), and second or foreign language applications of computer-mediated communication such as chat rooms or e-mail.

A review of the relevant literature briefly sketched in the preceding paragraph led this researcher to notice several important gaps in the research efforts carried out thus far in research in second language acquisition and in the applications of synchronous computer-mediated communication (chat rooms) as a research environment (further explained in section 1.6 Rationale and theoretical framework). These findings also allowed the researcher to identify the research problem outlined in Fig. 5.1 (modified from Fig. 1.1).

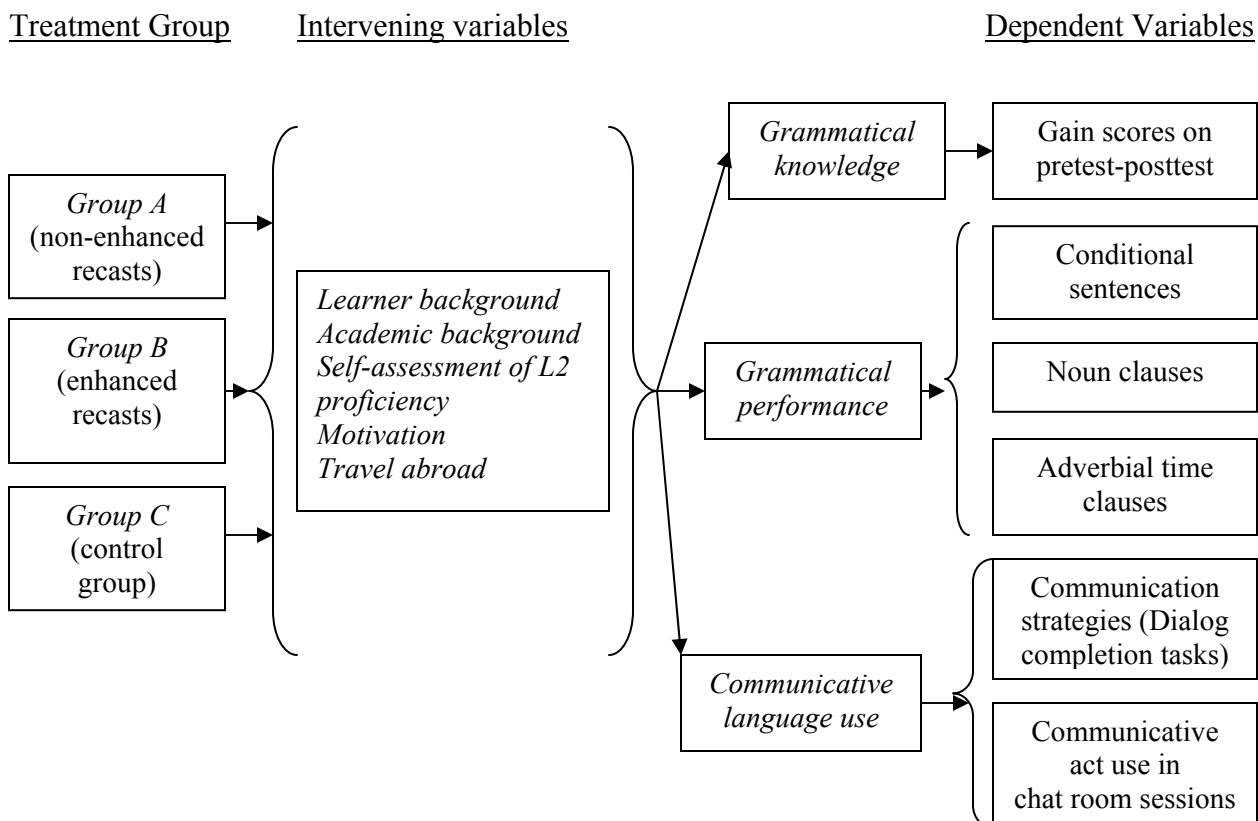


Fig. 5.1
The Research Problem

As a result of identifying a clear need to address the research problem illustrated in Fig. 5.1, this researcher designed and implemented the study described in Chapter III, Methodology and Procedures, which outlines the methods and procedures involved in conducting the experimental study. In a pretest-posttest, experimental-control group design, the subject pool (N = 12) was divided into 2 experimental groups (F1 or Group A: recast without textual enhancement, or standard recast; and F2 or Group B: recast with textual enhancement, or enhanced recast) and 1 control group (F3 or Group C: no feedback). Each subject was randomly assigned to one feedback condition (F1, F2 or F3) and remained in that condition throughout the study. In conjunction with this researcher and using Yahoo! Messenger, all subjects engaged in a series of five

forty-five minute chat room sessions, which is where the different feedback conditions (F1, F2, and F3) were implemented.

Based upon the aforementioned study design (discussed in greater detail in Chapter III), the goal of the study was to answer the following research questions:

Question group 1. Feedback and grammatical development

Question 1A) Does the type of feedback determine the amount of feedback uptake (incorporation) that will take place as measured by posttest results?

Assumption 1A) The more perceptually salient nature of enhanced (underlined) recasts will lead to greater amounts of feedback uptake, because increased perceptual salience leads to greater rates of noticing and uptake.

Question 1B) Does perceptual salience through visual enhancement increase the effectiveness of recasts as a feedback tool?

Assumption 1B) Perceptual salience through visual enhancement will increase the effectiveness of recasts because of their greater specificity as feedback and will lead to greater amounts of gain.

Question 1C) Does the provision of feedback result in increased grammatical accuracy?

Assumption 1C) The provision of feedback will result in increased grammatical knowledge, and the increase will be directly proportional to the explicitness of the feedback.

Question group 2. Development in communication strategies

Question 2A) Will chat room interaction bring about improvement in students' ability to identify the appropriate context for different communication strategies as measured by the communication strategies (dialog completion) test items?

Assumption 2A) Chat room interaction will have a small impact on the subjects' ability to determine when a given communication strategy is needed in the context.

Question 2B) Will the type of communicative strategy determine the subjects' ability to identify it?

Assumption 2B) Specific communication strategy types such as self-repair for form and self-repair for meaning will pose significant problems due to their inconspicuousness in

comparison with other strategies are, and their infrequent use among the learners.

Question group 3. Development in communicative act use

Question 3A) Will overall quantity of communicative acts increase as a function of time spent in the chat sessions?

Assumption 3A) Overall production or quantity of communicative acts will increase as the sessions progress.

Question 3B) Will the variety of communicative act types used increase as the subjects engage in different sessions?

Assumption 3B) The variety in communicative act type use will change, but it will not increase just because the subjects are engaging in more chat sessions.

The main findings for the study outlined in Chapter III are presented, summarized, and discussed in Chapter IV. In light of those findings, a substantial portion (section 5.2) of the present chapter provides the conclusions for this dissertation in relation to the research questions and assumptions articulated above as well as in Chapters I and III. The conclusions and discussion of the main findings can be found in the next section (5.2 Discussion of the Main Findings). Following the discussion of the findings, the reader will be presented with an assessment of the study's limitations (5.3 Limitations of the Study). The chapter concludes by offering avenues and suggestions for future research (5.4 Directions and suggestions for future research).

5.2 Discussion of the Main Findings

5.2.1 Development in Grammatical Knowledge

5.2.1.1 Overall Development in Grammatical Knowledge

Table 5.1 below summarizes the rates of gain in grammatical knowledge in each feedback condition.

Table 5.1
Summary of Mean Performances and Gains for Grammatical Knowledge

Group (feedback condition)	Pre (%)	Post (%)	Change
A (+Recast, -Underline)	61	63	2
B (+Recast, +Underline)	69.33	76.66	7.33
C (-Recast, -Underline)	56	71.33	15.33

In terms of overall development in grammatical knowledge, 2 group C subjects (control group) had the highest rate of overall gain in the entire sample while the other group C member experienced little or no improvement when comparing pretest and posttest. Group C's gain being the highest overall, they were followed in gain rate by group B (enhanced recast) and, ranking last, by group A (standard recast).

The two group C subjects (C1 and C2) with the highest rate of gain in the entire sample were contacted in order to gain some insight into the possible reason(s) why they might have attained considerably higher success rates than any other subject participating in the study: these two subjects scored very low during the pretest and very high during the posttest. Subjects C1 and C2 were not told that their gain rates were the highest in the sample, but they were informed about the existence of a rather big difference in performance between the pretest and the posttest. The key portions of the subjects' responses are provided next:

- Subject C1: "...it is possible that over the time of your study, my Spanish was coming back to me and I was remembering [...] as [the study] went along."
- Subject C2: "I think what probably happened [...] was that I had not been in a grammar focused Spanish class in a while [...] and before beginning to chat I didn't remember much of the grammar rules, etc. After chatting and noticing the person's correct use of Spanish, I tried harder and focused on not making mistakes in the questionnaires."

Both subjects informed this researcher that they had not taken a Spanish class for some time prior to their participation in this study. As both responses indicate, the subjects did not remember most of the grammar on which they were tested at the beginning of the study even though they had learned it earlier, yet they started to remember as the study progressed.

This researcher believes that such a stark improvement in these two group C subjects, who received no feedback, is possibly due to the fact that, somehow, chat room interaction itself was responsible for triggering the activation of "forgotten"/latent knowledge. In this researcher's opinion, these two subjects' language background and their latent knowledge at the inception of the series of chat room sessions are grounds for believing that their remarkable improvement is mostly due to the activation effect just mentioned and not to the quality, characteristics or presence of feedback that, in their case, was nonexistent.

If the above conclusion accurately explains away why group C's overall gain score (in a no-feedback condition) was much higher than that of the subjects in the feedback conditions, then it is easier to maintain that the specific results for that group, when compared to those of other groups, do not call into question research assumption 1C that feedback (in general) should aid the learners in furthering their grammatical knowledge. It should also not question the opposite claim that the absence of feedback should not help the acquisition or, at least, the activation of inactive grammatical knowledge. Feedback was more than likely the reason why subjects in the feedback conditions did improve.

Furthermore, the linguistic betterment in groups A and B followed the pattern of behavior predicted by this researcher: group B (enhanced recast condition) outperformed group A (non-enhanced/standard recast condition). The latter appears to agree with research assumptions 1A and 1B. In the case of assumption 1A, it was stated that enhanced recasts would lead to greater feedback uptake. In this study, feedback uptake was measured by means of the amount of language gain observed in the subjects' performance on the grammatical knowledge tests for each grammatical context. Operating on the assumption that the grammatical knowledge tests, which had been piloted and refined prior to the study, are an accurate measure of language development (and drawing on the findings), this researcher concludes that the presence of enhancement in recasts makes those recasts a more powerful feedback tool than the recasts without the enhancement; however, given the small sample sizes and the, not too wide, margin of gain between groups A and B, no conclusive claims can be made as to the actual effectiveness of applying visual enhancement to recasts nor can the results be extrapolated to the overall target population of advanced Spanish as a foreign language learners. Based on the findings and on these conclusions, the deployment of enhanced recasts in a classroom or research context can be regarded as a likely predictor of language gain, whereas recasts that do not incorporate some type of visual enhancement may be viewed as less effective in leading to a more straightforward, more informative, less cognitively taxing path toward the acquisition of grammatical knowledge.

In a similar vein, and on the basis of some of the explanations provided in the preceding paragraph, the findings confirm research assumption 1B, which states that perceptual salience (through the use of visual enhancement) will increase the effectiveness of recasts as a feedback tool seems to be upheld; however, it must

not be forgotten that, like in the case of assumption 1A, the findings do not provide solid information to answer research question 1B fully, particularly given the characteristics of the sample as a whole and the characteristics of each individual subject.

5.2.1.2 Development in Specific Areas of Grammatical Knowledge

After examining and discussing the findings for overall gain in grammatical knowledge, a discussion of the findings regarding the use and knowledge of verb assignment in the target contexts (subordinate adverbial clauses of time, subordinate noun clauses, and conditional sentences) is presented in this section.

5.2.1.2.1 Development in Adverbial Subordinate Clauses

Table 5.2 summarizes group gains in adverbial subordinate clauses.

Table 5.2
Summary of Gains in Adverbial Subordinate Clauses According to Treatment Group

Group (feedback condition)	Past (%)	Future (%)
A (+Recast, -Underline)	20	20
B (+Recast, +Underline)	-20 - -40	20
C (-Recast, -Underline)	20 - 40	-20 - 20

In the case of adverbial subordinate clauses of time involving past-time reference, group A (standard recast) and group C (no feedback) experienced gain (20% for A, and 20-40% for C), whereas group B (enhanced recast) displayed considerable loss (-20% to -40%) and a great deal of variability among subjects. In this context, the results appear to run counter to this researcher's assumptions for the possible outcomes for research questions 1A, 1B, and 1C; at least for this context, the presence of visual enhancement was not a significant source of assistance for the subjects in group B (enhanced recast condition).

In adverbial subordinate clauses of time involving future-time contexts, groups A (standard recast) and B (enhanced recast) improved equally (gain = 20%), yet group C members (no feedback) showed considerable variation (range = -20% to 20%). The results do not show a clear pattern of differentiation in linguistic gain among the groups.

5.2.1.2.2 Development in Subordinate Noun Clauses

The main findings for each treatment group in subordinate noun clauses are gathered in Table 5.3.

Table 5.3
Summary of Gains in Subordinate Noun Clauses According to Treatment Group

Group (feedback condition)	Past (%)	Future (%)
A (+Recast, -Underline)	12.5	0
B (+Recast, +Underline)	20 – 30.75	-12.5 – 25
C (-Recast, -Underline)	-16.25 – 0	43.75 – 50

As to subordinate noun clauses, the target contexts were classified according to whether they were part of sentences that involved reference to a moment in the past or to a future time. For those involving past-time reference, group B subjects (enhanced recast, gain = 20-37.5%) outperformed group A (standard recast, gain = 12.5%) and C (no feedback, no gain in two cases and -16.25% in one). These specific results (in isolation from those in other grammatical contexts) appear to confirm this researcher’s initial prediction that the enhanced recast group (group B) would outperform group A (standard recast) while group C (no feedback) would be the lowest-achieving group in the sample. All of the above agrees with this researcher’s assumptions for research questions 1A-1C, but it particularly casts light on question 1C “The provision of feedback will result in increased grammatical accuracy” in that the groups receiving feedback (A and B) fared better than the group that did not (group C). When it comes to subordinate noun clauses involving future-time reference, group C performed significantly better (gain = 43.75% to 50%) : group A (gain = 0%) and group B (gain = - 12.5% to 25%). In this instance, the results seem to contradict assumptions 1A-1C as well as the predicted order of achievement (group B > group A > group C) and represent a complete reversal of that order while it is true that, overall, most group B subjects still experienced greater gain than all subjects in group A.

5.2.1.2.3 Development in Conditional Sentences

The findings for grammatical development in conditional sentences are presented in Table 5.4.

Table 5.4
Summary of Gains in Conditional Sentences According to Treatment Group

Group (feedback condition)	If-clauses (%)	Main clauses (%)
A (+Recast, -Underline)	8.33	8.33
B (+Recast, +Underline)	-8.33 – 25	16.67
C (-Recast, -Underline)	8.33 – 50	0 (x2) – 25

In this case, the subjects' grammatical knowledge was examined considering changes in the main clause and the if-clause of all basic conditional sentence structures. As far as the main clauses are concerned, group B subjects were consistently superior (gain = 16.67%) to those in groups A (gain = 8.33%) and C (no gain -2 subjects- to 25%). These results appear to be congruous with the anticipated order of group performance mentioned earlier and, therefore, these findings seem to conform to the assumptions for questions 1A and 1B, which are concerned with the properties of the feedback. As to question 1C, the internal inconsistencies in the results found for group C make it difficult to determine whether, when compared to the remaining group C members, a single subject's gain (25%) –as opposed to the lack thereof in two cases- cast any light on this question and on research assumption 1C. Instead, since this researcher could not find an overwhelming trend in group C toward marked gain (and given the small sample size), the researcher concludes that both overall performance results in group C –before and after the sessions- and, specifically, that particular subject's gain are not major destabilizing forces in confirming research assumption 1C.

The situation in the if-clauses was rather different from the findings for main clauses. Group C (gain range = 8.33% to 50%) was generally superior to group B (gain range = -8.33% to 25%) and group A (gain = -8.33%). In light of these results, it is apparent that research question 1C, which focused on whether the provision of feedback results in increased grammatical knowledge, cannot be confidently answered (unless the possibility of the activation effect discussed earlier is taken into account), since group C subjects that were in a no-feedback condition experienced a remarkable improvement in comparison to subjects in the feedback condition groups. This observation notwithstanding, the results from group A and B appear to correlate this researcher's assumptions for research questions 1A and 1B in that the use of enhanced recasts (question 1A) that are more perceptually salient (question 1B) proved beneficial for group B (enhanced recast condition), whereas group A, which did not have recasts modified by means of underlining, did not experience the same rates of gain.

5.2.1.3 Final Remarks Regarding the Development of Grammatical Knowledge

In light of overall grammatical knowledge test results and individual context-by-context performance, this researcher is unable to readily identify a treatment group that overwhelmingly outperformed the other

experimental groups in most, or all, grammatical knowledge measures; consequently, strong, definitive claims as to the effectiveness of the use of recasts in general and the application of underlining as an enhancement to recasts in particular cannot be made. In spite of this general statement, overall language gain followed the pattern of performance/gain predicted by this researcher for the feedback condition groups –group B (enhanced recast) outperformed group A (non-enhanced/standard recast)—, which appears to confirm this researcher’s assumptions for research questions 1A and 1B.

The conclusions presented above have led this researcher to make some very interesting discoveries regarding the existence of patterns of gain within and among the groups. Those patterns of gain are presented in Table 5.5 in terms of performance level (high –H–, mid –M–, or low –L–) and treatment group (A, B, or C).

Table 5.5
Summary of and Comparisons on Group Performances in the Linguistic Contexts under Investigation

Perform. ^a	Cond-MC ^b	Cond-IF ^c	AdvTPast ^d	AdvTFut ^e	NCPast ^f	NCFut ^g	Summary of group gains per grammatical context		
							A (n=)	B (n=)	C (n=)
H	B	C	C	A = B	B	C	1	3	3
M	A	B	A		A	B	3	2	-
L	C	A	B	C	C	A	2	1	3

Note. ^a Performance; ^b Conditional sentences, main clauses; ^c Conditional sentences, if-clauses
^d Subordinate Adverbial clauses of Time, past-time reference
^e Subordinate Adverbial clauses of Time, future-time reference
^f Subordinate Noun clauses, past-time reference
^g Subordinate Noun clauses, future-time reference

As Table 5.5 shows, group B was superior to the remaining groups in three instances (main clauses in conditional sentences, subordinate adverbial clauses of time with future-time reference, and subordinate noun clauses involving past-time reference), they ranked second in future-time reference for subordinate noun clause contexts and conditional if-clauses, and they were the lowest-ranking group in subordinate adverbial time clauses with past-time reference. Group C subjects outperformed the remaining groups in three grammatical contexts (conditional if-clauses, noun clauses with future-time reference, and adverbials of time involving past-

time reference), but they ranked lowest in the remaining three contexts (main clauses of conditional sentences as well as adverbial time clauses in sentences with future-time reference noun clauses and subordinate noun clauses with past-time reference). Finally, group A (with the same gain score as group B) was superior to the remaining groups in only one case: use of subordinate adverbial clauses of time with future-time reference. Group A ranked in the middle in 3 contexts (main clauses of conditional sentences, subordinate adverbial clauses of time with past-time reference, and subordinate noun clauses with past-time reference) while they were the lowest ranking group in their use of verb assignment within if-clauses of conditional sentences and subordinate noun clauses with future-time reference.

If only the cases when the group(s) ranked highest are taken into consideration, groups B and C were remarkably superior to group A. Considering the cases when the groups ranked high or mid, group B superior to all groups, since they placed in those categories 5 times as opposed to group A (n= 4) and group C (n = 3).

It was anticipated in section 5.2.1.1 that the pronounced improvement in 2 subjects from group C may just stem from the fact that for those subjects chat room interaction triggered the activation of latent knowledge: Subject C1: "...it is possible that over the time of your study, my Spanish was coming back to me and I was remembering [...] as [the study] went along." Considering how groups A and B ranked in terms of rate of gain in the entire sample, it is apparent that:

- 1) group B was superior in 3 contexts (as opposed to 1 context in group A)
- 2) group B ranked second in 2 contexts (unlike group A, which ranked second in 3 contexts, and
- 3) group B ranked last in 1 contexts (as opposed to 2 contexts in group A)

If just their rate of overall gain in 1) and 2) is taken into account, group B (n = 5 contexts) was superior to group A (n = 4 contexts, 3 of which were the second highest rank). In addition, if performance from 3) (contexts where they ranked last) is considered, group B (1 contexts) is also superior to group A (2 contexts).

In the absence of further evidence, which would probably require conducting additional research studies, and even though the implementation of underlining in the sessions appears not to have been as effective as desired/anticipated, this researcher proposes that these findings be taken as preliminary evidence to support the effectiveness of input enhancement. Subsequent research studies with larger sample sizes will hopefully lend

further support. Besides sample sizes, other factors ought to be considered before ruling out the use of typographical elements as yet another means of enhancing input and leading to greater gains in grammatical knowledge. In addition to the problem with sample sizes, this researcher believes that overwhelming evidence for the effectiveness of underlining could not be found due to some or all of the following factors:

1) The specific characteristics of the grammatical items/contexts:

a) The grammatical information in some of the contexts may have required higher levels of abstraction and processing than were available to some of the subjects, who may have found those contexts to be too cognitively taxing.

b) The relative degree of conspicuousness of the grammatical feature (e.g. word order in noun and adjective combinations, which is reversed in Spanish and English)

c) Linguistic complexity:

c.1) syntactic complexity: this is particularly true when the syntactic structure is fairly different in the target and native languages. An example is the possessive construction more commonly known earlier as Saxon genitive, e.g. my cousin's girlfriend's brother (*el hermano de la novia de mi primo* –the brother of the girlfriend of my cousin).

c.2) morphological complexity: for example, in attempting to use irregular verbs or when morphological encoding is determined by tense/mood/aspect distinctions for which the learner's L1 is not as morphologically marked as the FL/L2 is (as is the case with Spanish-English mood and aspectual distinctions⁷ involved in the choice of indicative/subjunctive mood or selection in Spanish between the imperfect preterite⁸ and the preterite perfect simple);

⁷ In this researcher's opinion, the ability to grasp the full array of aspectual differences involved and to be able to apply them comfortably and accurately to every context is, along with accurate use of indicative/subjunctive, one of the most difficult tasks the average Spanish language learner has to face.

⁸ In United States classroom use and in pedagogical grammars (specifically, those written in the United States), this tense is referred to as "imperfecto" (imperfect). Similarly, the preterite perfect simple is typically referred to as "pretérito" or preterite. In Europe and Latin America, these simple past tenses are normally called by their full name: "pretérito perfecto simple", also known as or "pretérito indefinido" (indefinite preterite), and "pretérito imperfecto (de indicativo)" regardless of who the target audience is.

- 2) Some of the learners in the feedback condition groups (groups A and B) may not have been developmentally ready for uptake of the linguistic forms while certain subjects in group C might have been.
- 3) The properties of the feedback used in the sessions:
- a) Recasting –as it was done in the study, but particularly for subjects in the non-enhanced condition (group A)– is not as conspicuous as other error correction procedures in showing to the learner/subject that a grammatical mistake has occurred. More frequently than not, learners view standard recasts (those used among group A subjects) as a reaction to content, and they hardly ever think of them as reacting to form. Nicholas, Lightbown, and Spada (2001) have suggested that to maximize the effectiveness of recasts the context must make it clear to the learner that “the recast is a reaction to the accuracy of the form, not the content, of the original utterance” (p. 720). Just how that can be achieved in a context like the chat room, where the presence of linguistic commentary would look strange and sound suspicious, is a matter that may be worth exploring in future research studies.
 - b) The use of underlining in the enhanced feedback condition (group B) might simply not have been useful enough for the noticing and uptake of the grammatical content made available to the learner during the feedback provision episodes. Some form of linguistic commentary/grammatical explanation, in addition to the visual enhancement, may need to have been provided as additional input enhancement, particularly in some grammatical contexts.
- 4) Rather different performance levels (in accordance with research assumptions 1A-1C) would have been found if:
- a) The study had been conducted among Spanish students in the lower levels that would in principle have had no exposure to the target linguistic contexts.
 - b) Individual subject and sample characteristics (these limitations are discussed in section 5.3.1 Sample characteristics) had been different.

5.2.2 Development in Communication Strategies Across Treatment Groups as Evidenced in Pretest and Posttest

In this section, the most relevant findings for communication strategies will be discussed by relating the findings for individual group performances in each strategy type to the relevant research questions and assumptions (2A and 2B).

Question 2A) Will chat room interaction bring about improvement in students' ability to identify the appropriate context for different communication strategies as measured by the communication strategies (dialog completion) test items?

Assumption 2A) Chat room interaction will have a small impact on the subjects' ability to determine when a given communication strategy is needed in the context.

According to research assumption 2A, responses for item 1 (clarification request) indicate that most group A, B, and C subjects correctly and consistently (both pre- and posttest) identified the strategy to be used in that context. Answers to items 2 (confirmation) and 3 (clarification request) showed greater variability than those for item 1, but they did not display any evidence of there having been any improvement in study participants' use of the communication strategies in question.

After discussing the implications of the findings for research question 2A, the following discussion will turn to research question 2B, which revolves around subjects' ability to identify communicative strategy types.

Question 2B) Will the type of communicative strategy determine the subjects' ability to identify it?

Assumption 2B) Specific communication strategy types such as self-repair for form and self-repair for meaning will pose significant problems due to their inconspicuousness in comparison with other strategies are, and their infrequent use among the learners.

In order to answer research question 2B and to determine whether this researcher's assumption for that question matches the reality of the situation, the results for Turn Completion items will be discussed from two different perspectives: 1) individual group performance, and 2) strategy-by-strategy comparisons. A table summarizing group performances (Table 5.6 below) is followed by a discussion of the findings from the twofold perspective noted.

Table 5.6
Group Performances in Turn Completion Items

Target strategy / Test Item #	Overall Success		
	Group A	Group B	Group C
Clarification request / 10	CU ^a -NP ^b -NG ^c	ICU ^d -DIS ^e -NG	CU-NP-NG
Clarification check / 5	CU-NP-NG	ICU-DIS-NG	ICU-IIS ^f -NG
Self-repair for form / 9	ICU-IIS-NG	ICU-IIS-NG	ICU-IIS-NG
Self-repair for meaning / 7	ICU-IIS-NG	ICU-IIS-NG	ICU-IIS-NG
Confirmation / 6	CU-NP-NG	CU-NP-NG	CU-NP-NG
Comprehension check / 4	CU-NP-NG	CU-NP-NG	ICU-IIS-NG
Appeal for assistance / 8	CU-NP-NG	ICU-DIS-NG	ICU-IIS-NG

Note. ^aConsistent Use;

^bLearners had No Problem identifying the strategy involved in the context(s)

^cLearners had No Gain

^dInConsistent Use

^eDifficulty Identifying appropriate Strategy

^fInability to Identify the Strategy

As Table 5.6 shows, group A was able to identify the need to use the following strategies without a problem during both pre- and posttest: comprehension check (item 4), clarification check (item 5), confirmation (item 6), appeal for assistance (item 8), and clarification request (item 10). Therefore, they exhibited no signs of gain in those strategies.

Group B subjects had difficulty identifying the appropriate communication strategy, answered inconsistently and showed no improvement in the following cases: clarification check (item 5), appeal for assistance (item 8), and clarification request (item 10). They were, however, fully capable of performing successfully in the case of comprehension check (item 4) and confirmation (item 6) and, since they succeeded in identifying the strategy needed during the pretest, there is no evidence of gain or improvement.

Group C subjects were perfectly able to identify the need to use clarification request (item 10), but pre- and posttest group performance in the Dialog Completion instruments shows that the subjects did not experience any gain. Three strategies –comprehension check (item 4), clarification check (item 5), and appeal for assistance (item 8)– were quite problematic for most group C subjects, and they failed to identify the appropriate strategy at both test times.

In sum, the results displayed in Table 5.6 allow this researcher to conclude that there are clear trends of behavior among the groups in each of the contexts/communication strategy items investigated:

1) When it comes to item 4 (comprehension check), groups A and B were consistently able to detect the correct strategy to be used in that context, and they did so before and after their participation in the written chat sessions, which indicates that no gain took place between test times (CU-NP-NG); the opposite situation holds true for group C, that is, the subjects were inconsistent in their reaction to the context between testing times because, presumably, they were unable to identify the strategy needed in that context (ICU-IIS-NG). The findings do not provide sufficient grounds for answering research question 2B, because only group C struggled while attempting to identify the correct strategy and/or selecting the correct answer even if they had successfully identified the necessary answer for that context.

2) All 3 groups had the greatest difficulty in the contexts/items involving self-repair for meaning (item 7) and self-repair for form (item 9). All group results indicate that: 1) they struggled considerably more in those strategies than they did in the remaining strategies, and 2) the difficulties encountered by the subjects were generalized among most subjects (ICU-IIS-NG); this finding is consistent with and confirms research assumption 2B. As noted earlier, this researcher found overwhelming and generalized evidence to support research assumption 2A, since, as it was anticipated, self-repair for form and self-repair for meaning posed significant problems.

3) Group responses for contexts/items 5 (clarification check) and 8 (appeal for assistance) are indicative of a pattern that, with additional differences among the groups, points to the absence of gain in all groups. The main differences are that group A (CU-NP-NG) was consistently able to identify the strategy needed in the context while groups B and C were inconsistent and either had some difficulty (group B; ICU-DIS-NG) or were completely unable to answer (group C; ICU-IIS-NG). The findings for items 5 (clarification check) and 8 (appeal for assistance) also support this researcher's assumption for research question 2B, since the results for groups B and C suggest that subjects in those groups experienced a fairly high level of difficulty and showed no signs of there having been any improvement by the end of the study. It is, however, necessary to clarify that group A results do not provide this researcher with strong evidence to answer research question 2B with full confidence in the case of these two communicative strategies.

4) Clarification request (item 10) showed no clear gain across treatment groups. While it was consistently and correctly used by members of groups A and C (CU-NP-NG), group B subjects differed in that they had difficulty identifying the necessary strategy for that context (ICU-DIS-NG). These results do not allow the researcher to answer research question 2B conclusively given that only one of the groups seems to have struggled with this communication strategy, whereas the remaining two groups did not experience any gain because their responses were on target at both testing times.

5) Confirmation (item 6) is the only strategy that unanimously posed no problems for any of the groups and also seems not to have yielded any gain among and within the groups.

By way of a final conclusion, this researcher has identified two general trends in group behavior (excluding item 6):

1) The findings for items 5 (clarification check), 7 (self-repair for meaning), 8 (appeal for assistance), and 9 (self-repair for form) are consistent with research assumption 2B.

2) The findings for items 4 (comprehension check) and 10 (clarification request) do not provide sufficient grounds for fully answering research question 2B and appear to disprove assumption 2B, because only one group experienced moderate to great difficulty in each case.

After discussing use of and development in communication strategies among the subjects' participating in the study, the following section will be devoted to interpreting and analyzing the results communicative act use within and among the groups.

5.2.3 Communicative Act Use Across Sessions and Groups

This section introduces a discussion on the main findings for communicative act use in the written chat room sessions. The results are discussed according to the occurrence of the different communicative act types by session and treatment group and in relation to the relevant research questions and assumptions (3A and 3B). The first part of this section will focus on analyzing the results in relation to question 3A; that will then be followed by the analyses pertaining to research question 3B. As a reminder, research question and assumption 3A read:

Question 3A) Will overall quantity of communicative acts increase as a function of time spent in the chat sessions?

Assumption 3A) Overall production or quantity of communicative acts will increase as the sessions progress.

In spite of the presence of variability in use of the different communicative act types across sessions and among groups, there seems to be a tendency to use certain communicative act types (only the most commonly occurring communicative act types are provided in this section). The most prevalent communicative act categories across sessions and treatment groups were: answer, inform, question, agree, and assertion (the latter being less widespread than the remaining communicative act types just mentioned). A sharp decrease occurred in the number of communicative acts produced by all subjects across sessions (session 2, N = 254; session 3, N = 198; and session 4, N = 121) as well as in the variety/amount of communicative act types used (session 2, N = 12; session 3, N = 9; and session 4, n = 8).

These findings run counter to this researcher's assumption for this research question, but the researcher is prepared to offer an explanation as to why the results turned out to be that way. In hindsight and by reexamining the written chat room session templates, this researcher has realized that the subjects' answers (both in terms of overall quantity of communicative acts and in terms of the number of different communicative act types used) depend on the very nature of the content discussed in individual written chat room sessions. The first sessions were more akin to an authentic conversation that allowed the subjects' voice/individuality to be heard/expressed more freely. In so doing, the subjects also enjoyed more freedom to take risks (because the sessions, while being scripted, gave the subject the opportunity to ask questions, confirm information, etc.) and to show an interest in engaging in more proactive types of behavior, which, in turn, resulted in larger numbers of communicative acts being produced and a greater variety of communicative act types being brought into the conversation. As the sessions progressed, the diversity and amount of communicative acts that the subjects could utter in a session was more limited. This reduction is due to the fact that in sessions 3 and 4 the prompt contexts that were deployed in order to elicit grammatical mistakes did not lend themselves to the production of a wide range of communicative act types. Furthermore, the tone of the conversations had shifted away from

being a more relaxed, becoming-acquainted stage to a context that was more narrowly focused on the tasks that were strictly relevant for the research study. It is this researcher's belief that these factors are largely responsible for the outcomes found in communicative act performance both within and among groups throughout the sessions.

5.3 Limitations of the Study

In this section, this researcher will provide a thorough account of the most important limitations the researcher has identified in the study upon its completion. Possible solutions for these limitations will be presented, explained and discussed in depth in the next and final section of this chapter (5.4 Directions and suggestions for future research).

5.3.1 Sample Characteristics

5.3.1.1 Sample Selection

This researcher did everything within his reach to control for almost every factor involved in study implementation; however, sources outside the study made it impossible to obtain a sample of subjects that met certain ideal criteria such as variability in language competence among subjects. Restrictions imposed by the host institution's IRB dictating that the subjects were to volunteer for the study (self-selection) prevented this researcher from choosing entire classes of students as potential study participants, which would have been more scientifically sound than allowing self-selection, since the latter, in this researcher's opinion, has had a considerable, negative impact on learning outcomes and on the outcomes of this research study, because, leaving aside their interest in practicing the language, the recruited subjects likely belonged to one of the following four student/subject types:

1) Subject type 1: The student's willingness to participate in the study was more than likely due to the monetary incentive involved (\$75);

2) Subject type 2: Volunteer students coming from opposite ends of the language acquisition continuum, i.e. either students with a fairly high level of language competence in Spanish or students in the opposite

situation, that is, learners whose level of grammatical knowledge is low; hence, few or none of the students recruited for the study came into the study with a middle range level of acquisition;

3) Subject type 3: Volunteer students who: 1) had studied the Spanish language for several years in a secondary education setting but had not been formally exposed to the language since then, and 2) had just resumed the process of learning Spanish at the host institution approximately two months prior to the beginning of the written chat sessions. These students may be said to have been in a transitional stage where they began to recall latent knowledge as they began to interact in the written chat room sessions (these subjects are mostly those in group C), and

4) Student type 4: This type of learner includes a combination of two or more of the student types noted above and their characteristics.

5.3.1.2 Sample Size

This researcher is aware that both individual group and overall study sample sizes pose a problem in terms of the generalizability of this study's results and conclusions. Only 12 subjects (of an initial pool of 94) eventually became study participants, and this was more than likely due to the reasons adduced in sections 5.3.1.1, 5.3.1.4, and 5.3.2 (self-selection, restrictions on the part of the host institution, monetary compensation as well as differences among subjects such as motivational and language background factors). As will be noted later in the chapter, sample size needs to be increased before the researcher can make confident claims.

5.3.1.3 Non-completion of the Research Sequence

All research subjects engaged in study procedures in a timely manner, but 2 of them failed to take the posttest instruments; therefore, all of their pretest data and all other study data including performance in the written chat room sessions could not be included as part of the dataset. As a result, the latter reduced the pool of study participants whose data could be analyzed for this dissertation from 12 to 10. Furthermore, written chat room data from 1 of those 10 subjects could not be analyzed, because, in the case of one session, the data were lost due to the fact that the "save" function of the chat room program failed, and no data were recorded for that session; hence that subject's results for all written chat sessions did not become part of the written chat room session data analyzed for the study.

5.3.1.4 Level of Language Competence of Study Participants

The subjects participating in the study were enrolled in an advanced Spanish conversation course in which there is no discussion about or emphasis on grammatical information throughout the course. While this researcher observed clear differences among study participants upon analyzing pretest data coming from the grammatical knowledge pretest, the researcher suspects that the target linguistic items under investigation might have been, for the most part, below their level of language competence at the time when the study began. A suggestion for overcoming this limitation and avoiding the presence of this kind of subjects is offered later in this chapter (section 5.4.1.3).

5.3.2 Monetary Compensation

The compensation that subjects could receive for participating in the study was small (\$75), but it was the one that the host institution's IRB would allow. The small amount of the compensation received probably had a role in the small number of students that finally decided to participate in this research study. The limited nature of the compensation given to the subjects, like self-selection, has likely played an important role in the amount and types of subjects electing to volunteer for the study, since it is likely that prospective subjects: a) had the motivation to participate even if the compensation was not substantial, or b) chose not to participate because, in spite of their willingness to do so, they thought that the time expenditure involved should translate into greater financial compensation.

5.3.3 Dialog Completion Tasks

Upon completion of the study, this researcher realized that the existing instrument does not measure knowledge and use of communication strategies to its full potential –the way it was initially envisioned–. The latter statement stems from the results yielded by the instrument and, most importantly, from a posteriori identification (after data analysis) of two problem areas in instrument design:

1) the number of items for both types of test item –turn production (N= 7) and turn completion (N = 3)– is not sufficient to arrive at definitive conclusions for research questions 2A through 3B, and

2) the fact that the students completed the same, unaltered instrument twice does not demonstrate whether the learners are capable of responding consistently to a similar context and to do so in a manner that is appropriate for the context.

The testing procedure used in this instrument only shows how the subjects behave when they are exposed to the exact same context, but it does not cast much light on what would happen if two related target contexts (involving use of the same strategy) were entirely dissimilar; it is true, however, that there were performance differences among subjects and discrepancies, even inconsistent behavior, within the same subjects between pre- and posttest for several communication strategy items.

5.3.4 Chat Room Session Characteristics

5.3.4.1 Duration of the Sessions

The typical written chat room session had an average duration of 45 minutes, which, to this researcher, prevented the subjects from having expanded opportunities for exposure to corrective feedback and interaction that involved the target grammatical contexts. Although the duration itself is apparently sufficient, or so did this researcher believe in designing the study, evidence from written chat room interaction has proven otherwise, because:

1) Approximately, the first ten and the last five minutes of each session involved the typing/production of conventional greeting and leave-taking formulas as well as small talk (for the purpose of providing a warm-up before starting with the battery of prompts), all of which curtailed the time available for engaging in meaningful, truly research-oriented interaction sequences focused on the target forms and on the elicitation of errors leading to the error-correction episodes (feedback provision involving enhanced or non-enhanced recasts) at the core of this study, and

2) Once the subject received any given prompt question/statement from the NS (this researcher), he/she would typically take 60 to 90 seconds to craft the response. Assuming that the native speaker did not participate in the 30 minutes left for the core conversation, the subject could produce approximately 20 to 30 statements per session; however, the native speaker did have an active role in the conversation. While the NS was almost

invariably copying and pasting from a session script saved in a word-processing file, he typically acted as though he were actually thinking and typing questions or reactions for the first time in order to make it look like an authentic, natural conversational turn, which cut down on the time available for the subject to produce a larger number of conversational turns. The need to feign naturalness, which justifies the NS's behavior, required that he not submit his reaction to the subject's previous turn in less than approximately 30 seconds so as to avoid raising any suspicions on the part of the subject, and

3) If the NS's use of written chat time is factored in, the maximum number of conversational turns (based on the target grammatical contexts that the subject has time to produce) is reduced to an average of 15 turns per written chat session. A discussion of possible solutions for the problem outlined in this section is presented in section 5.4.4.

5.3.4.2 Timing of the Chat Room Sessions

As far as it was possible, this researcher tried to arrange the written chat room sessions so that they were as evenly distributed as possible over the course of three weeks for all subjects; however, after all subjects had received their written chat schedule for the entire series of sessions, some subjects asked, half-way through the series, to have two of the sessions scheduled on consecutive days during the same week (instead of following the original schedule with evenly distributed sessions). In cases like these, this researcher adjusted the original schedule while not overlooking the fact that he was the only native Spanish speaker engaging in the written chat sessions. This measure was adopted in order to accommodate the subjects' busy schedules even though this researcher views it as an unsuitable practice, because, in so doing, the subjects' regular exposure to the written chat room experience itself and to their specific feedback condition was compromised.

5.4 Directions and Suggestions for Future Research

Following from the foregoing discussion on study limitations in section 5.3, this section will offer two kinds of recommendations to other researchers who may either be willing to replicate this study or attempt to use some of its features: 1) suggestions for overcoming the limitations found in the present study, which will hopefully allow other researchers (as well as this researcher) to avoid the presence of, or at least minimize, the

shortcomings discussed in section 5.3; and 2) additional suggestions and considerations for future directions in later research studies. All of these recommendations are part of this researcher's plans for a future, large-scale study that the researcher is contemplating as post-doctoral research work.

5.4.1 Sample Characteristics

5.4.1.1 Sample Selection

Given that self-selection seems to be an almost inevitable problem and selecting intact classes is nearly impossible (at least in some institutions), the subject selection process may initially begin by accepting all volunteer subjects as prospective study participants.

To avoid the potential problem of accepting only high-achieving and only low-achieving subjects into the study (please refer to "Subject type 2" in section 5.3.1.1 for further details), the researcher would examine pretest responses from the initial pool of accepted students and determine from those responses a subject's eligibility to participate in the study depending upon whether the subject's grammatical knowledge pretest score falls within a given range of scores (50-80%). This range would exclude the extreme high subjects (81-100%) and extreme low subjects (49% or below).

In order not to include subjects belonging to "Student type 3" described in section 5.3.1.1 (subjects who had studied the language intermittently), this researcher would exclude from the study those students not having studied Spanish uninterruptedly either: 1) since they began learning the language, or 2) for a period of time immediately preceding the beginning of the study.

5.4.1.2 Sample Size

In an ideal situation, a similar research study would have to have approximately 15 subjects in each feedback condition if the researcher wishes to have a greater degree of certainty regarding the reliability and generalizability of the results. The latter would, however, require a considerable expenditure of time and financial resources on the part of the researcher unless:

a) A substantial portion of research funds comes from external sources of funding such as a grant (which was not the case in this study), and

b) The researcher recruits a research team made up of volunteer or paid assistants consisting of native Spanish-speaking individuals that:

1) have the necessary linguistic background, and/or

2) are potentially interested but have a limited or nonexistent background in basic second language acquisition.

The creation of a research team would entail training these individuals on how to go about performing the different tasks involved in conducting the study and ensuring that those individuals abide by study guidelines.

5.4.1.3 Level of Language Competence of Study Participants

As was pointed out in section 5.3.1.4, it seems highly likely that the subjects' competence in the grammatical knowledge investigated was more advanced than the level of difficulty of the grammatical items selected for the study. In a future study, this researcher (or other interested researchers) should act in one of the following two ways:

1) select the preliminary target population from a low-intermediate or an upper-intermediate level, or

2) target the same level of students participating in the present study but draw on considerably more advanced target grammatical items.

5.4.2 Instrumentation

5.4.2.1 Grammatical Knowledge Tests

The instruments used in this dissertation could benefit from including additional items for each grammatical context under investigation (for instance, verb usage in main clauses of type 2 conditional sentences), which, this researcher believes, would better measure linguistic changes within each given context and would provide a more thorough knowledge and understanding of the subjects' stage of language acquisition before and after their participation in the study.

5.4.2.2 Dialog Completion Tasks

The need for improving the dialog completion tasks noted in section 5.3.3 can be resolved as follows:

1) number of items: increase the amount of both turn completion and turn production items to at least 10 items for each item type (from 7 –turn production items- and 3 –turn completion items-); preferably, there should be at least four items for each communication strategy;

2) increase the number/variety of communication strategy types present in the instruments;

3) balance the presence and variety of communication strategies used so that a similar number of items is used for each communication strategy, and

4) create (not duplicate -as is the case in the present study) a second “Dialog Completion Task” that presents similar (yet not mere replicas of) existing contexts in the instrument (unlike what happens in the present study). In this manner, there would be two separate, distinct, but related versions of the instrument that could properly be called pretest and posttest.

5.4.3. Monetary Compensation

As noted earlier, subjects did not receive overly generous compensation for their involvement in the study, which may have discouraged prospective study participants from joining the study. As a possible solution, this researcher would offer higher compensation for the subjects’ participation even at the cost of having to engage in longer, more arduous negotiations with the institution’s IRB. The latter would materialize if funding (other than the researcher’s own financial resources –as was the case here-) should become available.

5.4.4 Chat Room Session Characteristics

In spite of the fact that the sessions need to be scripted conversations (to allow the researcher to make comparisons), future studies should take into consideration that the following characteristics are present in each session:

1) have the appearance of naturalness and authenticity,

2) have appropriate duration, and

3) leave room for the inclusion of as many error-inducing, feedback provision episodes as possible.

Factoring in all of these elements, this researcher suggests that future, similar studies not set a strict time limit for the duration of each session; rather, it is highly recommended that session duration consist of a

flexible, but reasonable, range of time with a minimum and a maximum length, for instance, sixty minutes (minimum) to seventy-five minutes (maximum).

Taking these features into account, it is highly recommended that an ideal session be long enough to include sufficient time for all of the following phases to be present in the session:

- a) greeting phase
- b) warm-up phase
- c) core phase, or body of the conversation: this phase should consist of ample opportunities for the occurrence of as many error-inducing, feedback-provision episodes as possible for each grammatical context under investigation. This phase is crucial for the success of similar studies, because it is at this point that the subjects have the opportunity to:
 - 1) attend to important aspects of interaction in the session(s) and
 - 2) notice the presence of feedback, and
 - 3) notice the special characteristics of the feedback received (if any), and
- d) leave-taking phase

It is not recommended that an individual session exceed seventy minutes, because:

- 1) it is highly likely that some, if not all, participants will find the experience of written chatting with a native speaker to be rather cognitively taxing, and
- 2) the latter may affect the subject's normal attention span, thereby diminishing the subject's ability to:
 - a) attend to important aspects of interaction in the session(s),
 - b) notice the presence of feedback, and/or
 - c) notice the special properties of any feedback received,

all of which may, in turn, negatively impact any potential, long-term language gain that may derive from their involvement in the study.

Should all of the different features mentioned in the foregoing discussion on the nature of the written chat sessions be present, the researcher would have much more flexibility to design sessions that appear authentic and natural while providing the researcher with increased opportunities for the inclusion of more research-oriented interaction sequences involving error-inducing, feedback-provision episodes that are, after all, the main purpose for conducting the study.

Future studies should also consider the quantity of sessions in which the subjects engage. Drawing on the results derived from data analyses, this researcher believes that five sessions were not sufficient to find a significant impact of the different treatment conditions on some of the areas under investigation, specifically, on the development of grammatical knowledge. In a future study, this researcher would like for the total number of written chat room sessions to range from 6 to 10 with the preferred number of sessions being as close to 10 as possible.

Considering the general, written chat-session characteristics suggested earlier and the belief that the number of sessions in this study might not have been ideal, this researcher suggests that later studies take both factors (overall features and number of sessions) into account in their research design, because this researcher believes that they may negatively impact any potential gain that might result from the characteristics of the treatment.

As was noted earlier, study participants occasionally requested adjustments to their written chat session schedule while the sessions were in progress. These adjustments involved setting up two written chat sessions consecutively. This situation poses a problem, because the subject(s) in question do not engage in a pattern of interaction that is comparable to that of other subjects. To minimize the possible risks involved in engaging in this type of adjustments, future studies may have to include a clause in the study agreement (signed by the subjects prior to starting study activities) stating that, once they sign the agreement, they have to abide by all stipulations including the written chat room schedule. It must be added that an individual subject's written chat session schedule was established on the basis of the following criteria (in the order of priority in which each criterion is presented):

- 1) The subject produced a list of time slots for every day of the week when it was more

convenient for the subject to participate in the sessions. The researcher set up the schedule based upon their time preferences,

- 2) The need to ensure that all written chat sessions were separated by approximately the same number of days, and
- 3) The need to accommodate 60 written chat room sessions (approximately 50 hours of written chat time) into this researcher's schedule over a twenty-day period with a typical day consisting of 3 to 6 consecutive hours of written chatting every day of the week.

5.4.5 Characteristics of the Visual Enhancement

In order to obtain conclusive evidence supporting the effectiveness of visual enhancements on feedback provision, the implementation of other different types of visual enhancement may be in order. Perhaps the characteristics of other types of typographical enhancement –e.g. boldface, italics, capitalization,...– may be more suitable for enhancing feedback and making it more salient than in the case of underlining. It may also be worth considering the possibility of combining more than one enhancement device in order to see if the latter will lend itself to greater noticeability and subsequent usability of the feedback. Another alternative would be to assign a different type of visual input enhancement to one of a series of treatment groups so that each treatment group is exposed to a different type of enhancement and, later, to assess the relative effectiveness of different enhancement options.

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APPENDIX A: SAMPLE GRAMMATICAL KNOWLEDGE TEST ITEMS⁹

SUBORDINATE NP CLAUSES: FUTURE-TIME REFERENCE, (UN)CERTAINTY

1. *No es verdad que el director --- mañana.*
(It is not true that the director **comes back/is coming back**--- tomorrow)

<i>vuelva</i>	<i>volvió</i>	<i>volvería</i>	<i>vuelve</i>	<i>volviera</i>
pres-subj	preterite	simp-cond	pres-ind	imperf-subj
<u>A</u>	B	C	D	E

ADVERBIAL TIME CLAUSES, FUTURE-TIME REFERENCE

44. *Cuando ellos me --- luz verde, escribiré el informe.*
(**When** they **give** me the green light, I will write the report.)

<i>den</i>	<i>dan</i>	<i>dieron</i>	<i>darían</i>	<i>darán</i>
pres-subj	pres-ind	preterite	simp-cond	simp-fut
<u>A</u>	B	C	D	E

CONDITIONAL SENTENCES: Type I: IF-clause

9. *Si el camarero --- bueno, voy a darle una propina.*
(If the waiter **is** good, I am going to give him a tip.)

<i>es</i>	<i>sea</i>	<i>sería</i>	<i>será</i>	<i>fue</i>
pres-ind	pres-subj	simp-cond	simp-fut	preterite
<u>A</u>	B	C	D	E

CONDITIONAL SENTENCES: Type II: IF-clause

3. *La ciudad no funcionaría tan mal si el alcalde --- más dinero en infraestructura.*
(The city would not work so badly if the mayor **invested** more money in infrastructure.)

<i>invertirá</i>	<i>invertía</i>	<i>invierta</i>	<i>invertiera</i>	<i>invertiría</i>
simp-fut	imperf-ind	pres-subj	imperf-subj	simp-cond
A	B	C	<u>D</u>	E

CONDITIONAL SENTENCES: Type III: Main-Clause (4)

19. *No --- ese accidente si hubieras llevado el coche al mecánico.*
(You **would not have had** that accident if you had taken your car to the mechanic.)

<i>tendrías</i>	<i>habrías tenido</i>	<i>tuvieras</i>	<i>habías tenido</i>	<i>habrás tenido</i>
simp-cond	perf-cond	imperf-subj	pluperf-ind	fut-perf
A	<u>B</u>	C	D	E

⁹ A capital A, B, C, D or E boldfaced and underlined is the correct answer.

APPENDIX B: SAMPLE LEARNER BACKGROUND QUESTIONNAIRE ITEMS

1. The language(s) I normally speak at home is/are...
 - A. English
 - B. Spanish
 - C. English and Spanish interchangeably
 - D. Chinese
 - E. Other Romance language (French, Italian, Portuguese,...)
 - F. An African Language
 - G. Other Asian language

2. The language(s) I normally speak with friends is/are...
[same options as in 6.]

3. In all your study-abroad trips (if applicable), how many times did you go to a Spanish-speaking country?

A. 0 B. 1 C. 2 D. 3 E. 4 F. 5 or more G. not applicable

For the following items, the students were asked to rate the following statements on a Lichert scale according to how strongly they agreed (5) or disagreed (1) with each statement.

1. While chatting, once I had figured out what the feedback made reference to, I just
2. Because of my participation in the chats, I can use certain aspects of the Spanish
3. I liked it when the native speaker corrected my mistakes while chatting.
4. Receiving detailed comments about your errors is the best way to learn a language.
5. The best way to learn Spanish is to get detailed explanations about your errors.
6. If I realize I have said something wrong, I correct myself.
7. When I noticed the native speaker was giving me feedback on a mistake, I could not
8. I like having someone tell me that I said/wrote something incorrectly.
9. Writing is the most important skill to acquire.
10. It is more important to speak well than to write well.

APPENDIX C: PRELIMINARY CONTACT LETTER

Dear Spanish [Course Number] student,

My name is Francisco Lluna, and I am a Spanish instructor with the Spanish Language Program (SLP) at [Institution's Name]. In this age of commercial, unsolicited e-mail and massive virus distribution via e-mail, please be assured that the Director of the SLP and [Institution's Name]'s Research Committee on Research with Human Subjects have approved this e-mail.

Earn Money While Practicing your Spanish

You were randomly selected from a pool of students enrolled in Spanish [Course Number], and I am writing to invite you to participate in a research study that I will be directing this Fall 2003. The study will involve the use of Spanish in a chat room.

You will receive financial compensation for being in the study. Once you start, you may withdraw at any time, but you would receive no compensation. In addition, at the end of the study you will be invited to a meal with the researcher and other study participants where you will have a chance to relax and receive payment for your participation. There is no further compensation other than money, the meal and a chance to improve your Spanish online with a native Spanish speaker. The study involves no risks. If you can type and know how to use a mouse, turn a computer on and off, use a floppy drive and CD drive, you have all the skills you need to participate in the study. There is only one limitation: you have to be eighteen or older to participate and have no relatives who are native Spanish speakers. Whether you participate or not will have no impact on your standing in Spanish [Course Number] nor will it affect your relationship with any member of the SLP or the [Institution's Name] community.

Your participation in the study would involve answering three sets of questionnaires at two times in the semester and engaging in a series of 5 chat sessions. If you decide to join, I will ask you to provide a schedule of time slots when you would be available during the week. According to that schedule, we will arrange the study activities during the times that best fit your schedule and the researcher's plans.

If you are 18 or older and would like to learn more about the study, please write me back at XXXX@XXXX.edu. If you are not interested, I would also ask you to respond and confirm that. If you do not feel comfortable responding by e-mail, please drop me a paper note via campus mail at [Campus Address] or directly in [Office Location]. Please let me know as soon as possible. Either way I would like to hear from you.

Wishing you the best of luck this semester,
Francisco Lluna

APPENDIX D: STUDENT CONSENT FORM

Statement of Consent

I _____ (Your name) certify and understand that:

- I do not feel forced to participate in the study.
- I am 18 or older.
- I am not Hispanic nor have any Hispanic heritage
- I read and understood all of the information in the “Guidelines for the study” packet.
- I asked any questions I had.
- I received the answers I needed.
- I agree to meet the deadlines set by and agreed upon with the researcher,
- Failure to meet deadlines may result in a partial reduction of the money I receive for the activity I did not complete on time.
- I agree to be in the study.

Signature: _____

Date: _____

Your [Institution’s Name] e-mail: _____
(or an e-mail address you check/use daily)

VITA

Mr. Francisco Lluna Mateu grew up in Valencia, Spain. He believes his interest in learning about language started in his early childhood years when, being as young as eight years of age, Mr. Lluna Mateu would create fantastic artificial languages that, as he now knows, sooner or later became dead languages. His daydreaming about language went beyond artificial languages, and it also encompassed countless after school sessions in which Mr. Lluna Mateu (in his imagination) taught himself languages as linguistically unrelated to each other as Chinese, Arabic, French, English, and Basque. He would even “speak” in those languages as he was “learning” them. At the tender age of 10, his school offered evening English courses for true beginners: he thought it would be very interesting and became so enthused over the idea of learning English that he insisted until his parents allowed him to join the class. Little did Mr. Lluna Mateu know that 24 years later he would be living and breathing English as a foreigner residing in the United States. Evidently, Valencia being a bilingual region, the milieu in which Mr. Lluna Mateu grew up exposed him to and made him confront deep as well as more superficial issues pertaining to bilingualism, dialectology, and the interface between politics and language.

While not overlooking any possible natural predisposition, this background definitely had a significant role in shaping Mr. Lluna Mateu’s career choices since childhood and seems to have been the trigger for a long chain of events all of which involve language one way or another. This is so much so that without this background he would probably have never decided to major in English when there were so many other, more profitable career choices, and, precisely because he majored in English, in 1996 Mr. Lluna Mateu was given the opportunity to go to the United States in order to work on a master’s degree (also in English) at Northwestern State University of Louisiana while he began teaching his own language, which was followed by his being accepted as a doctoral student at Louisiana State University. Upon graduation from LSU, Mr. Lluna Mateu will pursue further research opportunities in the areas investigated in this dissertation.