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APPLICATION OF A CALL SYSTEM IN THE ACQUISITION OF
ADVERBS IN ENGLISH

by

Edina Torlaković, B.A. Honours

A thesis submitted to the Faculty of Graduate Studies
and Research in partial fulfillment of

Master of Arts

School of Linguistics and Applied Language Studies

Carleton University

Ottawa, Ontario

January 5, 2001

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APPLICATION OF A CALL SYSTEM IN THE ACQUISITION OF ADVERBS IN ENGLISH

submitted by Edina Torlaković

in partial fulfilment of the requirements for

the degree of Master of Arts

Thesis Supervisor

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To my grandmother and mother

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ABSTRACT

Whether, and the extent to which CALL grammar instruction contributes to improving learners' performance and confidence in positioning adverbs in an English sentence was examined. Over a two-week period two groups of ESL learners were exposed to 6 hours of grammar instruction. One group had teacher-fronted instruction while the other was exposed to a CALL software. Both groups completed identical tasks in terms of format, instruction, task features, content and feedback. The groups were given a pretest, an immediate posttest, and a delayed posttest. Results showed a significant improvement on the intuition task and a significant confidence improvement on both intuition and production tasks for the computer group. The in-class and the control group showed no significant gains. It is hypothesized that frequency of exposure and practice accounted for the difference between the in-class and the computer group. It is also possible that students' control of learning, availability of immediate feedback, and non-existence of negative psychological effect that may follow face to face negative feedback also contributed to the difference that was found.

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List of Abbreviations

A	Adverb
CALL	Computer Assisted Language Learning
EFL	English as a Foreign Language
E-knowledge	Explicit Knowledge
ESL	English as a Second Language
GUI	Graphical User Interface
I-knowledge	Implicit Knowledge
L1	First (native) language
L2	Second Language
O	Object
S	Subject
SLA	Second Language Acquisition
UG	Universal Grammar
V	Verb

1 Introduction

According to Warshauer (1996), Computer Assisted Language Learning (CALL) was founded in the fifties, while it was implemented in the sixties and seventies. During its first couple of decades, CALL was of interest only to scientists engaged in that particular research area. However, the situation is now different. In today's world, especially in North America, computers are fairly accessible. Many educational institutions provide learners with access to computers and some learners own computers as well. Opportunity for self-study is only one of the reasons that CALL software and their integration in second language or foreign language instruction may be beneficial. However, the primary reason for this incorporation is the improvement that learners have shown in different studies where CALL systems were used. Presentation of some of these studies follows.

Even though this year CALL has celebrated its fiftieth birthday, it is not favored by many language teachers. It is thought of as being monotonous and it is believed that CALL can provide a student only with a strictly behaviorist type of learning where stimulus and response play a crucial role.

Fortunately, during the last decade many researchers have proven that this is a myth. Studies of this type were done at the University of Wollongong (McCarthy, 1992), Melbourne University (Brazaitis, 1992), and many others. These studies confirmed that second language learners show an improvement with the usage of CALL software and that there are a number of advantages to this type of learning, these being:

- students' control of learning
- immediate feedback, and
- non-existence of a negative psychological effect that may follow face-to-face negative feedback

It is well known in Second Language Acquisition (SLA) theories that adults, by using language for communication only, do not necessarily become aware of grammatical forms. Ahmad points out the claim of language teachers that mastering basic grammatical forms is very important for the development of linguistic competence at the beginning of language acquisition (Ahmad, Corbett, Rogers, & Sussex, 1985). Attempts to make learners aware of the existence of specific linguistic features in the second language (L2) are referred to as consciousness-raising (Ellis, 1997). Consciousness-raising about grammatical forms might be necessary. In the last ten years L2 researchers have argued that grammatical instruction is needed and that form focussed instruction does have an effect on second language acquisition (White, 1991; Fotos, 1994).

There are different types of grammatical instruction. Two of them are explicit grammar teaching and task based grammar instruction. Task based grammar teaching is the area where the advantages of CALL, namely student's control of learning, immediate feedback and non-existence of a negative psychological effect that may follow face-to-face negative feedback may be incorporated.

Dissosway argues that "the most striking characteristics of the syntactic category of adverb in English is the diversity in the types of lexical items that are included in that

category and the rules that are needed to place them in sentences” (Dissosway, 1987, 3). The problem for an L2 learner is to acquire a single category that has such a big diversity. She has investigated the process of acquisition of adverbs in second language learning. According to Dissosway, there are three major areas of difficulty that learners experience. They are

- placement of adverbs in sentences,
- confusion between that constituent and other syntactic constituents, and
- inappropriate usage.

Other researchers have studied the acquisition of adverbs in English as a second language (ESL) learning as well. Some of them investigated this phenomenon within a selected group of ESL learners. For example Ellis (1999) and White (1991) have shown that position of adverbs is problematic for French speaking learners of English and that errors due to the first language (L1) are highly likely to fossilize.

After analyzing the data that was collected in interviews with three ESL speakers at an intermediate level of proficiency in English, the fact that the position of adverbs in a sentence causes a great deal of confusion for second language learners was recognized. This is the reason that a CALL system that concentrates on a specific aspect of English syntax, namely, the position of adverbs, might be worthwhile. *The question posed is whether or not a CALL system of this type could be used as an instructional tool, and, if so, how beneficial it can be for a second language learner.* In this thesis it is hypothesized that L2 learners will show improvement with adverbs by using such software and that the advantages to this type of learning - students’ control of learning,

immediate feedback, and non-existence of a negative psychological effect that may follow on face-to-face negative feedback - will be preserved. The goal is to test this hypothesis.

The thesis begins by examining the theoretical background, which consists of three parts. Each one of these units belongs to a different field of study. The first part is related to the definition and classification of adverbs and consists of different analyses of this part of speech. It also contains a proposed classification of adverbs that is based on their semantics. This classification is recommended for teaching adverbs to an L2 learner. The second unit concerns SLA and the third one is CALL centered. In these two units diverse SLA and CALL theories together with studies related to them are investigated. An extensive theoretical background is needed in order to address the research question relevantly, since it contains issues related to the three disciplines in question. To remind ourselves, the question being investigated is whether or not restrictions on the position of adverbs in an English sentence could be taught by using a CALL system.

As for research methods, the thesis requires an experimental study in which the research question can be directly investigated. For the study, a development of a CALL system whose primary function is teaching ESL or EFL learners about the position of adverbs in an English sentence is necessary. The second requirement is to have access to non-native English speakers in order to run an experimental study and to gather data.

A computer program called 'Adverbial Analyzer' was developed. This program concerns only the acquisition of adverbs in English. With this software, the computer plays the role of an educational stimulus. While using it, students are engaged in two

different grammar tasks. The Analyzer teaches its users about different types of adverbs and their possible position in an English sentence. It gives information about the semantic classification of adverbs to a user in order to show him the position of a particular class of adverb within an English sentence. It consists of two tasks: the first task requires making a judgment about the grammaticality of a group of sentences containing adverbs in appropriate and inappropriate positions and the second task requires the insertion of a given adverb within a given sentence.

After the Analyzer was developed, the experimental study took place. Twenty-one non-native English speakers participated in the study. The English proficiency of these students was in the intermediate range, which is from low to high intermediate. The decision about testing students at this proficiency level was made after completing a pilot study in which three students from different intermediate classes were observed and tested. It was found that students at these particular levels were able to understand the meaning of different types of adverbs and sentences containing them.

Participants were tested three times in order to gather data. Chapter two contains a description of the study in which the subjects, experimental procedure, development of material, data analysis, and results are explained in detail.

The last chapter is the conclusion of the thesis.

2 Theoretical Background

2.1 Definition and Classification of Adverbs

This chapter deals with adverbs. It starts with a definition of adverbs. Furthermore, a brief typological discussion of adverbs in a cross-linguistic sense is given. This discussion is included in order to introduce adverb formation in native languages of participants involved in the study (for more detail about the study see chapter 3). Different classifications of adverbs are introduced as well. A reduced classification of adverbs is proposed. This classification was adopted for the CALL system. It is designed to introduce learners to essential semantic classes of adverbs in English. The approach is to present a semantic classification of adverbs in order for a learner to discover their acceptable position within a sentence. This classification and the rationale behind it are explained at the end of this section.

2.1.1 Definition of Adverbs

McCawley gives a traditional definition, one which defines an adverb as a "modifier of a verb, adjective or another adverb." (McCawley, 1988, 631) What does this really mean? Examples where an adverb modifies each part of speech mentioned in his definition need to be examined.

(1) Modifier of a verb: Tina opened the door clumsily.

(2) Modifier of an adjective: *Tina is very pretty.*

(3) Modifier of another adverb: *She got up rather quickly.*

If these example sentences were analyzed in more detail, one would realize that there is more about adverbs than what is given in the above definition. By his traditional definition, McCawley defines adverbs only according to what they modify and even in that case he does not list all parts of speech that could be modified by adverbs. However, adverbs have additional syntactic and semantic roles as well. For that reason this traditional definition should be revised, and an adverb should be defined as a modifier of a verb phrase, adjective, another adverb, noun phrase, subject or a whole sentence, whose position within a sentence is important for its semantic interpretation.

Let me illustrate the point made above with an example.

(4) *Mary sadly sang the song.*

(5) *Sadly, Mary sang the song.*

The meaning of the sentence (4) is that Mary was sad while singing the song or she did it in a sad manner. The sentence (5) means that in the speaker's opinion it is sad that Mary sang the song.

After an adverb is defined, an interesting question related to characteristics of adverbs cross-linguistically is posed, and that is whether or not adverb formation in different types of languages varies, and if so how big this difference is? A brief survey of adverbs cross-linguistically follows.

2.1.2 Typology of Adverbs

Shopen (1985) argues that there are big differences between languages with regard to the number and kind of parts of speech distinctions that they make. He defines a part of speech as “the traditional term for the major classes of words that are grammatically distinguished in a language.” (Shopen, 1985, 3) Some parts of speech are universal and some are language-specific. The interesting question is what are the characteristics of adverbs cross-linguistically or, more specifically, do different natural languages have markers by which adverbs could be easily recognized (e.g., ‘ly’ marker in English). Arabic, Japanese, and Chinese are taken into consideration by reason of having participants in the study for whom these languages are mother tongues. The morphological structure of some types of adverbs for each one of these languages is examined.

In Arabic, according to Schachter (1985), many adverbial meanings are expressed by nouns or adjectives in the accusative case:

(6)	<i>ṭadan</i>	(next day: accusative)	‘tomorrow’
(7)	<i>yoman</i>	(day: accusative)	‘daily’
(8)	<i>sariʿan</i>	(swift: accusative)	‘swiftly’

(Schachter1985, 22)

As seen from the above examples, some adverbs in Arabic have an adverbial marker, ‘an’. However, that is also a form of accusative case, and it is not unique to adverbs.

In Japanese one way of forming adverbs is by adding a certain suffix to an adjectival root. However, there are two types of adjectives: ‘i’-type and ‘na’-type. I-type adjectives are those that end in the ‘i’, and the na-type are those that end in ‘na’. In this

case adverbs are formed by removing 'i' or 'na' adjectival ending and adding the suffix 'ku' or 'ni' to a base.

(9)	<i>oishi-i</i>	<i>oishi-ku</i>	'delicious, deliciously'
(10)	<i>haya-i</i>	<i>haya-ku</i>	'fast, quickly'
(11)	<i>kirei-na</i>	<i>kirei-ni</i>	'beautifully, beautifully'
(12)	<i>binbou-na</i>	<i>binbou-ni</i>	'poor, poorly'

It seems that in Japanese 'the rule' for adverb formation is straight forward, and that this language has adverbial markers, namely 'ku' and 'ni'.

In Chinese, there are different kinds of adverb formation. Some of them are by intensifiers and some by modifiers (Hung-Yeh Tsee, 1986).

Intensifiers are used with adjectives or verbs to indicate the relative degree of the quality or activity of the head word. These intensifiers used to be listed as adverbs, however Hung-Yeh Tsee argues that they are function, and not content words. Examples of these modifiers and their function follow:

- (13) - *duo* 'many, much'
Neige haizi duo huai.
 That-M child much bad.
 That child is awfully bad.
- (14) - *feichang* 'extremely, uncommonly'
Wo-de feichang congming.
 I younger brother extremely bright.
 My younger brother is extremely bright.
 (Hung-Yeh Tsee, 1986, 142)

Sometimes disyllabic adjectives are used as adverbial modifiers of manner and in that case they take the marker 'de'. For example:

- (15) - *Tamen henkuaide chile fan.*
 They very fast-MK eat-ASP meal.
 They finished eating very quickly.

- (16) - Neige lao taitai henmande cong loushang zouxialai.
 That-M old lady very slow-MK from upstairs walk done-come.
 That old lady walked downstairs very slowly.
 (Hung-Yeh Tsee, 1986, 171)

With regards to Chinese, one can notice that the system of adverb formation is somehow unique and different from English and other languages that are taken into consideration. In Chinese, intensifiers that are function and not content words are sometimes used with adjectives or verbs to form adverbs. However, the goal here is not to do a detailed analysis of adverbs, it is to be able to make an assumption concerning what the participants of the study are able to transfer about adverbs based on their L1 knowledge. This will be further discussed in the following chapter (chapter 3) that documents the study.

Jackendoff (1972) points out that even though adverbs play a variety of semantic and syntactic roles, they are the least studied part of speech. Researchers that have studied adverbs have done it in their own way by looking at only one of many aspects of this part of speech and each one of them has come up with a somewhat distinct classification. Since adverbs have various syntactic and semantic characteristics, different classificatory schemas exist. These schemas are given in the following section.

2.1.3 Classification of adverbs

Palmer (1927), a traditional grammarian, recognizes five different schemas for classifying adverbs. These are:

- Formally / according to their morphological structure

- According to their manner of modification
- According to their grammatical function
- According to the position they occupy in the sentence
- According to their meaning

(Nilsen, 1972,16)

A description of each scheme follows.

2.1.3.1 Formal Classification of Adverbs

In a formal classification, adverbs are grouped together as simple, derivative, or compound adverbs. In order to understand this classification, a definition of the terms simple, derivative and compound is needed. These terms are explained well in morphology, the sub-field of linguistics that studies the structure of words. The following is how Bauer (1988) defines these terms.

A simple word is a root word and "a root is that part of a word-form which remains when all inflectional and derivational affixes have been removed. It is the basic part of a lexeme which is always realized, and it cannot be further analyzed into smaller morphs [meaningful parts of a word]", (Bauer, 1988, 253). According to this definition, adverbs such as *now*, *yet*, *soon*, *up*, *down*, etc. are simple adverbs.

Derivative adverbs are adverbs that in their creation went through a process of derivation. This is "the process of adding affixes which (a) create new lexemes [words]; (b) may change part of speech of the base to which they are added; (c) may not have regular meaning; (d) may not be fully productive and are not fully generalized." (Bauer,

1988, 241) The adverbs of this form are *yearly, hardly, certainly, gladly, historically,* etc.

In order to understand compound adverbs one needs to know what compound words are. Compound words are words built in a morphological process called compounding, which Bauer defines as the method in which one lexeme is formed by adjoining two or more lexemes. Compound adverbs are those that are formed from two or more lexemes, such as, *therefore, furthermore, however, likewise, moreover,* etc.

To conclude, in the classification of adverbs according to their morphological structure, adverbs are labeled as simple, derivative or compound. Let us now look at another classification of adverbs, which is according to the manner of modification.

2.1.3.2 Classification of Adverbs According to Their Manner of Modification

Quirk and Grenbaum (1973) have classified adverbs according to their manner of modification. In this categorization, they have labeled adverbs as adjuncts, disjuncts, and conjuncts. An adjunct is integrated within the structure of the clause although a disjunct and a conjunct are not. Before looking at some examples, definitions of each term are needed.

Adjuncts are defined as optional phrasal constituents which give additional information to the content of an utterance (Haegeman, 1994). Below are some examples in which adverbs play the role of adjuncts in a sentence.

(17) *I cannot stay outside.*

(18) *I will now go shopping.*

(19) *He explained it to me briefly.*

"Disjuncts semantically express an evaluation of what is being said, either with respect to the form of the communication or to its content."(Quirk and Greenbaum 1973, 126)

(20) *Frankly, she does not know what to do.*

(21) *Fortunately, I have managed to finish everything on time.*

(22) *My grandparents are probably in the village.*

Quirk and Grenbaum (1973) define conjuncts as words that have a connective function in a sentence, that is, they make a connection between what is being said and what was said before. "Adverbial conjuncts join coordinate or independent clauses and show their relationship" (Coles Editorial Board, 1987, 13).

(23) *I have worked so hard for the last couple of months, and yet he does not care.*

(24) *The woman yelled at her daughter, even though she did not do anything wrong.*

(25) *The flowers were not pretty this year, so I cut them all down.*

In this section, a classification of adverbs according to their manner of modification was introduced. According to their manner of modification, adverbs are classified as adjuncts, disjuncts, and conjuncts. A classification according to the grammatical function of adverbs is presented next.

2.1.3.3 Classification of Adverbs According to Their Grammatical Function

In the classification of adverbs according to their grammatical function, adverbs are labeled as to what part of speech they modify. Shopen (1985) points out that adverbs function as modifiers of constituents other than nouns. Quirk and Grenbaum (1973) have a very similar outlook. According to them, adverbs can have the following forms of modification:

- premodify adjectives: *My friend Lisa is very funny.*
- postmodify adjectives: *This picture is not placed high enough.*
- premodify adverb: *I am very heavily involved in this project.*
- postmodify adverb: *Cleverly enough, she decided to drop the case.*
- premodify prepositions: *The car went right through the red light.*
- modify determiner: *Nearly every person knew all about her success.*
- modify predeterminer: *Over two bags of concrete were ripped.*
- modify postdeterminer: *I have so many friends., and*
- act as intensifiers of noun phrases: *This room is rather a mess.*

This section introduces a classification of adverbs according to their grammatical function. In this scheme adverbs are grouped according to what part of speech they modify. As seen, adverbs can act as premodifiers and postmodifiers of adjectives and adverbs, postmodifiers of adverbs, premodifiers of prepositions, modifiers of determiners, predeterminers and postdeterminers, and act as intensifiers of noun phrases. Interestingly enough, Quirk and Grenbaum do not mention one of the important roles of

adverbs, that being modification of verb phrases. Therefore, the role of adverb as a modifier of a verb phrase needs to be added.

- modify verb phrase: *He opened the cupboard clumsily.*

Adverbs can occupy different position within a sentence. This particular classification is dealt with in the following section.

2.1.3.4 Classification of Adverbs According to their Position in a Sentence

Jackendoff's (1972) remark about the variety of semantic and syntactic roles that adverbs play within a sentence has been already mentioned (see section 2.1.2.). According to him, constructions that adverbs occur in differ from one another and their paraphrase relations are varied as well. Jackendoff (1972) classifies adverbs according to the position in the sentence that they can occupy. According to him, adverbs can occur sentence initially, in final position without intervening pause, and in auxiliary position (meaning between the subject and the main verb). However, he does not mention that the last category can be sub classified into pre-auxiliary and post-auxiliary.

Jackendoff's classification of adverbs according to their occurrence and their position has five categories. They are:

- 1 The class of adverbs that occupy all three positions

This class is further subclassified into two subgroups according to whether or not the position of an adverb in the sentence changes the meaning.

- a) Adverbs whose position changes the meaning of a sentence are: *cleverly, clumsily, carefully, carelessly, happily, truthfully, specifically, frankly*; and

- b) adverbs: *quickly, slowly, reluctantly, sadly, quietly, indolently, frequently, immediately, often, and soon* belong to the group of adverbs whose position does not change the meaning of a sentence.

Jackendoff (1972) has illustrated this with examples that follow.

Example 26:

(26a) *John cleverly dropped his cup of coffee.*

(26b) *Cleverly, John dropped his cup of coffee.*

(26c) *John dropped his cup of coffee cleverly.*

Jackendoff states that 26a is ambiguous, meaning either 26b or 26c while 26b and 26c are proximate paraphrases of 26d and 26e, respectively.

(26d) *It was clever of John to drop his cup of coffee.*

(26e) *The manner in which John dropped his cup of coffee was clever.*

To illustrate Jackendoff's point about the subclass of adverbs that does not change the meaning of the sentence, we can use the same sentences and replace the adverbs in them with an adverb from the second group.

(26f) *John quickly dropped his cup of coffee.*

(26g) *Quickly, John dropped his cup of coffee.*

(26h) *John dropped his cup of coffee quickly.*

All of the above sentences mean the same: the adverb describes the manner in which John dropped his cup of coffee.

Jackendoff lists the adverb *sadly* within the second group. However, at the beginning of this chapter we saw examples (Examples 4 and 5) that can be used as an argument against this claim.

(4) Mary sadly sang the song.

(5) Sadly, Mary sang the song.

We said that the meaning of the first sentence is that Mary was sad while singing the song or she did it in a sad manner. The second sentence may mean that in the speaker's opinion it is sad that Mary sang the song.

2 The class of adverbs that occupy only initial and auxiliary positions

Adverbs that belong to this group, according to Jackendoff, are *evidently*, *probably*, *unbelievably*, *certainly*, *understandably*, *unfortunately*, *naturally*, and *apparently*. The example that he uses as an illustration follows.

Example 27:

(27a) *Evidently Horatio has lost his mind.*

(27b) *Horatio has evidently lost his mind.*

According to Jackendoff 27a and 27b can be paraphrased by 27c.

(27c) *It is evident that Horatio has lost his mind.*

(27d) **Horatio has lost his mind evidently.*

He also argues that these adverbs are acceptable in final position only if separated by comma or comma intonation.

(27e) *Horatio has lost his mind, evidently.*

3 The class of adverbs that occupy only auxiliary and final position

This group is made up of the next few adverbs: *completely*, *purposely*, *totally*, *altogether*, *handily*, *badly*, *mortally*, and *tremendously*.

Example 28:

(28a) *Stanley completely ate his Wheaties.*

(28b) *Stanley ate his Wheaties completely.*

(28c) **Completely Stanley ate his Wheaties.*

4 The class of adverbs that occur only in final position

Adverbs found in this group are: *more, less, before, early, fast, slow, terribly, lengthwise, and downstairs*

Example 29:

(29a) *John hit Bill hard.*

(29b) *Sam did his work well.*

(29c) **Hard John hit Bill.*

(29d) **John hard hit Bill.*

5 Adverbs that occur in auxiliary position only

This group is made up of the next few adverbs: *merely, truly, simply, utterly, virtually, hardly, and scarcely*

Example 30:

(30a) *Albert is simply being a fool.*

(30b) **Simply Albert is being a fool.*

(30c) **Albert is being a fool simply.*

(30d) **Truly Albert is being a fool.*

(Source of all the example sentences used for illustration in this subsection: Jackendoff, 1972)

In this section, Jackendoff's classification of adverbs according to their position within a sentence was given. It was pointed out that constructions that adverbs occur in differ from one another and that their paraphrase relations are varied. Adverbs can occur

sentence initially, sentence finally, and in auxiliary position (pre-auxiliary and post-auxiliary). Each one of these positions was illustrated with examples.

As previously mentioned, the study is based on an approach which teaches positions of adverbs within a sentence by giving information about their semantics. This semantic classification is introduced next.

2.1.3.5 Classification of Adverbs According to Their Meaning

A semantic classification of adverbs is the most common one. In the early years of our education, in our first grammar classes, we are taught about the existence of three types of adverbs, namely manner, time and place adverbs. However, the number of types of adverbs in this particular classification varies from these three up to eighteen (Nilsen, 1972) and more. Let us now have a look at types of adverbs proposed by different linguists.

Poutsma's (1904) classification of adverbs divided by meaning is: *Time*, *Place*, *Causality* (cause, reason and ground, instrumentality, consequence and inference, purpose, condition and hypothesis, and concession), *and Manner* (quality, attendant circumstances, restriction and exception, quantity, degree and proportion, and mood)

Kruisinga (1915) classifies adverbs according to the meaning, as follows: *Time*, *Place*, *Cause*, *Purpose*, *Result*, *Condition* (open condition – which does not imply an answer to the question regarding the fulfillment of the condition, and rejected condition – which does not imply non-fulfillment of the condition), *Concession*, *and Comparison*.

Zandvoort (1957) classifies adverbs into twelve categories: *Time, Place, Cause or Reason, Purpose, Result, Condition, Concession, Comparison, Manner, Restriction, Degree, and Modality.*

Curme (1925) classifies adverbs according to their meaning as well: *Place, Direction, Arrangement, Time, Manner, Attendant Circumstance, Degree, Restriction, Extent, Amount, Number, Cause, Inference and Result, Condition or Exception, Concession, Purpose, Instrument, Means, Agency, and Association.*

Classification of adverbs according to their semantics differs from one researcher to another. The difference between their classes is either in the subclasses they recognize or in how detailed their classification tends to be. However, all of these classifications have a lot of similarities as well. They all have classes in common, these being time, place, cause, and manner.

2.1.3.5.1 Reduced Classification of Adverbs

In the subsections above, we have seen different classifications of adverbs. They were formed and proposed according to different functions that adverbs can have in a sentence. The goal of this study is to teach possible positions of adverbs within an English sentence by using a semantic classification. The decision to use this classification was made for the reason that a positional classification of adverbs might be too 'abstract' for an ESL learner. For example, in order to understand a preauxiliary and a postauxiliary position, one needs to know the auxiliary system. These terms are perhaps easily approachable only to learners that are familiar with metalinguistic theory. On the

other hand, semantic categories such as 'time', 'place', 'frequency', and others, are notions that people are familiar with conceptually.

The second task was to decide how many and what type of categories to present to a learner. An analysis of different semantic classifications of adverbs mentioned earlier shows that they are very similar. For example time, manner, place, causality, and others are categories that each one of the researchers included in their proposed classifications. The semantic classification of adverbs that was devised is a synthesis of all the others presented above. The classes of adverbs that are of high utility are:

Time (time, frequency)

Manner (action oriented and mental state)

Assertion

Quantity/Degree

Domain

Evaluative

Place, and

Cause

For an explicit approach, it was not desirable to have an immense system. The concern was not to have too many details with which a learner would have to deal. On the other hand, any one of the substantial classes was not to be omitted in a reduced classification. After analyzing data from interviews with three ELS learners at intermediate level of proficiency in English, it was decided to omit some of the semantic categories of adverbs because their position within a sentence was not problematic for the learners in question. These were the last two classes listed above, namely place and

cause adverbs. Positions of place adverbs perhaps were not problematic because they are very frequently used in language, and cause adverbs (so called 'sentence linking adverbs') have a fairly fixed position, since they are almost always separated by a comma from the first sentence that they 'link'. For example:

(31) *Sue said that this restaurant is very good, however I do not agree.*

In the next section, definitions of each class of adverbs from the classification are provided, and adverbs that belong to each one of them are presented as well.

2.1.3.5.1.1. Definitions of Proposed Semantic Classes of Adverbs

Semantic classes of adverbs can be defined, and agreement on what semantic class an adverb belongs to, could be reached by looking at a simple question that each class answers. Definition of each semantic class included in the proposed classification is according to the question the adverbs answer.

Time adverbs are divided into two subgroups, Time and Frequency. Time adverbs answer the question 'when', and Frequency adverbs 'how often' the action takes place. Let us look at an example of each.

(32) *Hi is currently visiting his uncle in Washington. (when?)*

(33) *I often see him at the theater. (how often?)*

Manner adverbs are divided into Action Oriented and Mental State. Action Oriented adverbs answer the question 'how the agent performs the action', and Mental State adverbs answer the question 'what is the mental state of the subject of the sentence' and give us a description of it.

(34) *John drove speedily to the airport. (how was the action performed?)*

(35) *The dean was proudly talking about our university. (what is subject's mental state?)*

Assertion adverbs are used to express the assessment of likelihood of the speaker, and answer the question 'what is the attitude of a speaker towards the proposition expressed?'

(36) *Clearly, he was a rebel. (what is a speaker's assessment of likelihood like)*

Quantity adverbs are also called Degree adverbs and they answer the question 'how much'.

(37) *I partially remember something of the kind. (how much?)*

Domain adverbs give us information about the domain, and answer the question 'what is the domain to which the proposition relates'.

(38) *That term is not politically acceptable. (what is the domain to which a proposition relates?)*

Evaluative adverbs answer the question 'what is the evaluation of the speaker', and give us more information about this judgment.

(39) *Luckily, they arrived on time. (what is speaker's evaluation?)*

The following table lists ten adverbs from each subclass proposed. For the more detailed lists of adverbs refer to Appendix A.

<i>Time</i>	<i>Frequency</i>	<i>Action Oriented</i>	<i>Mental State</i>	<i>Assertion</i>	<i>Quantity/ Degree</i>	<i>Domain</i>	<i>Evaluative</i>
<i>Afterwards</i>	<i>Always</i>	<i>Accurately</i>	<i>Angrily</i>	<i>Assuredly</i>	<i>Slightly</i>	<i>Academically</i>	<i>Fortunately</i>
<i>Already</i>	<i>Daily</i>	<i>Carefully</i>	<i>Boldly</i>	<i>Certainly</i>	<i>Very</i>	<i>Chemically</i>	<i>Happily</i>
<i>Before</i>	<i>Ever</i>	<i>Directly</i>	<i>Bravely</i>	<i>Definitely</i>	<i>Greatly</i>	<i>Globally</i>	<i>Sadly</i>
<i>Incessantly</i>	<i>Frequently</i>	<i>Gallantly</i>	<i>Cleverly</i>	<i>Doubtless</i>	<i>Excessively</i>	<i>Locally</i>	<i>Ideally</i>
<i>Just</i>	<i>Habitually</i>	<i>Gently</i>	<i>Hopefully</i>	<i>Evidently</i>	<i>Sufficiently</i>	<i>Logically</i>	<i>Implausibly</i>
<i>Lastly</i>	<i>Normally</i>	<i>Lazily</i>	<i>Proudly</i>	<i>Indeed</i>	<i>Wholly</i>	<i>Musically</i>	<i>Oddly</i>
<i>Now</i>	<i>Once</i>	<i>Perfectly</i>	<i>Sadly</i>	<i>Maybe</i>	<i>Quite</i>	<i>Nationally</i>	<i>Luckily</i>
<i>Previously</i>	<i>Occasionally</i>	<i>Quickly</i>	<i>Stupidly</i>	<i>Perhaps</i>	<i>Completely</i>	<i>Physically</i>	<i>Properly</i>
<i>Today</i>	<i>Sometimes</i>	<i>Rapidly</i>	<i>Wisely</i>	<i>Possibly</i>	<i>Perfectly</i>	<i>Politically</i>	<i>Stupidly</i>
<i>Recently</i>	<i>Usually</i>	<i>Sharply</i>	<i>Worriedly</i>	<i>Surely</i>	<i>Remarkably</i>	<i>Technically</i>	<i>Strangely</i>

Table 2.1: Revised Classification of Adverbs

Nilsen (1972) states that adverbs can only be roughly grouped into classes according to how they answer their corresponding questions (which are listed above). He argues that this is no more than an arbitrary classification for the reason that it is so difficult and perhaps even impossible to draw a line of division between these classes.

Kruisinga (1953) states that “The practice followed in some grammars of distributing detached adverbs among the various notion categories – e.g. *now* is an adverb of time, *slowly* one of manner, etc. – is misleading. Adverbs, like all other words for that matter, are dependent for their meaning on a situation and context” (cited by: Nilsen 1972, 19). He argues that, depending on linguistic context, some adverbs can be classified in many different categories. I would add that the position of an adverb sorts it into one of the semantic categories and gives us information about what semantic type of adverb to consider it to be. As can be seen in table 1, the adverb *sadly* is listed under headings 'Mental State' and 'Evaluative'. However, according to the position of the same, one will know whether or not 'sadly' is an Evaluative or Mental State adverb. Let us have to look at our examples again in order to illustrate this.

(4) *Mary sadly sang the song.*

(5) *Sadly, Mary sang the song.*

We said that the meaning of the first sentence is that Mary was sad while singing the song or that she did it in a sad manner. That informs us that the adverb 'sadly' plays the role of a Mental State Manner adverb in this particular sentence. The second sentence means that in the speaker's opinion it is sad that Mary sang the song. In this sentence 'sadly' is an Evaluative adverb since it expresses the evaluation of the speaker.

In this section different issues related to adverbs were dealt with. We started by considering the traditional definition of adverbs. It was said that it should be revised because it is missing some important points about adverbs. The suggestion was to define an adverb as a modifier of a verb phrase, an adjective, another adverb, a noun phrase, a subject or of a whole sentence, whose position within a sentence is important for its semantic interpretation.

Formation of adverbs in three typologically different languages was explored. This was done for the reason of having a presentation of adverb formation in the native languages of the participants involved in the study. It was intended to recognize which learners will have most difficulties acquiring adverbs in English based on the differences of adverb formation in their L1 from the means employed in their L2.

Various syntactic and semantic characteristics allow different classifications of adverbs. We examined five of them, as suggested by Palmer. These different classifications comprised morphological structure, manner of modification, grammatical function, position in the sentence, and semantic classification.

A reduced semantic classification of adverbs intended for use in ESL and EFL teaching was proposed. It contains essential semantic classes of adverbs. One might raise the question about how is it possible to teach a positional classification by using semantics of adverbs. It was argued that metalinguistic terms might be too abstract for L2 learners and that a semantic classification contains terms that are easily comprehensible and better recognizable. At the end of the section, the rationale behind the proposed classification was explained in more detail.

2.2 Second Language Acquisition

This section is centered on theoretical aspects of second language acquisition that are relevant to the design of the Adverbial Analyzer. The goal is to give a theoretical rationale for the Analyzer from the SLA point of view. The section begins with an overview of second language pedagogy where different approaches to second language teaching are introduced. There are different ways of presenting grammar to an L2 learner, and one of them is form-focused grammar instruction. Matters related to it are discussed here as well. The second part discusses the importance of consciousness-raising in second language learning, positive and negative input, and implicit and explicit learning in regards to consciousness-raising. Furthermore, issues concerning task-based learning are analyzed. The section ends with an attempt to connect all of these issues in their relation to the Adverbial Analyzer. All of the issues mentioned above are important to discuss in order for one to understand the rationale relevant to the design of the Adverbial Analyzer.

2.2.1 Overview of Second Language Pedagogy

Second language pedagogy is a field that studies different aspects of second language learning in instructional settings. This field has several goals, and one of them, according to Ellis, is improvement of language teaching (Ellis, 1997). He points out that there are three branches of research into teaching and acquiring L2 according to the kind of questions that they try to answer. These questions are:

- Whether or not teaching learners grammar has any effect on interlanguage¹ development?
- How much is SLA affected by individual learner differences?
- What are the best language learning strategies?

Only the first question is of concern of this thesis, since the Adverbial Analyzer and the study done are centered on teaching one grammatical aspect of English, namely position of adverbs.

Diverse teaching approaches are accepted in L2 classrooms, and they need to be explained. That is the topic of the following section.

2.2.1.1. Approaches to Second Language Teaching

There are different approaches to second language teaching. Two that have been frequently practiced and are well known are the 'traditional' teaching approach and the communicative approach. The communicative approach is popular in North America where it has replaced the 'old' traditional approach, which is not favored by many second language teachers. A brief explanation of characteristics of each of these approaches follows.

The traditional teaching approach is characterized by explicit teaching of grammar rules. When using this approach, the teacher prepares contrastive analysis of L1 and L2, where the knowledge of grammar is crucial. That is, Contrastive Analysis,

¹ A term coined by Selinker to refer to the systematic knowledge of an L2 that is independent of both the target language and learner's L1 (Ellis 1997, 140)

and Grammatical Translation are used for grammar teaching. Direct instructions are usually followed by different grammar exercises (Ellis, 1997).

On the other hand, there is the communicative approach, which concentrates on teaching a second language through communication, teaching learners through practice. It is based on the assumption that grammar should not be taught directly and that second language learners will learn grammar through the process of communication. However, an interesting approach to teaching grammar is form-focused instruction, which is often adopted in the communicative classroom. Let us now look at its possible effects of SLA.

2.2.2 Form-focused Grammar Instruction

According to Fotos and Ellis (1991), there is a big controversy in L2 pedagogy concerning the question whether or not grammatical instruction is effective for L2 acquisition and if so what kind works best. Some researchers argue that grammatical instruction has only minimal effects on L2 acquisition. One of the orthodox supporters of this view is Krashen. He believes that learners have to be exposed to comprehensible language input in order to acquire grammar and that acquisition can take place only under this condition (Krashen, 1985).

On the other hand there are researchers that argue that for acquisition of different grammatical aspects, comprehensible input alone is not enough and that perhaps grammatical instruction is necessary in order to provide learners with the data needed for acquisition of grammar (Strozer, 1994). According to Hulstijn and Graaff (1994),

explicit instruction has a greater advantage in the case of complex grammar, because explicit instruction saves learners some time.

As mentioned in the introduction (see chapter 1), Dissosway (1987) points out that acquisition of adverbs and their position in an English sentence is not an easy task and many ESL speakers have trouble with it. Since the Adverbial Analyzer is a tool used for the acquisition of this particular aspect of grammar, it is necessary to look at the second view in more detail.

Pinemann (1985) proposed the Teachability Hypothesis after his research had shown that form-focused instruction could have an effect on acquisition. “This hypothesis predicts that instruction can only promote language acquisition if the interlanguage is close to the point when the structure to be taught is acquired in the natural setting (so that sufficient processing requirements are developed).” (Ellis, 1997, 82). Pinemann hypothesizes that instruction does not disrupt the natural sequence of acquisition, but rather helps to speed up learner’s progress through it. According to Ellis, this theory has received a considerable amount of support in recent research.

There are two types of form-focused instruction: input-based and production-based. In the input-based instruction learners are exposed to different L2 input in which the target grammatical aspect is present. The exposure to it causes learners’ conscious noticing of the specific linguistic features. In production-based instruction, learners are required to produce the target structures (e.g. fill in the blanks, substitution examples, insertion). The question now is which one of these, input-based or production-based instruction may have a greater effect on SLA.

VanPatten and Cadierno (1993) did a study in which they had two different groups of learners exposed to either input-based or production-based instruction. The input-based group had to listen to and respond to sentences containing the target structure and the production-based group received traditional production-based instruction. At the end of the instruction, both groups completed two tests, one being a test of production and the other a test of comprehension. The group that received the input-based instruction did far better on the comprehension test and just as well on the production test.

Another experiment that investigated the effect of form-focused instruction and input enhancement on the development of a specific L2 structure was the study of White and Spada (1991). The grammatical aspect that was of their concern was question formation. In this study, they had exposed a group of French speaking ESL learners to explicit grammatical instruction containing this particular aspect of grammar. After comparing the pre and posttests of the experimental group and the control group they concluded that instruction had made a contribution to the performance of the experimental group. The learners from the experimental group outperformed the control group that had no instruction. Findings from these studies suggest that perhaps form-focused input-based instruction has a greater effect on L2 acquisition than production-based instruction.

Another important issue concerning form-focused, input-based instruction is whether or not negative evidence should be presented to a learner in conjunction with positive evidence. There are several studies that focused on this particular question. For example, White (1991) did a study centered on teaching adverb placement and question

formation in English with French speakers. She had two experimental groups of learners, one of which was explicitly instructed with both positive and negative evidence while the other one received only positive input. The results of this study suggested that the group that had received both positive and negative evidence showed bigger improvement.

The studies presented indicate that form-focused grammar instruction that gives emphasis to both positive and negative evidence may be very useful for SLL. They also support theories of second language acquisition that stress the importance of consciousness-raising in input. “Input-based instruction may work because it induces noticing in learners.” (Ellis, 1997, 85). A definition of consciousness-raising, as well as more details about it, is needed. Consciousness-raising is the concern of the following section.

2.2.3 Consciousness-raising

Consciousness-raising refers to attempts to make learners aware of the existence of specific linguistic features in L2. Consciousness-raising tasks are acceptable and highly recommended in communicative classrooms as a substitute for traditional grammar lessons. In relation to it, Rutherford and Sharwood Smith (1985) gave their modified version of the Pedagogical Grammar Hypothesis. They argue that “Instructional strategies which draw the attention of the learners to specifically structural regularities of the language, as distinct from the message content, will under certain conditions significantly increase the rate of acquisition over and above the rate expected from learners acquiring that language under natural circumstances where attention to

form may be minimal and sporadic.” (Rutherford and Sharwood Smith, 1985, 275). Drawing learner’s attention is what is here considered to be consciousness-raising.

According to Fotos, (1994) consciousness-raising needs to provide ‘essential opportunities for communicative use’ of the L2. She argues that in order to be recognized in communicative classrooms, it is necessary for a consciousness-raising task to show a grammatical knowledge gain. Let us now look at a study in which she investigates consciousness-raising tasks.

Fotos (1994) did a study in which she investigated three grammar consciousness-raising tasks involving word order, namely adverb placement, indirect object placement, and relative clause usage. One of her experimental groups received teacher-fronted grammar lessons, while the second group performed a grammar task with the identical grammatical structures. The third group had a combination of communicative tasks that were similar to the grammar tasks given to the second group. The only difference was that the task given to this group did not have a grammatical task content. After the analysis of her data, Fotos suggested that “grammar consciousness-raising tasks might be of general benefit to L2 acquisition, in accordance with the claims of Long’s² interaction hypothesis.” (Fotos 1994, 343). She indicated that consciousness-raising tasks should be used as the way of providing formal grammatical instruction within communicative classrooms.

² The claim that the interactional modifications resulting from the negotiation of meaning facilitate acquisition (Ellis, 1997, 140)

2.2.4 Universal Grammar and Second Language Acquisition

One might argue that in L2 teaching there is no need for negative evidence and compare L2 acquisition with the same of L1. However, it is well known that SLA is quite different from L1 acquisition. Let us compare the two in terms of the theory of Universal Grammar.

Chomsky (1980) proposed a theory called Universal Grammar (UG), which is relevant to language acquisition. According to him, all of us have an inborn capacity for language, and we cannot chose not to learn a language. We have a mental faculty for language that simply ‘grows’ as any other organ of ours. All that we need is a triggering stimulus, which is the language environment. In other words only positive input is needed and there is no need for negative evidence or direct teaching. Chomsky also distinguishes competence from performance, competence being a set of rules and representation in a speakers/hearer’s mind, and performance our ability to use the language.

According to Flynn (1996), UG does not make any direct claims about L2 acquisition. However, many researchers interested in L2 acquisition have studied whether or not L2 learners have access to UG and according to her, this question has stirred a big debate. Let us look at it in more detail.

There are four hypotheses related to this question. They are: the full access hypothesis, the partial access hypothesis, the no access hypothesis, and the dual access hypothesis (Ellis, 1997). The full access hypothesis is a proposal that even though

competencies of L1 and L2 speakers differ, UG is fully accessible to L2 learners. The partial access hypothesis holds that UG is partially available to an L2 learner where the principles and parameters that are instantiated in the L1 are also realized in L2. According to this view, an L2 learner needs to learn everything else in terms of general problem solving strategies. The no access hypothesis argues that UG is not by any means accessible to L2 learners and that L2 acquisition is nothing else but problem solving and analogizing. The dual access hypothesis holds that L2 learners make use of both UG and learning strategies, where learning strategies possibly block UG so learners produce 'silly' errors.

Flynn supports the full access hypothesis and points out that even though from observations we know that L1 and L2 learners acquire language differently, L2 acquisition is controlled by UG. "This means that all principles and parameters delineated by a theory of UG are available to the child and adult L2 learner. Principles and parameters of UG constrain the language learner's hypotheses about which dimensions of language variation are significant in possible grammars for language." (Flynn, 1996, 151).

According to Chomsky, L1 learners need only positive input. In relation to that one might question why is it that both L1 and L2 learners have access to UG, but only L2 learners possibly need negative evidence in combination with positive evidence?

Trahey and White (1993) did a study related to the verb movement parameter and the fact that there is a difference between English and French according to the position of adverbs in relation to verbs (SAV and SVAO position). English learners from an intensive ESL program were exposed to positive input only and it was suggested that

positive input alone does not pre-empt the L1 parameter setting. According to them, subjects acquired the correct SAV order, however they did not lose the incorrect SVAO (which is correct in their L1).

Findings from this study and the ones that were introduced earlier (see section 2.2.2) suggest that even though both L1 and L2 learners have access to UG where principles and parameters of language are available to them, giving L2 learners both positive and negative evidence may help in L2 acquisition. Negative evidence is needed in order to make learners aware of variations between their L1 and L2 with regards to certain grammatical aspects. Once the new 'rule' is acquired, the old one needs to be 'unlearned' and for that negative evidence is needed.

2.2.5 Implicit and Explicit Learning with Regards to Consciousness-raising

In the previous section it was pointed out that acquisition of L1 is a process in which consciousness is not present, and it was argued that this is not the case for L2 acquisition. In the process of L2 acquisition, both explicit and implicit learning are present. The intent of this section is to explain the relationship between consciousness-raising and explicit and implicit learning. Before this relationship is described, definition of the two types of knowledge is needed.

This is how Ellis defines the two: Explicit (E) knowledge is "the L2 knowledge of which a learner is aware and can verbalize on request", while the implicit (I) knowledge is "the L2 knowledge of which a learner is not aware and therefore cannot verbalize." (Ellis, 1997, 139). "Ellis recommended the use of grammatical consciousness-raising

exercises to foster explicit knowledge, to be used as a complement to a functional or task-based syllabus intended to promote implicit knowledge” (Schmidt, 1994, 11). Ellis argues that consciousness, which is defined by Schmidt by intentionality, attention and awareness, and L2 learning are closely related (Schmidt, 1994).

Hulstijn and Graaff (1994) attempt to answer the question to what extent SLA and acquisition of I-knowledge can be assisted by explicit learning. This question is of concern to this thesis because it is closely related to the one posed earlier, that being whether or not grammar should be taught explicitly. This directly influences the investigation of the usefulness of CALL systems meant to be used as instructional tools for grammar teaching. According to Hulstijn and Graaff learning varies from spontaneous discovery by a learner to explicit instructions by a teacher. They argue that fluent speakers of an L2 base their knowledge on I-knowledge. There are two positions concerning the question ‘how fluent can a speaker become without E-knowledge’, and each one of them has proposed its own answer. They are:

- Noninterface position which argues that I-knowledge is not influenced by E-knowledge, and
- Interface position which believes that the acquisition of I-knowledge may be influenced by E-knowledge.

The interface position is divided into a strong-interface position and a weak-interface position. According to the strong position, the claim that E-knowledge becomes I-knowledge through practice is supported. This position is derived from skill acquisition theory, and L2 acquisition is seen as the automatisisation of the application of explicit grammar rules. According to the weak position E-knowledge only aids the acquisition of

I-knowledge. If a learner is ready for the adaptation of the new knowledge, his conscious knowledge will become intuitive. Automatic application of the intuitive knowledge can be improved through explicit instruction or formal communication (Ellis, 1993).

Ellis has presented the relationship between explicit/implicit, and declarative/procedural³ knowledge in the following table.

	Declarative	Procedural
	Type A	Type B
Explicit	Conscious knowledge of L2 items	Conscious knowledge of learning, production, and communication strategies. The learner can use explicit knowledge easily and rapidly.
	Type C	Type D
Implicit	Intuitive knowledge of L2 items	Ability to employ learning, production, and communication strategies automatically. The learner can use intuitive knowledge fluently.

Table 2.2: The difference between explicit/implicit and declarative/procedural knowledge
Source: (Ellis, 1993, 94)

In this section it was pointed out that E and I-knowledge may be involved in the process of L2 acquisition. The relationship between consciousness-raising and explicit and implicit learning was given. It was suggested that consciousness-raising exercises aid E-knowledge, which is further used to assist I-knowledge, on which L2 speakers base their fluency.

³ Declarative knowledge is knowledge of facts ('knowing that') while procedural knowledge is knowledge about how to follow various procedural steps ('knowing how'). (Stenberg, 1996, 197)

All of this was taken into account in order to determine the aims of the CALL system in relation to explicit and implicit learning. Perhaps, in conclusion, the following might be suggested: the goal of the CALL system is to give learners explicit grammar instruction in order to aid the learning of L2. In other words, the intent of this system is to assist development of implicit knowledge by providing learners with explicit instruction (direct grammar teaching) and explicit learning. How grammar could be explicitly taught by the use of the CALL system is explained in the following section.

2.2.6 Task Based Learning

The goal here is not to discuss the Task theory; the intention is to introduce and to explain only certain types of tasks that that could be used in SL teaching and grammar instruction, and perhaps in CALL systems that are centered on grammar teaching. The Adverbial Analyzer is task oriented (see section 3.1.3.1) and for that reason the theory and the reasoning behind tasks used in it are needed. What is being explored here is under what conditions and how explicit instruction of grammar should be given to a learner.

“Tasks have long been used for language testing and psycholinguistic studies of language development.” (Loschky and Bley-Vroman, 1993, 130). A grammatical rule can be presented to a learner in different ways. It can be given with or without examples, with form-focused practice as a comprehension task or as a task where a learner is requested to apply the rule immediately in rule focussed production task. Loschky and Bley-Vroman (1993) point out that grammar restructuring happens when learners notice

gaps⁴ in their knowledge and that in order for these gaps to be noticed a learner needs to be involved in successful grammar performance where a particular aspect of grammar is presented. “When a learner fails in a task and receives clear message-oriented feedback a gap can become apparent.” (Loschky and Bley-Vroman 1993, 126).

According to McLaughland (1987), restructuring is an important process of L2 acquisition. It is produced by inferencing and hypothesis testing. This is the goal of the Adverbial Analyzer; to become a tool that will promote inferencing and hypothesis testing and for that reason its tasks are designed the way they are (see sections 3.1.3.1.3.2 and 3.1.3.1.3.2).

Let us determine features of types of tasks used for explicit grammar instruction.

2.2.6.1 Tasks and Grammatical Involvement

The question now is what kind of task could be used in explicit grammar instruction and which one would be most appropriate and useful for CALL systems. Loschky and Bley-Vroman (1993) tried to unite focus on grammatical form and the use of tasks in language teaching. They argue that grammar in SLL should be established by consciousness-raising, and they point out that with consciousness-raising by inferencing and testing hypotheses students develop knowledge of grammar. Loschky and Bley-Vroman propose a design for structurally based communication tasks for which, as they point out, the ‘immediate criterion of success is outside of grammar’. However, one type of task that they suggest, and that is perhaps the most beneficial, seems to be applicable

⁴ The process by which learners pay conscious attention to the difference between linguistic features in the input and their own output. (Ellis, 1997, 141)

‘inside of grammar’, in CALL systems used for grammatical instruction. An overview of their design follows.

Loschky and Bley-Vroman point out that there are three types of involvement of grammatical structure in tasks. They are:

- Task naturalness (grammatical structure arises naturally),
- Task utility (it is possible to complete the task without the structure, but it is easier with it), and
- Task essentialness (the task can not be performed unless the structure is used).

Furthermore, they argue that “There is no guarantee that a task in which a structure naturally occurs will, by itself, trigger the initial acquisition of that structure, even if the structure is modeled, primed or otherwise ‘taught’ in the task.” (Loschky and Bley-Vroman, 1993, 136). They also argue that in a natural task learners will not notice ‘the gap’ and that their internal linguistic system will not necessary get restricted. ”In order to achieve effective restructuring it is probably necessary to invoke a more direct link between task requirements and grammatical structure.” (Loschky and Bley-Vroman, 1993, 137).

Loschky and Bley-Vroman describe task essentialness by pointing out that it is most important to put the stress on the structure that is relevant in order to perform the task successfully, where one could not succeed unless the grammatical knowledge is included. They define task essentialness as a task in which the grammatical point itself is the ‘essence’ of what is to be attended to. In an essential task, sentence structures are systematically varied, and a task cannot be performed without employing the relevant principles. The control of a task is necessary, and it can be achieved only in a closed task

where the writer (or in the case of CALL, a user) attempts to reach only a single correct solution determined by the designer. This requires structural accuracy.

CALL offers an excellent opportunity for task essentialness that can be nicely implemented in this type of learning. It also provides a possibility to apply consciousness raising, inclusion of negative and positive evidence and immediate feedback, which are all issues whose importance in SLA we have pointed out throughout this section.

Task essentialness can be implemented in both production tasks and comprehension tasks. Loschky and Bley-Vroman (1993) argue that in production tasks a designer can have only 'limited' control. In contrast, "the goal of grammar-based comprehension task is to focus the learner's processing capacities on the meaningful function of a particular structure" (Loschky and Bley-Vroman 1993, 141). However, a production task could be adequately controlled as well, which is demonstrated in the Adverbial Analyzer (see section 3.1.3.1.3.2). Another issue that is important here is feedback. They point out that feedback represents a key difference between testing and the use of tasks, this being the way that learners get the confirmation of their hypothesis.

Tomasello and Herron (1988, 89) argue that learners learn best when they produce hypotheses and receive immediate feedback, that is they compare their system to the input of a native speaker. After a learner succeeds with comprehensible input that contains the target structure, a production task should be introduced. Loschky and Bley-Vroman point out that this will probably be more conducive to the revision of hypotheses than to further noticing of gaps.

Let us now conclude this section by highlighting important issues that were discussed in it. In this section the theoretical rationale for the Adverbial Analyzer was given from

the SLA point of view. The goal was met by looking at the problems related to L2 learning that concern the Analyzer and by analyzing issues related to the structure of the program and its task design. In summary, this section identified the following:

- Possibly, there is a need for explicit grammar instruction in order to ease and perhaps speed up L2 acquisition.
- Grammar instruction should be applied as form-focussed instruction that contains both positive and negative evidence.
- Positive and negative evidence is needed in order to cause inferencing and hypothesis testing in L2 learners. Negative evidence may be needed to pre-empt L1 structuring.
- Form-focussed instruction provokes consciousness-raising in L2 learners and they become more aware of grammatical structure in their L2.
- Explicit instruction provokes explicit learning that may assist acquisition of implicit knowledge.
- Task essentialness could be implemented in both production tasks and comprehension tasks, and it seems functional for CALL systems that are centered on grammar teaching.
- Task essentialness gives a designer the possibility to have control of the procedures that a learner goes through while being in the process of learning with CALL.

2.3 Computer Assisted Language Learning

This last part of the theoretical background deals with Computer Assisted Language Learning (CALL). In it, diverse questions are raised and different topics related to CALL are presented. A general introduction to CALL is necessary for this thesis, and it is dealt with first. In the introduction a short historical overview of CALL is included.

Since CALL is software that is used in language teaching, there are some issues that are closely related to its development. For example an important question is who should work on the development of the software. Some researchers (Pilus, 1995; McCarthy, 1994) argue that CALL software should be developed or at least organized and planned by SLA researchers and pedagogues, those that are familiar with different SLA theories and pedagogy related to it. Other important questions are what is the methodology hidden behind CALL, how should these systems be developed and what is it that a developer should concentrate on the most. These questions will be reviewed in this section as well.

Since the goal of this thesis is to find out whether or not CALL systems could be used for grammar instruction, studies that support its use for grammar teaching are presented. There are, according to some researchers, many benefits to using a CALL system in the L2 classroom, and these benefits will be discussed in detail in this section.

2.3.1 An Introduction to CALL

CALL stands for Computer Assisted Language Learning and as its name says, it is the study of using computer technology in language teaching, in the fields of both Second and Foreign Language pedagogy. How and when this field started developing and what its developmental stages were is the topic of the following section.

2.3.1.1 History and Development of CALL

In the early fifties, computer involvement in analyzing natural language started evolving. Researchers from different disciplines who consider language as their area of study, together with computer scientists, started recognizing and developing computer applications. As a result of their collaboration, we have word processing, speech recognition, CALL, and machine translation software.

CALL development started in the sixties (Warschauer, 1996). According to Warschauer, during its development CALL went through three distinct developmental phases. These stages are the behavioristic, the communicative, and the integrative.

Behavioristic CALL was first applied in the period when behaviorists' theories of learning dominated. It was based on the idea of the 'computer as tutor' and entailed repetitive language drills. The computer is used as a mechanical tutor, which gives students feedback, and lets learners work at their own speed.

Communicative CALL came forth in the seventies and early eighties (Warschauer & Healey, 1998). It was based on the communicative teaching approach and grounded

on the ideas of the ‘computer as stimulus’ and ‘computer as tool’. This type of CALL instruction was focussed on implicit grammar teaching, generation of original utterances, and the appropriate usage of target language forms. “The focus was not on what students did with the machine, but rather with each other while working at the computer.” (Warschauer & Healey, 1998, 13).

Integrative CALL was based on multimedia technology and the Internet. The advantages of such language learning are a more authentic learning environment and the easy integration of skills

2.3.2 Language Teachers and CALL

The study of CALL is about 40 years of age, and it is interesting to examine how popular it is with language teachers and practitioners in the field of SLA and FLA. McCarthy (1993) points out that most of the time there is a suspicious reaction by language teachers when a new pedagogical theory or technology is introduced. Unfortunately, the same happened with CALL. Even though different CALL systems have been developed for decades, there is still a degree of suspicion from the side of some language teachers. According to McCarthy, there is a constant conflict between ideas generated by linguistic theories, language pedagogy and practice, and technological innovation.

Pilus (1995) reports that some language teachers have ‘compuphobia’ and they feel that computers can be handled only by computer scientists. According to him, this is because most language teachers graduated in the Arts and secondly because of a

misconception that using computers may lead to dehumanization in SLA. There is another 'misbelief' that computers cannot handle humanities subjects. This argument may be too strong. Perhaps, this was the case 10 years ago. Presently, it may be used as an argument related to how language teachers feel about computer programming, but not about using computers. However, Pilus' suggestion about the solution to this 'problem' is interesting and in all likelihood useful when CALL development is in question. He suggests for teachers to have appropriate training and to receive proper knowledge of computers in order to use them meaningfully; that is they need to become computer [programming] literate. Programming is not necessary for an ESL teacher. However, it is recommended because language learning software should be developed by an expert in the field of SLA, not just by a computer scientist. In order to know what to request from a computer programmer, a second language researcher needs to be aware of what the capabilities of such a machine are, and whether or not his ideas are possible for program design and implementation. Pilus also suggests that L2 researchers and practitioners should see computers as just another type of teaching aid and not something that could replace a teacher in a classroom.

Not all language teachers are against CALL. Some of them are very enthusiastic about it. According to Warschauer and Healey (1998), in recent years there is a growing interest in using computers in language teaching and for that reason it has become an important issue for second language teachers. The question now is how CALL systems should be developed in order to be useful for both L2 learners and teachers. McCarthy (1993) points out that that a CALL system should be seen only as a new language tool and for that reason linguistic theories together with language pedagogy and practice need

to be considered when coming up with a new language teaching tool. This is the topic of the following section.

2.3.3 Methodology of CALL systems

In order to be useful, CALL needs to base its foundations on SLA theory while these theories need to inform CALL practice. The connections between the two need to be explained in more detail. According to Hegelheimer and Chapelle (2000), there are two important issues where the methodology of CALL is considered. They are quality of the task for creating noticing in L2 learners, and validity of assessment of noticing through this method. Assessment of noticing is inference from a learners' account that reports his noticing during task completion (Hegelheimer and Chapelle 2000, 5). They argue that in order to have CALL systems that are effective for SLA both of these objectives need to be met. This is where theoretically based hypotheses and empirically based research need be used for CALL. The relationship between the three, is graphically represented bellow:

Figure 2.1: Relationship between SLA theory, CALL materials, and empirical research (Hegelheimer & Chapelle 2000, 42)

Hegelheimer and Chapelle point out that the interactionist SLA theory developed by Pica in 1994 is relevant to the design and study of CALL. This theory claims that in order to be acquired by an L2 learner, language input has to become intake⁵, and that input becomes intake only if it is noticed. This is where Schmidt's (1994) noticing hypothesis and the importance of consciousness-raising come into the picture again. The best setting for noticing is in interaction, because through interaction learners can improve the comprehensibility of their L2 output. The question now is how could noticing of features in input be achieved in pedagogical materials, or more precisely, in CALL systems. They suggest focus on form as the answer. Focus on form was discussed in detail in one of the previous sections (section 2.2.2). Let us remind ourselves of its definition. Focus on form is a transfer of attention to a certain linguistic property. This transfer is triggered by a learner's noticing of problems together with his comprehension or production. Another possible triggering effect is the learner's possession of grammatical input. Perhaps CALL tasks can provide conditions for focus on form. Hegelheimer and Chapelle point out that even though there have been attempts to bond CALL with a focus on form, further research related to development and assessment of these systems needs to be done.

In summary, according to Hegelheimer and Chapelle, quality of the task for creating noticing in L2 learners and validity of evaluation are necessary in order to have effective CALL systems. This supports the noticing hypothesis and suggests focus on form as something on which tasks should be centered. Let us now investigate in more

⁵ Intake is input comprehended both semantically and syntactically by the L2 learner (Hegelheimer & Carol, 2000)

detail how CALL materials should be developed and what developers should pay attention to the most.

2.3.4 Developing CALL Materials

McCarthy (1994) argues that there are three fundamental constraints that one needs to consider while developing a CALL system. They are the language system, the learner and the medium. He focuses on CALL material development, taking into consideration learners' requirements, programming itself, and language features that need to be presented. According to him the most effective is a program that contains activities in which students can self-correct and which allow them to work independently outside of the classroom as well as in the classroom.

McCarthy (1996) suggests the following as the crucial points that developers should concentrate on while developing CALL material:

- Students should have the possibility of stopping any activity at any point
- The system should provide students with instant feedback
- Mini grammar tutorials should be implemented and be available to a student.
- A record of incorrect answers is necessary, which allows students to compare their incorrect responses to the correct answers stored by the computer.
- A useful CALL system should have some kind of scoring.
- Items should be presented randomly so that students never encounter the same set of questions. This is necessary in order to make sure that students do not simply just memorize correct answers.

Heift and McFetridge (1993) also have some suggestions about what a CALL system should be like and they point out that it should be an ‘intelligent tutor’ whose principal advantage “is information based on evaluation which it provides the students” (Heift & McFetridge, 1993, 195). In addition they argue for a need to incorporate teaching principles such as selection, gradation, immediate and intelligent feedback that is ‘error-contingent’, meaning with error explanation. They point out that there are other issues related to interaction such as students’ capabilities to use computers, ease of use, and short-term memory constraints. When interface is in question, they argue that it should include laid-out graphics and controls, and prompt responses.

Perhaps, the developmental suggestions of McCarthy, and Heift and McFetridge need to be followed in order to devise a CALL system that would support the assumptions of this thesis. These suggestions include: student’s control of learning, immediate feedback, and lack of pressure due to the existence of a negative psychological effect that may follow face-to-face negative feedback. This is reflected on in more detail in the methodology section titled Software Review (see section 3.1.3.1) where each one of these points is discussed in terms of the Adverbial Analyzer. Let us now have a look at the relationship between CALL and grammar instruction.

2.3.5 CALL and Grammar Instruction

In one of the previous sections of this chapter (see section 2.2.2) which is related to SLA, it was pointed out that explicit grammar instruction may be necessary in L2

acquisition. One might ask why 'is it necessary to use computers for it'? McCarthy (1993) nicely demonstrates a familiar scenario of teaching grammar in class where a teacher explains a grammar point, questions each student about it and expects every student to show mastery of it. There is also a danger of students getting some ungrammatical input from their peers without even being aware of the fact that this input is incorrect. This process very often emphasizes wrong answers. He argues that this is a very unproductive use of time. By using CALL, exercises can be more directive and teachers can use the class time more efficiently. McCarthy (1996) points out that computers can offer assistance to students and teachers while being in the process of grammar instruction, which is quite practicable outside the classroom as well. He indicates that even though grammar exercises (with or without CALL) are not spontaneous, they are not useless. Grammar exercises make students aware of grammar and they give them confidence in comprehension and expression.

Grammar-focussed work, according to McCarthy, contains many elements, some of which are of interest to us, including raising of learners' awareness [consciousness raising], and explanation, discussion and systematization of the grammar point.

However, he suggests that learners and teachers need to be very careful when the integration of computers into L2 classrooms is in question. Factors that play an important role here are:

- design quality and linguistic appropriateness of the software,
- the teacher's ability of controlling and bringing the virtual world into a classroom,
- fitting a CALL system into syllabus and time table, and
- availability of hardware

How should this software be designed in the case of grammar drills? McCarthy (1995) suggests the following:

- Only one grammatical item should be presented at the time so the learner can center his attention only on one thing and approach each item as a 'fresh task'. In this case, previous items will not reinforce wrong principles.
- Students should be able to erase a wrong answer without messing up the whole page.
- Data should be large (with a big number of examples) and items should be presented randomly so the learner always starts fresh with a new task. This is necessary in order to make sure that learners do not simply learn only the pattern in which learning material is presented

In conclusion to this section, the most important points that were discussed are that knowledge of grammar and maintenance of it is important in L2 learning. Maintenance requires regular revision, and CALL systems provide a better way of accomplishing this goal. However, this type of learning and teaching must be monitored and planned in order to be integrated into a teaching program. "Successful use of computers for grammar review is dependent on the existence of robust, linguistically sound software that is fully sensitive to learner needs, that exploits the strengths of the computer while acknowledging the valuable and ongoing contribution of other media and approaches, and that is carefully integrated into the lesson program and the syllabus as a whole." (McCarthy 1995, 8). Let us now examine studies that support grammar learning with CALL.

2.3.5.1 CALL Grammar Studies

Felix (1997) produced a software application that was meant to be used in teaching German as a foreign language. This software is used to teach grammar through literacy. Felix did an observational study in which the usefulness of the program was studied. He was interested in several aspects and found many interesting points in the study. However we are interested only in the following: students' level of interest, and the effectiveness of the program in grammar teaching. Participants were given a pre and posttest which tested specific grammatical aspects. There were three groups of participants that were comparable in their proficiency. There was a significant improvement in grammar between the pretest and the posttest. However, there was no control group involved. This suggests that teaching grammar through computers may be useful. He also argues that a benefit of using computers in language learning is that students are able to work at their own pace. Participants believed that this program should be used in conjunction with classroom teaching.

McCreesh (1993) describes two projects, one related to phrasal verbs and a second one to prepositions in English. In both programs, she created a number of exercises in order to prepare students for tests. The results of the studies show that students did show better results on the test in comparison with results of the test from the previous years when they did not have CALL systems (in the area of prepositions). In a further study, McCreesh decided not to teach aspects of grammar that students could learn on the computer, and that is when lower results were shown. She again designed an experiment where there was a combination of in-class instruction plus computer

instruction and that group showed the best improvement. A general conclusion of this study is that teacher plus computer is the most effective combination for L2 teaching and that computers on their own are not any more effective than teachers on their own. Observations during this study show that if students are provided with exercises on a computer, they will do them out of curiosity and if they like them, they will keep working until they get it right.

Brazaitis (1992) describes incorporation of a CALL system in a curriculum of an Intensive Beginners' German course. Learners were exposed to a CALL software for four weeks, three hours per week (eight percent of total language instruction). She believes that her program was most effective and learner-centered. At the end of the study, students were given a questionnaire on which they responded that using computers for language learning was fun, easy to cope with, allowed them to work at their own pace and that they liked the immediate feedback. They stressed the fact that there was no pressure.

The studies presented support the idea of using CALL systems in grammar instruction and show that this type of instruction may be useful and successful. The question of whether or not CALL systems could be used in grammar instruction could simply be answered by quoting McCreesh "The computer provides the sugar coating for the grammatical pill" (McCreesh, 1993, 363). This brings up another issue related to CALL instruction, which is 'how do students feel about L2 learning via computer?'

2.3.5.2 Learners' Attitude Towards CALL

Warschauer (1996) studied motivation of learners in using computers for L2 learning. He used a questionnaire with 167 ESL and EFL learners from Hong Kong, Taiwan and the U.S. who were in 12 academic writing courses. His finding was that learners overall have a positive attitude towards using computers in language learning. He also looked at a number of variables, these being typing skills, gender and access to a computer at home, and found out that students' positive attitudes were not influenced by these variables. Warschauer points out that aspects of motivation of learning by computers are mostly related to:

- novelty of working with a new instrument,
- the unique nature of this type of instruction,
- learner's control, and
- non-judgmental feedback

After his study, Warschauer concluded that most of the language learners have a positive attitude towards using computers for language learning. However, his study is centered only on communication and writing processes. This applies for both ESL and EFL classrooms. To the above factors he also added a sense of achievement which computer learning brings out.

McCarthy (1995) did a survey related to CALL and grammar instruction, which for our purposes is more specific than Warschauer's study. He also wanted to find out whether or not this type of learning is favored by students. After 6 months of using computers for grammar reinforcement in an L2 class, he asked 20 students to fill out a

questionnaire anonymously. Here are his findings about why this type of instruction is favored by L2 learners:

- immediate feedback and correction,
- you learn a pattern,
- it encourages, insists on accuracy,
- it shows up weaknesses,
- you are free to do the exercises you want,
- you can do the exercises whenever it suits you, at your own pace, and spend as much time as you like, and
- you can make mistakes anonymously

(McCarthy 1995, 9)

Students from other studies, for instance McCreesh's (1993) study described in the previous section (see section 2.3.5.1), also support control of learning, and non-existence of a negative psychological effect that may follow face-to-face negative feedback.

From the findings of different researchers presented above, a conclusion that supports using CALL in L2 instruction can be drawn. They also support the assumption of this thesis, namely, that there are a number of advantages to this type of learning, these being student's control of learning, immediate feedback, and non-existence of a negative psychological effects that may follow face-to-face negative feedback.

In this section CALL was introduced and different issues related to it were presented. Firstly, a general introduction to CALL together with a short historical

overview was given. It was mentioned that CALL is about 40 years of age, and that during its development CALL went through behavioristic, communicative and integrative stages, the difference between them being related to the way that teaching material is presented to a learner.

Even though it has not always been like that, in recent years there is a growing interest in using computers in language teaching as a new instructional tool, and for that reason it has become an important issue for second language teachers. Questions such as what methodology should be used and how CALL systems should be developed in order to be useful for both SL learners and teachers were raised. The conclusion drawn was that linguistic theory, L2 acquisition, language pedagogy and teaching practice need to be considered when developing a CALL system, and for that reason, SLA researchers and second language educators should be strongly involved in this process.

Since the important question of this thesis is whether or not a CALL system could be used in grammar instruction, suggestions for a design of such a system were analyzed. It was suggested that a CALL system used for the purposes of grammar instruction should:

- provide learners with grammar tutorials,
- let them compare their incorrect answers with the correct ones that they form their own hypotheses,
- provide students with instant feedback,
- have random presentation of items,
- have some kind of scoring, and
- have an attractive interface.

Studies that show that CALL systems are useful in grammar instruction were described and the motivation of learners in using these systems was discussed. Findings of different researchers show that learners are motivated for this type of learning and that they enjoy it. Crucial reasons for learners' motivation, according to learners themselves, are immediate feedback, students' control of learning, and non-existence of any negative psychological effect that may follow face-to-face negative input.

3 The Study

3.1 Method

In this chapter the study that was done in relation to the research question and assumptions made is presented. It contains an explanation of the experimental design together with the reasoning behind it.

The research questions that were addressed in this study are:

- 1 Whether or not the Adverbial Analyzer, a CALL system developed by the author, could be used as an instructional tool for grammar teaching, namely teaching the position of adverbs in an English sentence, and, if so, how beneficial it can be for a second language learner.
- 2 Whether this type of learning has advantages over in-class instruction and whether the advantages are related to students' control of learning, immediate feedback, and non-existence of a negative psychological effect that may follow face-to-face negative feedback.

The study contained two experimental research groups and a control group. The first research question is related to the improvement of performance of learners and to finding out whether or not students that received grammatical instruction with a CALL system had a comparable improvement of performance to the group which received instruction from a teacher. Performance improvement was measured by three tests, a pretest, a posttest, and a delayed posttest. The difference between the pretest and the posttest as well as the difference between the pretest and the delayed posttest was

analyzed. The confidence level of learners was also looked at in relation to the type of instruction given.

To answer the second research question that is related to the advantages of learning with CALL software, a questionnaire was given to both experimental groups. A detailed description of the study, which includes a description of the participants, the procedure, the methodology, the statistical analysis and the findings make up this chapter.

3.1.1 Participants

The participants of this study were 21 ESL learners from four ESL classes at Carleton University in Ottawa, Canada, approximately between the ages of 20 and 35. All participants volunteered to participate in the study, and the study-related instruction took place outside of their class time. The participants were offered a draw for monetary prizes which some of them received at the end of the study. The study started with 31 students, however 10 of the participants were lost during the process. Perhaps the loss of participants happened because of the fact that the study took place at the end of semester when the school work load is noticeably increased. The classes from which volunteers were taken are the Intensive High Intermediate Course (IC.25), the Intensive English for Personal & Professional Development Course (IC.PPD), and the Introductory Credit ESL Course (21.130). The reason for having participants from different courses was the inability of integrating CALL instruction into class time. Therefore students that were willing to dedicate their outside of class time signed up as volunteer participants for the study. The description of the courses follows:

IC.25 and IC.PPD are intensive ESL courses. Students in these courses are at the high intermediate proficiency level of English language. The IC.25 course has an academic focus, while IC.PPD is more general. Students have 25 hours of integrated instruction per week, meaning that oral process, listening, writing, and speaking skills are worked on.

The Credit course, 21.130, is designed for students that are not native speakers of English, but who are qualified for admission to any faculty at Carleton. Students in this course have nine hours of instruction per week. The course is focused on general proficiency development of academic English. The proficiency level of the students in this course is also intermediate.

It is important to note that in none of the courses do students receive direct grammar instruction and that all of them are at the intermediate proficiency level of the English language. The decision to test students from this proficiency level was made after a pilot study in which three students from IC.25, IC. PPD, and 21.130 classes were given the same type of instruction and tested. It was found that students at these particular levels are able to understand the meaning of different types of adverbs and sentences containing them. Students from advanced ESL classes were not considered in order to avoid the possibility of a ceiling effect.

3.1.2 Procedure

Participants were randomly selected into three groups according to their native language, and the class that they were attending. This was done in order to have groups

that are comparable. The first experimental group, called 'the computer group', is the one that used the Adverbial Analyzer, the computer program that was developed by the author. This group started with 10 and ended the study with 8 participants. The second experimental group is the 'in class group'; it started with 11 and ended with 5 participants. This group had in-class instruction. The third group was the control group, the one that came just for testing. This group started with 10 and ended with 6 participants.

Firstly, all three groups were given a pretest to ensure that they were comparable. The pretest is a written test in which students needed to complete two tasks. Task One was an intuition task that involved making a judgment about the grammaticality of a certain number of sentences containing adverbs and Task Two was a production task that involved placing an adverb in a possible position within a sentence. For a detailed description of the pretest and the tasks see section 3.1.3.2 in this chapter.

The computer group used the Adverbial Analyzer for two consecutive weeks, three days each week (Monday, Tuesday, and Wednesday), sixty minutes per day, about six hours all together. The time frame was based on a study related to the acquisition of adverb placement by White (1991) in which students had six hours of grammar instruction spread over two consecutive weeks. Another influence on the duration of the proposed experimental treatment was the pilot study mentioned earlier, in which ESL students at the intermediate proficiency level were involved. These students were tested before and after they used the Adverbial Analyzer for six hours, and their individual gains were between eleven and twenty percent above the pretest score.

The participants of the computer group used the program in a computer lab, where the time that each user spent with the Analyzer was controlled. On day one they were given 15 minutes of instructions about how to use the program. After getting the instructions, participants had full control of learning, meaning that each user decided what task to work on. Students were not monitored at any time. However the author was there in order to provide assistance for students if needed, and to make sure that each participant used the program for the exact time planned. The students were encouraged to ask questions related to the use of the program. However, different questions related to 'rules' about adverb placement were asked during the first two days. The answer given was always 'You have to draw your own conclusions.' Each student had his own machine. There was no group work of any kind. During the entire time spent with the Analyzer, students seemed to be interested in the program and in this type of learning. Their usual comment was that the time was passing by very quickly.

The in-class group had six hours of in-class grammar instruction with an experienced ESL teacher (teacher's resume is included in Appendix B.3). The hours of instruction were organized the same way as for the computer group. The activities were teacher-directed. The teacher gave explanations about the semantic types of adverbs and their possible position within a sentence. Explanations were compatible to those found in the Adverbial Analyzer that the computer group was receiving. Students had some exercises to complete, individually or in a group. Exercises were not collected at the end of the class. Students had a chance to ask questions and were given feedback as well. The teacher did not give 'rules' about the placement of adverbs, however if one of the students in class made a correct generalization, the teacher confirmed it. (The teaching

methodology drafted by the teacher is included in Appendix B.3). An observer (an ESL teacher as well) was placed with the in-class group during their class time in order to make notes related to the interest of students and questions asked. According to his comments, students in this group were interested in class and students' questions were 'appropriately' (in terms of organization of the study) answered by the instructor.

The control group was only involved in testing. These participants were given all the tests (the pretest, the posttest, and delayed posttest).

The posttest was given to all three groups on the last day of instruction, which was the last day of instruction for both the computer and in-class group. After completing the posttest, participants from the computer and the in-class group were asked to complete a debriefing questionnaire containing different questions related to their perceived advantages and disadvantages of this type of learning.

The delayed posttest was given to participants from all three of the groups two weeks after the instruction, based on a similar time lapse in a study by Fotos (1994) related to grammar-consciousness raising. Another factor that influenced the time frame chosen between the posttest and the delayed posttest was the circumstance that the study took place in an English speaking setting where learners are surrounded by English most of the time. The input from native speakers and the input from the textbooks that students may have used could not be controlled. For that reason it was concluded that the period of time between the posttest and the delayed posttest should not be longer than two weeks.

A detailed description of the Adverbial Analyzer, the pretest, the posttest, and the delayed posttest is included in the section that follows.

3.1.3 Development of Materials

3.1.3.1 Software Review (Adverbial Analyzer)

The Java programming language was used in development of a computer program called Adverbial Analyzer. The Analyzer was developed in order to be used as an instructional tool for teaching L2 learners the position of adverbs in an English sentence. It was one of the tools used in the study. The review of the software follows.

3.1.3.1.1 Implementation

Scope of the Project

Figure 3.1: Defining System, Actors, and Environment

As shown in figure 1, the system is the Adverbial Analyzer. It examines the position of adverbs in an English sentence. The Analyzer consists of three interfaces that

are connected with one another. The user interacts with the system by completing a given task and providing the input needed for the analysis. There is only one actor (user) in the environment: the input provider (L2 learner). The actor interacts directly with the system.

As with any other software, the Adverbial Analyzer had to satisfy certain requirements. Detailed presentation and discussion of these requirements follows.

3.1.3.1.2 Requirements

There are certain requirements that need to be considered in software development. For example, an important factor is the user himself, and the requirements established from his side are of a great value. There are also functional, operational and graphical user interface requirements. In the case of the Analyzer, requirements were based on findings from different CALL studies (presented in section 2.3) where feedback given by L2 learners involved in these studies was taken into consideration. The organization of these requirements is presented in tables 1, 2, 3, 4, and 5.

Requirements by User

- system should have a friendly and attractive graphical user interface
- commands should be simple and easy to understand (by the use of simple language)
- system should be presented as an educational tool
- learner should have a control of learning. (to choose the option of getting the correct answer or of trying again)
- program should give a learner detailed feedback
- the system should give a learner an explanation of a particular aspect of English syntax (namely English adverbs)

Table 3.1: Requirements by User

Functional Requirements

- ability to analyze the input provided by the user, which is created by completing a given task displayed on the screen

Table 3.2: Functional Requirements

Operational Requirements

- user provides the system with the input (completed task) and requests an analysis
- system does the analysis of the input and classifies it as well or ill formed sentence
- if the sentence is well formed, then the system informs the user about her success
- if the sentence is classified as ill-formed, the system informs the user about her failure
- if the sentence is classified as ill-formed, the system gives the user the correction of the input together with detailed feedback and an associated detailed explanation of a particular aspect of grammar once the user requests it

Table 3.4: Operational Requirements

Graphical User Interface Requirements

- easy to access
- user friendly
- attractive
- commands written in simple language

Table 3.5: Graphical User Interface Requirements

Tables 1, 2, 3, 4, and 5 list different requirements for the development of the system, which is, as mentioned earlier, meant to be used as an instructional tool for the acquisition of adverbs by an ESL or an EFL learner. The requirements in question are: requirements of the user, functional, operational, and graphical user interface requirements. They all are based on the assumptions listed in table 6, and they could be clarified by these assumptions as well.

Assumptions

- the analysis can be stopped at any time by putting the system in idle (by hitting the quit button)
- the analysis cannot be started without the user's request (by hitting the analysis button)
- the task has to be complete in order to be analyzed
- the input must be a completed task in order for the system to provide an analysis, otherwise the initial values given in the program itself will be analyzed
- the feedback and grammatical explanation will be concerned solely with adverbs and their position in the sentence

Table 3.6: Assumptions

3.1.3.1.3 Domain Abstractions

The domain abstraction is created and used for better understanding of the domain and the system requirements. The class diagram (figure 3.2) is a graphical representation of this domain. It is a generalized view of the domain itself and suggests relationships within the application.

Figure 3.2: Class Diagram

The system consists of two tasks that are required to be completed by a user. The following section specifies the reasoning behind choosing these types of tasks.

3.1.3.1.3.1 Reasoning Behind Types of Tasks

As already mentioned, the Analyzer presents two tasks. They are an intuitive judgment (Task One) and a production task (Task Two). The reason for choosing these two types of task, which are quite different from one another, is the generally recognized view in SLA that there is a need for a variety of tasks when research of L2 acquisition is in question. Some researchers (Birdsong, 1989) question the validity of grammaticality judgments and they believe that there is a reliability problem with them. Ellis (1991) did a study related to this question and he argues that this type of task invokes a certain kind of performance which needs to be studied and understood better before it is used as a foundation on which one can build SLA theories. On the other hand grammaticality judgments or as others call it, judgments of acceptability, are a widely used tool in SLA. Tasks used in several studies were looked at and a study done by White (1991) was chosen as a model with regards to the organization and development of Task One and Task Two. The only difference is that her production task is called a manipulation task where students had to form a sentence out of a set of cards on which words were written. In the case of this study the production task is the insertion task (Task Two) where students have to insert a given adverb within a sentence.

Let us now examine the organization and the structure of Task One and Task Two in more detail.

3.1.3.1.3.2 Task One

Provided is a list of sentences that contain different types of adverbs. These sentences randomly appear on the screen one by one (partial input). The user indicates whether or not a sentence is possible in English; that is makes a judgment about the grammaticality of these sentences. The list contains 40 sentences with an equal number of the different types of adverbs. Sentences keep appearing on the screen until the user has judged the last sentence. Steps of Task One are the following:

1. Display sentences one by one.
2. Let the user create the input by completing the task, and request analysis (let him check all of the sentences listed and hit the analyze button).
3. Take the input (the judgments provided by the user) and analyze it (find out the number of incorrect answers and give the result to the user by specifying the percentage of correct answers. Message 'You have n/40 answers right' is displayed.
4. Give the feedback for each sentence to the user by telling him what his input was and whether or not it was correct.
5. For the ill-formed input (incorrect sentences), give the correction to the user. Let him know where the mistakes are and list other adverbs that belong to this group.
- 6 Repeat step 5 for every incorrect input provided (list the correct answer for each incorrect judgment call and give feedback and the explanation).
7. Once all the sentences have been analyzed and the feedback for each one of them has been given, the percentage of correct answers for each group of sentences with different types of adverbs is given.

- 8 Wait for the user to click 'Next Task' button (see Figure 3.6). A user will have a choice to go to the second task or to quit. Make sure that the user can quit the program any time he likes.
9. If the user requests it, go to Task Two.

(See figure 3.3)

Figure 3.3: Flow chart for Task One

3.1.3.1.3.3 Task Two

A user is given a choice of working with a group of sentences in which adverbs belong to the same class (perhaps the one that was the most problematic in Task One), or to work with all sentences together. The list of all sentences contains 120 sentences, each adverb class containing 15 sentences. Sentences are always shown randomly one by one and they should keep appearing until the user decides to quit the program. The steps of Task Two are:

1. Display a sentence.
2. Let the user create an input (retype the sentence). The user needs to predict a possible position of an adverb in a sentence, retype the sentence, and insert the adverb from the brackets within it.
3. Wait for the analysis request.
4. Analyze the input and classify it into well-formed or ill-formed. If the input is well-formed, report the success to the user. If the user chooses the next sentence, display it (the partial input again) and go to step 1.
5. The input is considered to be ill-formed if the adverb is placed in a wrong position within the sentence or if there are any typing mistakes. This shows that there are two different types of ill-formed input.
6. Wait for a user to either request analysis again (in that case go back to step 4) or to request an answer.
7. Display the list of possible answers if the user requests it. (See figure 3.4).

Figure 3.4: Flow chart for Task Two

3.1.3.1.4 Use Cases

Organization of requirements by many different schemes of interaction between the user and the system, as well as the description of expected system behavior, is called use-cases. Use-cases also illustrate different actions that the user might come up with and the ways that system should respond to them. They are the foundation for product testing or, as Fowler (1997) states, ‘snapshots of one aspect of your system’.

3.1.3.1.4.1 Use-Cases for Task One

Case One (user does everything according to the instructions given)

1a User’s Judgments are 100 % correct

- 1 System displays the message to the user about the first step that he needs to do, that is to create input by making a judgment about the grammaticality of given sentences.
- 2 User makes a judgment, that is checks the check box next to the sentence if he thinks that the sentence is grammatical.
- 3 User does that for all sentences from the list and waits for a message ‘There are no more sentences to analyze’
- 4 User hits the ‘Analyze’ button.
- 5 System analyzes the input provided by the user and checks if the user’s judgments for the sentences are correct or not.
- 6 The judgments of the user were 100% correct, that is his answers were all good.
- 7 System informs the user about his success by printing out the result message ‘You have 40/40 answers right’ in the score text box.
- 8 System displays the feedback for all of the sentences (in this case saying for each sentence that the user’s answer is right). This is done one by one, in the order in which sentences were displayed. For each sentence the message is ‘Congratulations’.
- 9 The summarized result is displayed; number of correct sentences for each category is given.
- 10 The user then chooses to go to the next step, which is Task Two, or to quit.

1b User's Judgment Call is less than 100% correct (mixed correct and incorrect answers)

- 1 System displays the message to the user about the first step that he needs to do, that is to create input by making a judgment about the grammaticality of given sentences.
- 2 User makes a judgment, that is checks the check box next to the sentence if he thinks that the sentence is grammatical.
- 3 User does that for all sentences from the list and waits for a message 'There are no more sentences to analyze' (see figure 3.5)

Figure 3.5: Task One - End of List Message

- 4 User hits the 'Analyze' button. System displays the feedback, correction and the grammatical explanation for all of the sentences. This is done one by one, in the order in which sentences were displayed. If the sentence is correct it gives a 'Congratulations' message for that particular sentence (see figure 3.6)

Figure 3.6: Task One - Positive Feedback Message

In the case of incorrect answers, the system gives the explanation why the answer provided by the user is incorrect by giving the detailed feedback (see figure 3.7)

Figure 3.7: Task One - Negative Feedback Message

- 5 The summarized result is displayed; number of correct sentences for each category is given.
 - 6 The user decides whether or not he wants go to the next step, which is Task Two or to quit.
- 1c User's Judgments are 100% incorrect
- 1 The system informs the user about the first step that he needs to do, that is to create input by making a judgment about the grammaticality of given sentences.
 - 2 User makes a judgment, that is checks the check box next to the sentence if he thinks that the sentence is grammatical.
 - 3 User does that for all sentences from the list and waits for a message 'There are no more sentences to analyze'
 - 4 User hits the 'Analyze' button.
 - 5 System displays the feedback, correction and the grammatical explanation for all of the input provided by the user (in this case for all of the given sentences). This is done one by one, in the order in which the sentences were displayed.
 - 6 The summarized result is displayed; number of correct sentences for each category is given (see figure 3.8)

Figure 3.8: Task One - Final Score Message

- 7 The user decides whether or not he wants go to the next step, which is Task Two or to quit.

Case Two (user does not do everything according to the instructions given)

- 1a User requests analysis without doing a task (no input is provided)
 - 1 User hits the 'Analyze' button without providing the system with any input, that is, without making a judgment about the grammaticality of any of the given sentences by checking neither one of the check boxes.
 - 2 System displays the messages 'You have not analyzed all sentences yet' (see figure 3.9)

Figure 3.9: Task One - Input Request

- 1b User requests analysis without completing a task (no complete input is provided)
 - 1 User hits the 'Analyze' button without providing the system with complete input, that is, without making a judgment about the grammaticality of all of the given sentences by checking the check boxes.
 - 2 System displays the messages 'You have not analyzed all sentences yet.'
- 1c User requests analysis without doing a task (no input is provided)
 - 1 User requests analysis without providing the system with any input, that is, without making a judgment about the grammaticality of any of the given sentences. In other words he did not check either one of the check boxes, however the 'Next' button is clicked on till sentences stopped displaying, and the message 'There are no more sentences to analyze' is displayed.
 - 2 User hits the 'Analyze' button.
 - 3 System displays the feedback, correction and the grammatical explanation for all of the sentences by taking the initial value as input (in this case there are 20 correct and

20 incorrect sentences). This is done one by one, in the order in which the sentences were displayed.

- 4 The user decides whether or not she wants go to the next step, which is Task 2 or to quit.

Case Three (user decides to quit during, before or after the process of analysis)

- 1 User hits the 'Quit' button
- 2 System quits and the window is closed.

Case Four (user decides to go to Task 2 during, before or after the process of analysis)

- 1 User hit the 'NEXT TASK' button
- 2 The Task One window is closed and Task Two window appears on the screen (see figure 3.10).

Figure 3.10: Task Two - GUI layout

3.1.3.1.4.2 Use Cases for Task Two

Case One (user does everything according to the given instructions)

1a User inputs (types in) one of the possible answers

- 1 System displays the message to the user about the first step that he needs to do.
- 2 User chooses type of adverb to work with and retypes the sentence with the adverb in it; inputs one of the right answers.
- 3 User hits the 'Analyze' button.
- 4 System analyzes the input provided by the user.
- 5 The input was correct, that is his answer was one of the possible ones.
- 6 System informs the user about his success by printing out the result message 'Congratulations, your answer is right' in the feedback text box. (See Figure 3.11)

Figure 3.11: Task Two - Positive feedback

- 7 The user then chooses to go to the next step, by clicking the 'Next sentence' button or to quit.
- 1b User inputs (types in) one of the possible answers and asks for the possible answers.
- 1 System displays the message to the user about the first step that he needs to do.
- 2 User retypes the sentence with the adverb in it and inputs one of the possible answers.
- 3 User hits the 'Analyze' button.
- 4 System analyzes the input provided by the user.
- 5 The input was correct, that is his answer was one of the possible ones.
- 6 System informs the user about his success by printing out the result message 'Congratulations, your answer is right' in the feedback text box.
- 7 User is given the option of trying as many times as she wants.
- 8 User hits the 'Give me the Answer' button.
- 9 System displays all of the possible answers for this particular sentence in the feedback text pane (see figure 3.12)

Figure 3.12: Task Two - List of answers

10 The user then chooses to go to the next step, by clicking the 'Next Sentence' or 'Quit' button.

1c User inputs (types in) wrong answer (puts the adverbial in an unacceptable Position in the sentence)

- 1 System displays the message to the user about the first step that he needs to do.
- 2 User retypes the sentence with the adverb in it that is not correct.
- 3 User hits the 'Analyze' button.
- 4 System analyses the input provided by the user.
- 5 The input was incorrect, that is his answer was not one of the possible ones.
- 6 System informs the user about his failure by printing out the message 'Unfortunately, your answer is not correct. Please try again.' (See figure 3.13)

Figure 3.13: Task Two - Negative Feedback

- 7 User is given the option of trying as many times as he wants.
- 8 User tries again or hits the 'Give me the answer ' button.
- 9 System analyzes the newly provided input or displays all of the possible answers for this particular sentence in the feedback text pane.

- 10 User then chooses to go to the next step, by clicking the 'Next sentence' or 'Quit' button.

Case Two (user does not follow the given instructions)

2a User does not input (type in) anything

- 1 System displays the message to the user about the first step that he needs to do.
- 2 User leaves the input pane blank.
- 3 User hits the 'Analyze' button.
- 4 System analyzes the input provided (not provided) by the user.
- 5 The system reads the empty string as an incorrect answer since it does not match strings given as possible answers
- 6 System informs the user about his failure by printing out the message 'Unfortunately, your answer is not right. Please try again.'
- 7 The user then chooses to go to the next step, by clicking the 'Next sentence' or 'Quit' button.

2b User decides to quit

- 1 User hits the Quit button
- 2 The system quits and the window is closed.

In this section use-cases of the Adverbial Analyzer were given to describe the possible interactions between a user and the system, and the possible user's actions and system's responses.

It was mentioned that the Analyzer has two tasks and that in those two tasks there is a data file that contains 40 sentences for Task One and 120 for Task Two. The reasoning behind the number of sentences together with the list of possible answers is the topic of the next section.

3.1.3.1.5 Data Collection and Data File

The reduced classification based on semantics (see section 2.1.3.5.1) recognizes eight classes of adverbs, which were to be presented to a user. After the program was developed and the interface was laid out, the next step was to collect input sentences that contain adverbs from these classes, and all the possible positions in which a certain adverb could be placed within a given sentence. There were exactly 20 sentences from each class. Only some of the sentences were taken from sources listed in the reference section and the rest were written by the author.

Nine native English speakers, all experienced ESL and EFL teachers who are presently M.A. students in the School of Linguistics and Applied Language Studies at Carleton University volunteered to participate in the study. It is important to mention that all of the teachers do not come from the same parts of Canada. They come from Manitoba, Newfoundland, Southern and Eastern Ontario, and they speak different Canadian dialects. Their assignment was to make an acceptability judgment and to point out what sentences they would accept as possible English sentences. They all got three sets of sentences for which the instructions and the data were as follows (for further details see Appendix B.1).

(40)

*Please put a * next to the sentence that you think is unacceptable. If you think that a sentence would be acceptable if it had a comma in a certain place, please indicate it by inserting a comma.*

*I went through that old town. (eventually)
Eventually I went through that old town.
I eventually went through that old town.
I went eventually through that old town.*

I went through eventually that old town.
I went through that eventually old town.
I went through that old eventually town.
I went through that old town eventually.

Hundred and twenty sentences with 120 adverbs that belong to eight different categories were analyzed. No two sentences have the same adverb. These sentences are of different lengths. The number of words within them varies from 3 to 14. However, the stress is on the meaning and the language used in them. They have to be comprehensible for L2 speakers at an intermediate proficiency level. After the data was analyzed, a data file was created. It includes every possible sentence that was acceptable by any one native speaker. The punctuation of sentences is very important. Interestingly enough, there was a quite large discrepancy between the judgments of the teachers involved in the study. It was decided to accept into the program any sentence that was acceptable to a native speaker. In some cases, when an adverb is inserted in a certain position, it takes on the role of an adjective (see example 41). However, that answer is listed as one of the possible answers because it is grammatically acceptable as well.

(41) *The paper comes. (daily)*
*The **daily** paper comes.*

After the data file was created, five sentences from each category were used for Task One (judgment call task), and 15 sentences from each category were used for Task Two. The collection of sentences can be found in Appendix B.1.

3.1.3.2 Pretest, Posttest, and Delayed Posttest

All the tests that were given to the learners, the pretest, the posttest, and the delayed posttest, are of the same format (see Appendix B.2). They all include the questions that contain identical sentences. However, the order of these sentences is not the same. It was randomly changed from one test to another. Tasks (questions) in the tests are of the same format as in the Adverbial Analyzer.

Question One is to make an acceptability judgment about a given sentence (see example 42).

(42)

Task 1:

Please make a judgment call about the grammaticality⁶ of the next sentences and circle your confidence level at the confidence scale.

	<i>Grammaticality</i>		<i>Confidence Scale</i>		
<i>Wednesday came, and indeed it was a fine day.</i>	<i>yes</i>	<i>no</i>	<i>very</i>	<i>somewhat</i>	<i>unsure</i>

Question One contains 24 sentences; 3 with adverbs from each category. Twelve sentences from the test were randomly taken directly from the analyzer and lecturers notes that were used for the ‘in-class’ group. The other 12 were created by the author additionally (see Appendix B.2). Once again, an adverb is used only once in the test. In addition, participants needed to circle their confidence level, which was another variable that was measured.

⁶ During each of the tests the participants were given an explanation related to what ‘grammatical’ refers to. The term ‘grammatical’ was interpreted as ‘acceptable’ and ‘possible’.

Question Two is identical to Task Two from the Analyzer. Participants had to insert an adverb within a given sentence. This question contains 24 sentences as well, 12 from the Analyzer and lecture notes, and 12 additional ones. The same rule about the use of adverbs is followed; an adverb could be used only once in a test. Confidence is requested in this question as well (see example 43).

(43)

Task 2:

Please rewrite the given sentences by inserting words from parenthesis into them (into the position that you think is grammatically acceptable) and circle your confidence level.

<p>1 <i>He became a good student. (recently)</i></p>	<p><i>Confidence level</i></p>
	<p><i>very somewhat unsure</i></p>

3.1.3.3 Questionnaire

The questionnaire was used in order to test assumptions related to benefits of using CALL systems, namely control of learning, immediate feedback, and whether or not students prefer getting negative feedback from the machine than from the teacher. It was also used to get feedback from the students about the learning experience during the study and about the Analyzer itself.

The questionnaire contained 18 questions. In the first 16 questions, participants needed to circle a number from 0 to 10 describing the extent to which a particular question describes them (see example 44).

to make sure that the groups were comparable. This was done for both Task One and Task Two.

The same procedures were used to examine the significance of differences between the pretest, the posttest, and the delayed posttest scores (percent correct) within the groups, for both Task One and Task Two.

For improvement of performance several analyses were done. We analyzed the pretest versus the posttest, the posttest versus the delayed posttest, and the pretest versus the delayed posttest separately for several reasons. The main reason is that these analyses examine different things. The pretest versus the posttest examines performance improvement; the posttest versus the delayed posttest examines retention, forgetting, and practice effect; and the pretest versus the delayed posttest examines longer-term performance improvement. Another reason is that two participants missed the delayed posttest. By doing separate analyses, we were able to keep all the participants for the pretest versus the posttest comparison.

All the analyses mentioned above were used on two sets of data. One set was the 'total' percent correct, in which all questions from each test were taken into consideration (24 in each task). The second set of data was percent the correct of the 12 sentences in each task that were taken directly from the Analyzer's data, which is also the data presented and taught in the in-class group. This is called 'partial' percent correct score.

3.1.4.2 Confidence Gain

The significance of difference between the pretest confidence level scores was examined between all three groups, the two experimental groups and the control group, for both Task One and Task Two. This was done in order to make sure that the groups are comparable. ANOVA procedures were used for these measurements as well.

The significance of differences between the pretest, the posttest, and the delayed posttest confidence level scores was analyzed within all three groups. Both Task One and Task Two were considered.

For confidence level scores analyses looked at the pretest versus the posttest, the posttest versus the delayed posttest, and the pretest versus the delayed posttest separately.

To measure 'total confidence', the following formula was used for each person for each of the three tests:

$$\text{Total Confidence} = (3 * (\text{number of 'very' responses})) + (2 * (\text{number of 'somewhat' responses})) + 1 * \text{number of 'unsure' responses}$$

3.1.4.3 Analysis of Questionnaire

The mean of participants' responses was examined for each individual question. Questions that are centered on the same issue, those that test the same assumption, were analyzed together, and the mean was found for that particular group. We were also interested in finding out whether or not there were significant differences in the responses of participants between the control and the in-class groups. ANOVA procedures were used for these analyses as well.

The following result scale was adopted:

0 - 2.5 highly against

2.5 - 5 moderately against

5 -7.5 moderately in favor

7.5 - 10 highly in favor

Students' responses related to whether or not any learning occurred during the study were taken into consideration and their comments about the Analyzer, related to what they did and did not like about it, were considered as well.

In this section which included all the details concerning the methodology of the study, including assumptions, participants, procedures, all the materials, and the data analyses, were presented. Let us now look at the results of the study.

3.2 Results

3.2.1 Improvement of Performance

Considering the performance improvement, the following comparisons were made:

- a) between-group performance differences on the pretest scores for each one of the two tasks,
- b) within-group performance improvement differences on the three tests (the pretest versus the posttest, the posttest versus the delayed posttest, and the

pretest versus the delayed posttest) based on total percent correct for both Task One and Task Two, and

- c) between-group performance improvement differences on the posttest and the delayed posttest familiar data scores for Task One and Task Two

3.2.1.1 Differences Between the Groups in Performance on the Pretest

Performance differences on the pretest scores for each one of the tasks was done in order to find out whether or not the groups were comparable. It was found that there was no significant difference among the three groups, including both experimental groups and the control group, when the percent correct is in question for both Task One (see table 3.7) and Task Two (see table 3.8). The presentation of scores follows.

3.2.1.1.1 Task One

Group	Mean	Std. Deviation	N
Computer	69.88	7.73	9
In-Class	71.68	7.46	5
Control	72.02	8.57	7
Total	71.02	7.62	21
$F = .164, p > .05$			

Table 3.7: Pretest differences between the groups: Task One

3.2.1.1.2 Task Two

Group	Mean	Std. Deviation	N
Computer	77.77	5.89	9
In-Class	84.16	9.50	5
Control	85.11	8.62	7
Total	81.74	8.17	21
$F = 2079, p > .05$			

Table 3.8: Pretest Differences Between the Groups: Task Two

3.2.1.2 Differences Within the Groups in Improvement of Performance

Within group performance improvement differences between the three tests (the pretest versus the posttest, the posttest versus the delayed posttest, and the pretest versus the delayed posttest) for both Task One and Task Two were done in order to find out whether or not groups showed any improvement of performance. The analysis for both Task One and Task Two follow. These analyses were based on the total percent correct.

3.2.1.2.1 Task One

Computer Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	9	58.30	83.30	69.88	7.73
POSTTEST	9	66.70	91.70	80.11	8.77
DELAYED POST	8	62.50	95.80	78.63	10.77
Valid N (listwise)	8				

Table 3.9: Performance improvement within computer group: Task One

Students in the Computer group show a significant improvement from the pretest to the posttest ($F(1,8) = 15.42, p < .05$), and from the pretest to the delayed posttest ($F(1,7) = 10.206, p < .05$). There is a small loss of proficiency from the posttest to the delayed posttest ($F(1,7) = 1.043, p > .05$), however it is not significant (see table 3.9).

In-Class Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	5	62.50	79.20	71.68	7.46
POSTTEST	5	58.30	91.70	77.50	14.32
DELAYED POST	5	62.50	91.70	77.50	12.01
Valid N (listwise)	5				

Table 3.10: Performance improvement within in-class group: Task One

Students in the In-Class group did not show a significant improvement in any test comparisons. Their improvement from the pretest to the posttest was $F(1,4) = 1.82, p > .05$, and from the pretest to the delayed posttest $F(1,4) = 1.32, p > .05$. They did not show a loss of proficiency from the posttest to the delayed posttest ($F(1,4) = .00, p > .05$).

Control Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	7	62.50	87.50	72.02	8.577
POSTTEST	7	58.30	91.70	77.37	10.45
DELAYED POST	6	62.50	91.70	77.08	11.09
Valid N (listwise)	6				

Table 3.11: Performance Improvement Within Control Group: Task One

Students in the Control group did not show a significant improvement from the pretest to the posttest $F(1,6) = 2.05, p > .05$, nor from the pretest to the delayed posttest $F(1,5) = 3.73, p > .05$ (see table 3.11).

Interestingly enough, they also had a performance loss from the posttest to the delayed posttest ($F(1,5) = .02, p > .05$), however it is not significant.

Within group performance improvement differences between the three tests for Task One, for all groups is represented by the following figure (see figure 3.14).

Figure 3.20 Means of all groups on all tests: Task One

3.2.1.2.2 Task Two

Computer Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	9	66.66	87.50	77.77	5.89
POSTTEST	9	79.16	95.83	88.42	6.51
DELAYED POST	8	70.83	91.66	81.24	8.03
Valid N (listwise)	8				

Table 3.12: Performance Improvement Within Computer Group: Task Two

Students in the Computer group show a significant performance improvement from the pretest to the posttest ($F(1,8) = 19.41, p < .05$), however they do not show a significant improvement from the pretest to the delayed posttest ($F(1,7) = .29, p > .05$). A very interesting finding is that students in the Computer group show a significant decrease in performance from posttest to delayed posttest ($F(1,7) = 8.61, p < .05$) (see table 3.12)

In-Class Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	5	70.83	95.83	84.16	9.50
POSTTEST	5	83.33	95.83	88.33	4.56
DELAYED POST	5	79.16	100.00	87.50	7.79
Valid N (listwise)	5				

Table 3.13: Performance improvement within in-class group: Task Two

Students in the In-class group did not show any significant improvements in any one of the tests. For example from the pretest to the posttest their improvement is $F(1,4)$

= .83, $p > .05$, and from the pretest to the delayed posttest $F(1,4) = .19$, $p > .05$. They also show some performance loss from the posttest to the delayed posttest ($F(1,4) = .04$, $p > .05$), however it is not significant (see table 3.13).

Control Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	7	75.00	100.0	85.11	8.62
POSTTEST	7	70.83	95.83	82.14	9.83
DELAYED POST	6	70.83	87.50	79.16	6.97
Valid N (listwise)	6				

Table 3.14: Performance Improvement Within Control Group: Task Two

Students in the Control group show a performance loss from the pretest to the posttest ($F(1,6) = .25$, $p > .05$), from the pretest to the delayed posttest ($F(1,5) = 3.07$, $p > .05$), and from the posttest to the delayed posttest ($F(1,5) = .48$, $p > .05$), however it is not significant in any of the cases (see table 3.14).

Within group performance improvement differences between the three tests for Task One, for all groups is represented by the following figure (see figure 3.15).

Figure 3.15: Means of all Groups on all Tests: Task Two

Mean test scores for all tests for both tasks are given in the following table (see table 3.15).

Group	<u>Task 1 (judgment)</u>			<u>Task 2 (insertion)</u>		
	pre	post	delayed	pre	post	delayed
Computer	70	80	79	77	88	81
In-Class	72	77	77	84	88	87
Control	72	77	77	85	72	79

Table 3.15: Means of all Groups on all Tests: Task One & Task Two

3.2.1.3 Differences Between the Groups in Improvement of Performance (Partial Scores)

3.2.1.3.1 Task One

Posttest

The comparison of ‘familiar data’ percent correct for both experimental groups on posttest, shows that Task One had the values ($F = 1.328$, $p > .05$) which tells us that there is no significant difference between the groups (see table 3.16).

	Computer	In-Class
Mean	82.37	81.80
Std. Deviation	15.79	18.19
Sample Size	8	5
St. error of means	5.58	8.13
Lower 95% c. limit	69.17	59.20
Upper 95% c. limit	95.50	104.39
Minimum	58.00	58.00
Median (50 th perce.)	83.50	92.00
Maximum	100.0	92.00

Table 3.16: Partial Percent Correct: Posttest Task One

Delayed Posttest

The comparison of ‘familiar data’ percent correct scores of the computer and the in-class group on the delayed posttest shows that Task One produced no significant difference between groups ($F = 1.01$, $p > .05$) (see table 3.17).

	Computer	In-Class
Mean	74.12	72
Std. Deviation	21.05	20.91
Sample Size	8	5
St. error of means	7.44	9.35
Lower 95% c. limit	56.52	46.03
Upper 95% c. limit	91.72	97.96
Minimum	42.00	42.00
Median (50 th perce.)	75.00	67.00
Maximum	100.0	92.00

Table 3.17: Partial Percent Correct: Delayed Posttest Task One

3.2.1.3.2 Task Two

Posttest

Posttest comparison of 'know data' percent correct between both experimental groups has values ($F = 3.165$, $p > .05$) and show no significant difference between the groups (see table 3.18).

	Computer	In-Class
Mean	85.5	83.20
Std. Deviation	10.70	6.01
Sample Size	8	5
St. error of means	3.76	2.69
Lower 95% c. limit	76.55	75.73
Upper 95% c. limit	94.45	90.66
Minimum	67.00	75.00
Median (50 th perce.)	87.50	83.00
Maximum	100.0	92.00

Table 3.18: Partial Percent Correct: Posttest Task Two

Delayed Posttest

The delayed posttest comparison of 'know data' percent correct between the computer and the in-class groups shows the differences between the groups is not significant ($F= 2.76$, $p > .05$) (see table 3.19).

	Computer	In-Class
Mean	72.87	84.80
Std. Deviation	15.26	9.17
Sample Size	8	5
St. error of means	5.39	4.10
Lower 95% c. limit	60.11	73.40
Upper 95% c. limit	85.63	96.19
Minimum	50.00	75.00
Median (50 th perce.)	75.00	83.00
Maximum	100.00	100.00

Table 3.19: Partial Percent Correct: Delayed Posttest Task Two

3.2.2 Confidence Gain

Considering the gain of confidence, the following comparisons were examined:

- d) between group confidence differences on the pretest scores for each one of the two tasks, and
- e) within group confidence differences between the three tests (the pretest versus the posttest, the posttest versus the delayed posttest, and the pretest versus the delayed posttest) for both Task One and Task Two.

3.2.2.1 Differences Between the Groups in Confidence on the Pretest

The confidence difference on the pretest scores for each one of the tasks was done in order to find out whether or not the groups are equivalent at the pretest. It was found that there was no significant difference among the three groups for both Task One and Task Two. The results follow:

Task One; $F = .911, p > .05$

Task Two; $F = .679, p > .05$

3.2.2.2 Within Group Means

3.2.2.2.1 Task One

Computer Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	9	39.00	65.00	53.77	7.44
POSTTEST	9	47.00	72.00	64.55	7.55
DELAYED POST	8	56.00	73.00	67.50	5.34
Valid N (listwise)	8				

Table 3.20: Confidence Improvement Within Computer Group: Task One

Students in the Computer group show a significant improvement from the pretest to the posttest ($F(1,8) = 16.67, p < .05$), and another significant improvement from the pretest to the delayed posttest ($F(1,7) = 56.70, p < .05$) (see table 3.20). However, the

improvement that they show from the posttest to the delayed posttest ($F(1,7) = .195, p > .05$) is not significant.

In-Class Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	5	46.00	69.00	58.40	10.80
POSTTEST	5	62.00	69.00	65.40	2.50
DELAYED POST	5	64.00	79.00	69.20	6.30
Valid N (listwise)	5				

Table 3.21: Confidence Improvement Within In-class Group: Task One

Students in the In-Class group did not show a significant improvement from the pretest to the posttest ($F(1,4) = 1.54, p > .05$), from the pretest to the delayed posttest ($F(1,4) = 4.65, p > .05$), nor from the posttest to the delayed posttest ($F(1,4) = 1.18, p > .05$) (see table 3.21).

Control Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	7	46.00	68.00	59.00	7.70
POSTTEST	7	40.00	70.00	58.57	10.04
DELAYED POST	6	40.00	70.00	56.50	9.89
Valid N (listwise)	6				

Table 3.22: Confidence Improvement Within Control Group: Task One

There is a 'trend' in the data concerning the confidence of the Control group, however it is not significant. The confidence loss from the pretest to the posttest is $F(1,6) = 0.92, p$

> .05, from the pretest to the delayed posttest $F(1,5) = 1.00$, $p > .05$, and from the posttest to the delayed posttest $F(1,5) = .67$, $p > .05$ (see table 3.22).

Means of all Groups Together

Within group confidence gain between the three tests for Task One, for all groups is represented by the following figure (see figure 3.16).

Figure: 3.16: Confidence Improvement Within Groups: Task One

3.2.2.2.2. Task Two

Computer Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	9	40	72	57.33	9.33
POSTTEST	9	54	72	65.56	6.46
DELAYED POST	8	62	72	68.38	3.50
Valid N (listwise)	8				

Table 3.23: Confidence Improvement Within Computer Group: Task Two

Students in the Computer group show a significant improvement in comparisons from the pretest to the posttest ($F(1,8) = 6.22, p < .05$) and from the pretest to the delayed posttest ($F(1,7) = 16.21, p < .05$). There is an 'trend' from the posttest to the delayed posttest, however the difference is not significant ($F(1,7) = .89, p > .05$) (see table 3.23)

In-Class Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	5	50	70	62.20	7.92
POSTTEST	5	68	72	70.60	1.95
DELAYED POST	5	69	72	71.20	1.30
Valid N (listwise)	5				

Table 3.24: Confidence Improvement Within In-class Group: Task Two

Students in the In-Class group did not show a significant improvement in confidence gain in any of the test comparisons, from the pretest to the posttest $F(1,4) = 6.55, p > .05$, from the pretest to the delayed posttest $F(1,4) = 6.378, p > .05$, and from the posttest to the delayed posttest $F(1,4) = 2.65, p > .05$ (see table 3.24).

Control Group

	N	Minimum	Maximum	Mean	Std. Deviation
PRETEST	7	46	9	62.14	10.38
POSTTEST	7	42	69	58.29	10.64
DELAYED POST	6	48	72	59.83	10.59
Valid N (listwise)	6				

Table 3.25: Confidence Improvement Within Control Group: Task Two

Students in the Control group show a significant loss of confidence from the pretest to the posttest $F(1,6) = 7.72, p = .032$. However, there is no significant improvement from the pretest to the delayed posttest ($F(1,5) = .19, p > .05$). Confidence loss from the posttest to the delayed posttest is not significant ($F(1,5) = 4.31, p > .05$) (see table 3.25)

Means of all Groups Together

Within group confidence gain between the three tests for Task Two, for all groups is represented by the following figure (see figure 3.17).

Figure 3.17: Confidence Improvement Within Groups: Task Two

3.2.3 Questionnaire Data

In the analysis of the questionnaires the following aspects were examined:

- (a) mean of students' responses for each individual question
- (b) means of groups of questions that are centered around the same assumption
- (c) questions 15 and 16 individually
- (d) the difference in responses of participants between the two groups
- (e) students' comments related to 'learning process' and the Analyzer

3.2.3.1 Means of Individual Questions

The means of participants' responses for each individual question (a) are presented in the table 3.26.

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	9	6	10	8.22	1.39
Q2	9	2	10	6.33	2.60
Q3	9	6	10	7.78	1.48
Q4	9	4	10	7.33	2.18
Q5	9	0	10	6.67	2.96
Q6	14	2	10	6.07	2.27
Q7	14	3	10	7.86	2.18
Q8	14	6	10	8.21	1.42
Q9	14	5	10	8.00	1.88
Q10	14	5	10	7.64	2.02
Q11	14	3	10	8.50	2.07
Q12	14	1	10	5.07	2.70
Q13	14	0	10	4.21	3.02
Q14	14	0	9	6.43	3.01
Q15	14	2	10	6.43	2.56
Q16	14	1	10	5.07	2.81

Valid N (listwise) 9

Table 3.26: Means of Individual Questions

3.2.3.2 Means of Question Groups

Questions 1-5 (group 1) are related to 'control of learning', and they are centered around the same assumption. The same applies to questions 6-10 (group 2) and questions

10-14 (group 3). The following table (see table 3.27) represents the means of questions that are grouped according to the assumption that they are applying to.

	Group 1 Questions	Group 2 Questions	Groups 3 Questions
Mean	7.26	7.55	6.05
Std. Deviation	0.77	0.88	1.87
Sample Size	5	5	4
St. error of means	0.34	0.38	0.93
Lower 95% c. limit	6.30	6.49	3.07
Upper 95% c. limit	8.23	8.61	9.02
Minimum	6.33	6.07	4.21
Median (50 th perce.)	7.33	7.86	5.75
Maximum	8.22	8.21	8.50

Table 3.27: Means of Question Groups

3.2.3.3 Questions 15 and 16

The mean for question 15 (preference of individual work over the group work when learning grammar) is 6.43 with a standard deviation of 2.56, and the mean for question 16 (learning grammar on the computer rather than in class from the teacher) is 5.07 with a standard deviation of 2.81.

3.2.3.4 Difference in Response Between Groups

Differences in responses between participants of the computer and the in-class groups were significant only for question 14 ($F(1,13) = 5.88, p < .05$). Details are given in the following table.

Group	Mean	Std. Deviation	N
1	7.67	1.73	9
2	4.20	3.70	5
Total	6.43	3.01	14

Table 3.28: Response Difference Between Groups

3.2.3.5 Students' Comments

Students' responses related to whether or not, in their opinion, any learning happened during the study was taken into consideration and their comments about the Analyzer, related to what they did and did not like about it, were considered as well. However, these responses were not statistically analyzed.

When learning is in question, students' comments from both the Computer and In-class group were very positive. They believed that learning did happen. After the study, the learners became more aware of different positions within a sentence that an adverb can appear in. They learned different semantic classes of adverbs, which they were not familiar with. The participants also pointed out that they felt more comfortable and confident when using adverbs. However, some of them expressed the wish that in

combination with different input sentences, having rules ‘spelled out’ would have helped even more.

After analyzing the comments of the computer group related to the Adverbial Analyzer, the following conclusion can be drawn. In general, participants of the computer group liked the Analyzer and they gave positive feedback on it. “It was easy to use and very useful”, was their response. The participants made a couple of interesting suggestions about improvement of the Analyzer. One was to add an extra feature in order for a user to be able to have access to a previous sentence and not just a following sentence from the set. The second one is related to the feedback in Task One. The feedback given for sentences that the user answers correctly only gives a ‘congratulation’ message and informs him that the answer was correct. However, a user sometimes does not remember what his answer was. This was done in order to have a user pay maximal attention while using the Analyzer. The participants of the computer group also did not like the fact that they were not able to go from Task Two to Task One. In order to go back to the Task One GUI, one needs to restart the program. As pointed out earlier, Task Two is based on string matching, and in order to get a correct answer a user has to watch the punctuation. Participants pointed out that that was perhaps irritating.

The control group was asked to write a couple of sentences about whether or not their participation in the study had any effect on them, even though they did not receive any instruction about adverbs. Their comments were rather interesting. The participants pointed out that they had become more aware of adverbs and paid a lot more attention to them. However, they admitted they became confused.

In this section the results of the study were presented and carefully assessed. Let us now proceed with a discussion of the study.

3.3 Discussion

3.3.1 Improvement of Performance

This study was motivated by a research question related to CALL grammar instruction. It was intended to show whether or not the Adverbial Analyzer, a CALL system developed by the author, could be used as an instructional tool for grammar teaching, namely position of adverbs in an English sentence. The goal was to investigate how beneficial it could be for a second language learner and whether or not a learner would show any improvement in performance.

Participants in the study were placed in three groups, two experimental and a control group. None of groups received any grammar instruction outside of the study during the experimental period. It is not known how much grammatical instruction related to the position of adverbs participants had received prior to their involvement in the study. However, the pretest scores between the three groups showed that they were comparable as far as the knowledge about the position of adverbs is concerned. The improvement of performance was tested in two ways.

Users' performance on the intuition task (Task One) and the production task (Task Two) were analyzed. In the intuition task, students had to make a judgment about the grammaticality of sentences that had adverbs in them, while the production task

required them to make discrimination between positions of adverbs. ANOVA procedures were used to examine the significance of differences between the performance of participants within each group in relation to the two questions mentioned above. The results of the ANOVA procedures and statistical analysis revealed interesting findings, which to some extent provide a positive answer to the research questions under consideration.

The only group that showed significant improvements of performance in the intuition task was the computer group, the one that had received CALL grammatical instruction. This group improved significantly after the CALL grammar treatment and maintained the intuition performance gain 2 weeks after the instructional period. That supports the assumption that the improvement of performance on the intuition task was not due to a practice effect. The in-class group that had received identical input (teaching material) and feedback from an experienced teacher did not show significant improvement and had very similar results to the control group. Interestingly enough, the learning curve was identical for all groups. All three groups had some performance improvement presumably due to a practice effect. Two weeks after the instruction, all the groups, including the control group, showed some forgetting. However, it is important to note that the computer group was the only one with significant improvement of performance on both the immediate posttest and the delayed posttest, in relation to the pretest. The practice effect for this particular group was not significant (assuming it would show up only on the first posttest).

Results of the tests relating the second task (placing an adverb within a sentence) showed very interesting results. In this case the computer group was again the only one

that improved significantly on the immediate posttest. However, the effect of forgetting after the two weeks period was significant and there was no improvement from the pretest to the delayed posttest. One could argue that the improvement shown right after the instructional period was present because of a practice effect. The in-class group did not show significant improvement or loss of performance. The learning curve of the computer and the in-class group had the same shape, while that of the control group was very different. This group showed a loss of performance with each one of the tests. This suggests that perhaps awareness of a grammatical structure without any grammatical instruction causes a loss of performance brought about by uncertainty and a loss of confidence.

Fifty percent of sentences in each test were taken from the Analyzer or the lecture notes of the teacher. In relation to those sentences, one could raise the question whether or not the performance improvement of the computer group was related to a practice effect, the reason being that this group was exposed to more adverbs. An answer to this question was sought by analyzing the score on familiar sentences. It was found out that in relation to test sentences that were taken from the program or the lecture notes, the computer group and the in-class group were comparable, and there was no significant difference in performance of each group on the immediate or delayed posttest. This suggests that the significant gain of performance that the computer group showed was not due to memorization of numerous sentences.

3.3.2 Confidence gain

In relation to the same research question, the study intended to discover whether or not different types of instruction would change the confidence level of participants. The three groups were comparable in relation to this aspect on the pretest. Considering the gain of confidence, the computer group is the only one that showed significant improvement on both tasks. The in-class group did not show any significant improvement, however the confidence curve of the two experimental groups was of the similar shape. However, the Task One curve of the control group headed in the opposite direction. This group showed a loss of confidence, however it was not significant.

In Task Two, the computer group again showed a very significant improvement in confidence, while the improvement of the in-class group was not significant. Interestingly enough the control group showed a significant loss of confidence on the immediate posttest. Some of their confidence was gained back after the two week period, so there was no significant difference between the pretest and the delayed posttest confidence level. This is a very interesting finding which perhaps suggests that grammatical awareness without presence of grammatical instruction causes a loss of confidence as well.

Participants of the control group after the delayed posttest were asked to write a couple of sentences about the effect of grammatical awareness that may have been created by the pretest. Their responses were very similar. Every participant said that more attention was paid to adverbs and their placement within a sentence. They also

pointed out that “this was very confusing “ and that they did not quite understand “what is going on”.

3.3.3 Benefits of CALL grammar instruction

The second research question of this study was related to benefits of CALL grammar instruction and this type of learning. It intended to identify whether or not students' control of learning, immediate feedback and non-existence of a negative psychological effect, which may follow face-to-face negative feedback, could be considered benefits of CALL instruction. It was found that students support these assumptions. They realize that while using computers for language learning they have control of learning. When immediate feedback is in question, participants moderately agree that it has a positive effect on learning speed and the realization of weak grammatical areas. Participants are moderately in favor of the assumption related to the non-existence of a negative psychological effect that may follow face-to-face negative feedback. Another response of participants was related to individual versus group work when learning grammar. They are moderately in favor of individual work. When asked what they prefer better, learning grammar on the computer or from the teacher, response was that they have no preference (5.7 on the scale 0 to 10).

The only question that groups answered significantly differently was related to their preference of being corrected in private rather than in class and in front of other people. The in-class group was moderately against being corrected in private rather than in class and in front of other people, and the response of the computer group was that

they were moderately in favor. Perhaps the reason for this difference is based on the fact that the in-class group did not receive any other type of correction and that its students were not familiar with computer correction. Possibly they did not mind being corrected in front of other people because for them that was the only method of correction they were familiar with.

3.3.4 Summary and Conclusion

The goal of this study was not to determine whether or not direct grammar instruction is needed in L2 classrooms. This is an assumption that was supported by studies of L2 researchers (White, 1991; Fotos 1996; Ellis, 1997) and it was accepted as a theoretical foundation for this study. The goal was to find out whether or not the position of adverbs in an English sentence could be taught with a CALL system and what the benefits of this type of learning were. A rather interesting approach was adopted.. The syntax of eight types of adverbs, or more specifically their position in an English sentence, was taught by giving semantic characterizations of adverbial categories.

The assumption was that this type of grammar instruction is as beneficial as one given in class by a teacher, with some additional advantages being students' control of learning, immediate feedback, and non-existence of a possible negative psychological effect associated with face-to-face negative feedback.

The answers gathered in the study are rather unexpected. The assumption again was that the in-class and the computer group would show similar gains in grammatical

performance and confidence level. However, this was not the case. Only the computer group showed significant improvement in both. This finding suggests that perhaps CALL grammar instruction is more beneficial than in class grammatical instruction. Reasons for this could be found in frequency of exposure to a larger input, and availability of immediate individual feedback.

However, there was a significant forgetting effect on Task Two by the computer group two weeks after the instructional period. This raises a question related to the difference between intuition and production performance. This question was addressed in the section that explained the reasoning behind the types of tasks used in the study (see section 3.1.3.1.3.1). An intuition task such Task One may be based on recognition of a pattern. It is a holistic judgment about whether or not a pattern is similar to previous ones 'learned'. On the other hand, a production task represents making discrimination between possible positions. Based on the finding of the study, it is suggested that a production task is more demanding than an intuition task. However, the argument is not against the validity of this type of task.

Ellis' (1991) argument about the need for further study of the kind of performance that is invoked by acceptability judgments should be taken into consideration. The question that needs to be answered is 'what is tapped by an intuition task and what is tapped by a production task'. This is suggested for further research.

According to the feedback given by the participants in the study, benefits of this type of learning are, as assumed, student's control of learning, immediate feedback provided by the system and non-existence of a negative psychological effect that may follow face-to-face negative feedback. Another benefit that can be suggested is the

novelty of working with a new instructional tool, which may increase students' motivation. This is supported by the fact that drop out rate of students in the computer group was much smaller than in the in-class group.

As a general conclusion of this study, the use of CALL systems for grammar instruction is suggested. This type of instruction considerably increases learners' confidence, which may positively influence learning. These systems should be used for form-focussed grammar instruction and could be integrated into communicative classrooms or used by L2 learners on their own time. Since they provide feedback, students could work on their own, and a teacher could spend more time with weaker students.

4 Conclusion

The intent of this thesis was not to investigate whether or not direct grammar instruction is needed in L2 learning. A positive assumption was made in regards to this question. It was based on findings from different studies done by L2 researchers (Ellis, 1997; Fodos, 1996; White, 1991). This thesis has presented the case for use of a particular type of grammar instruction. It has been argued that CALL systems should be used as instructional tools for grammar teaching, especially for diverse categories that learners have difficulties with. It also has been argued that this type of learning is beneficial for second language learners, that it considerably increases learners' confidence, and that it has advantages over in-class grammar instruction. The reasons could be found in frequency of exposure due to a larger input, students' control of learning, availability of immediate individual feedback, and non-existence of negative psychological effect that may follow face-to-face negative feedback.

The results of the study described in the previous chapter supported these claims to some extent. The study showed that intermediate ESL students significantly improved in grammatical performance and confidence after being exposed to CALL grammar instruction, which was not the case for students that had similar teacher-fronted instruction. The participants in the study favored this type of grammar instruction and supported students' control of learning, immediate feedback provided by the system, and non-existence of negative psychological effect that may follow face-to-face negative feedback as the benefits of this type of learning.

Even though the learners did not lose their improved intuition performance two weeks after the instructional period, there was a significant forgetting effect considering production performance. This causes consideration with regards to the difference between intuition and production performance. In the case of the study presented, it was suggested that intuition performance is a holistic judgment about whether or not a pattern is similar to other ones encountered, while the production task represents making discrimination among possible positions. The study suggested that the production task is more demanding than the intuition task. However, the intuition performance gain should not be ignored. It shows that learning happened. The question ‘which one of the two tasks represents a better indication of whether or not acquisition happened’ is suggested for further research. After all, grammatical judgment tasks have been widely used in SLA research and important findings are based on them.

A second consideration that has been raised is the time frame and the number of participants that participated in the study. The findings might be different and perhaps more reliable if a bigger number of participants had participated and/or if the CALL system developed had been used for a longer period of time and perhaps integrated into the classes of the participants. After all, the system used in the study was a simple program based on string matching. However, it contains all that is suggested as a necessity for a CALL grammar system.

A suggestion related to the development of a CALL system for grammar instruction has been made as well. This was considered by taking into account different SLA theories and studies related to them and CALL instruction.

In CALL systems used for grammar teaching, instruction should consist of task-based form-focussed instruction that contains positive and negative input, which are both needed in order to enable inferencing and hypothesis testing in L2 learners. That means that learners should not be ‘fed’ grammar rules. They should make their own hypotheses according to the input and feedback provided, allowing them to compare their input with the one given by a system. A system should contain a variety of tasks. Production tasks and comprehension tasks are suggested as a possibility. A designer should plan (control) steps that a learner goes through while being in the process of learning with CALL. A system should provide a learner with grammar tutorials and immediate feedback. Items should be presented randomly together with some kind of scoring. A graphical user interface does not have to be fancy, however it should be attractive and easy to use.

The use of CALL systems for grammatical instruction remains an interesting proposal. Further research that will address a number of issues is suggested. Firstly, the answer related to the question ‘what is tapped by an intuition task and what is tapped by a production task’ needs to be answered. A second question is centered on the issue of whether various types of tasks with different formats used for CALL grammar instruction are needed. Research that considers teaching different grammatical aspects with CALL software and their integration into a communicative L2 classroom is needed.

In conclusion, CALL systems are recommended as instructional tools for L2 learning and teaching of complex grammatical aspects that learners have difficulty with. This type of instruction considerably increases learners’ confidence, which may positively influence learning. They are recommended to be used for form-focussed grammar instruction and to be integrated into communicative classrooms. Most

importantly, CALL grammar systems need to have an appropriate immediate feedback so they can be used in or outside of a L2 classroom. If integrated in class time, they give a teacher a chance to spend more time with a weaker student and outside of class-time learners can use them at their own convenience.

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Appendices

Appendix A**A Proposed Classification of Adverbs**

Time

Afterwards
Already
Before
Beforehand
Commonly
Currently
Eventually
Finally
Firstly
Forever
Henceforth
Henceforward
Hereafter
Immediately
Incessantly
Instantaneously
Instantly
Intermittently
Invariably
Just
Last
Lastly
Lately
Latterly
Momentarily
Never
Next
Now
Originally
Presently
Previously
Recently
Recently
Shortly
Simultaneously
Soon
Still
Subsequently
Suddenly
Temporarily
Today
Tomorrow
Ultimately
Whenever

Yesterday
Yet

Frequency (Time)

Always
Annually
Constantly
Continuously
Daily
Ever
Frequently
Generally
Habitually
Hardly
Infrequently
Irregularly
Monthly
Normally
Occasionally
Often
Once
Periodically
Rarely
Regularly
Repeatedly
Seldom
Sometimes
Twice
Usually

Domain

Academically
Artistically
Botanically
Chemically
Geographically
Globally
Grammatically
Historically
Linguistically
Locally
Logically
Magnetically

Molecularly
Muscularly
Musically
Nationally
Pedagogically
Philosophically
Phonetically
Physically
Politically
Psychologically
Scientifically
Semantically
Statistically
Syntactically
Technically

Assertion

Absolutely
Affirmatively
Assuredly
Certainly
Clearly
Conceivably
Definitely
Definitively
Doubtless
Doubtlessly
Evidently
Indeed
Indubitably
Positively
Surely
Truly
Unmistakably
Undoubtedly
Undeniably
Unquestionably
Obviously
Positively

Quantity/Degree

Almost
Barely
Besides
Completely
Enough
Entirely
Entirely
Equally
Exactly
Excessively
Greatly
Hardly
Just
Least
Less
Little
Merely
More
Most
Much
Nearly
Only
Oppressively
Partially
Perfectly
Quite
Remarkably
Scarcely
Slightly
Sufficiently
Truly
Very
Wholly

(Manner) Action Oriented

Accurately
Actively
Awkwardly
Beautifully
Carefully
Carelessly
Casually
Clumsily
Consequently

Correctly
Directly
Eccentrically
Expertly
Gallantly
Gently
Gradually
Honorably
Independently
Lazily
Loudly
Perfectly
Practically
Promptly
Punctually
Quickly
Quietly
Rapidly
Sharply
Skillfully
Slowly
Speedily
Violently

(Manner) Mental State

Angrily
Anxiously
Awkwardly
Baldly
Bravely
Calmly
Carefully
Cheerfully
Cleverly
Confidently
Deliberately
Delightedly
Desperately
Fearfully
Foolishly
Frantically
Gladly
Gratefully
Hopefully

Intentionally
Nervously
Patiently
Politely
Proudly
Sadly
Stubbornly
Stupidly
Willfully
Willingly
Wisely
Worriedly

Evaluative

Accurately
Appropriately
Auspiciously
Brilliantly
Conveniently
Fortunately
Happily
Hopefully
Ideally
Implausibly
Improperly
Inappropriately
Luckily
Oddly
Peculiarly
Plausibly
Properly
Reasonably
Regrettably
Strangely
Stupidly
Terribly
Unfortunately
Unhappily
Unluckily
Unreasonably
Wisely

Appendix B1**Data File Sentences**

Time

He's visiting his uncle in Washington. (currently)
 Currently he's visiting his uncle in Washington.
 He's currently visiting his uncle in Washington.
 He's visiting currently his uncle in Washington.
 He's visiting his currently uncle in Washington.
 He's visiting his uncle currently in Washington.
 He's visiting his uncle in currently Washington.
 He's visiting his uncle in Washington currently.

I got through that old town. (eventually)
 Eventually I got through that old town.
 I eventually got through that old town.
 I got eventually through that old town.
 I got through eventually that old town.
 I got through that eventually old town.
 I got through that old eventually town.
 I got through that old town eventually.

He forgets to put on his helmet. (recently)
 Recently he forgets to put on his helmet.
 He recently forgets to put on his helmet.
 He forgets recently to put on his helmet.
 He forgets to recently put on his helmet.
 He forgets to put recently on his helmet.
 He forgets to put on recently his helmet.
 He forgets to put on his recently helmet.
 He forgets to put on his helmet recently.

He had entered the room. (immediately)
 Immediately he had entered the room.
 He immediately had entered the room.
 He had immediately entered the room.
 He had entered immediately the room.
 He had entered the immediately room.
 He had entered the room immediately.

You must put it in the oven. (now)
 Now you must put it in the oven.
 You now must put it in the oven.
 You must now put it in the oven.
 You must put now it in the oven.
 You must put it now in the oven.
 You must put it in now the oven.

You must put it in the now oven.
 You must put it in the oven now.

I got drunk on the airplane. (once)
 Once I got drunk on the airplane.
 I once got drunk on the airplane.
 I got once drunk on the airplane.
 I got drunk once on the airplane.
 I got drunk on once the airplane.
 I got drunk on the once airplane.
 I got drunk on the airplane once.

My close friend is out of work. (temporarily)
 Temporarily my close friend is out of work.
 My temporarily close friend is out of work.
 My close temporarily friend is out of work.
 My close friend temporarily is out of work.
 My close friend is temporarily out of work.
 My close friend is out temporarily of work.
 My close friend is out of temporarily work.
 My close friend is out of work temporarily.

I've been doing all different kinds of things. (lately)
 lately I've been doing all different kinds of things.
 I've lately been doing all different kinds of things.
 I've been lately doing all different kinds of things.
 I've been doing lately all different kinds of things.
 I've been doing all lately different kinds of things.
 I've been doing all different lately kinds of things.
 I've been doing all different kinds lately of things.
 I've been doing all different kinds of lately things.
 I've been doing all different kinds of things lately.

She was unsure of what to do. (momentarily)
 Momentarily she was unsure of what to do.
 She momentarily was unsure of what to do.
 She was momentarily unsure of what to do.
 She was unsure momentarily of what to do.
 She was unsure of momentarily what to do.
 She was unsure of what momentarily to do.
 She was unsure of what to momentarily do.
 She was unsure of what to do momentarily.

Andrea Bocelli became famous. (suddenly)
 Suddenly Andrea Bocelli became famous.
 Andrea suddenly Bocelli became famous.

Andrea Bocelli suddenly became famous.
 Andrea Bocelli became suddenly famous.
 Andrea Bocelli became famous suddenly.

The plane that we were traveling on was flying to Bahamas. (forever)
 Forever the plane that we were traveling on was flying to Bahamas.
 The forever plane that we were traveling on was flying to Bahamas.
 The plane forever that we were traveling on was flying to Bahamas.
 The plane that forever we were traveling on was flying to Bahamas.
 The plane that we forever were traveling on was flying to Bahamas.
 The plane that we were forever traveling on was flying to Bahamas.
 The plane that we were traveling forever on was flying to Bahamas.
 The plane that we were traveling on forever was flying to Bahamas.
 The plane that we were traveling on was forever flying to Bahamas.
 The plane that we were traveling on was flying forever to Bahamas.
 The plane that we were traveling on was flying to forever Bahamas.
 The plane that we were traveling on was flying to Bahamas forever.

I'll be leaving the house. (shortly)
 Shortly I'll be leaving the house.
 I'll shortly be leaving the house.
 I'll be shortly leaving the house.
 I'll be leaving shortly the house.
 I'll be leaving the shortly house.
 I'll be leaving the house shortly.

He became a schoolmaster. (afterwards)
 Afterwards he became a schoolmaster.
 He afterwards became a schoolmaster.
 He became afterwards a schoolmaster.
 He became a afterwards schoolmaster.
 He became a schoolmaster afterwards.

He dines at the same place. (presently)
 Presently he dines at the same place.
 He presently dines at the same place.
 He dines presently at the same place.
 He dines at presently the same place.
 He dines at the presently same place.
 He dines at the same presently place.
 He dines at the same place presently.

We shall know. (soon)
 Soon we shall know.
 We soon shall know.
 We shall soon know.

We shall know soon.

I have trusted your judgment. (ultimately)
 Ultimately I have trusted your judgment.
 I ultimately have trusted your judgment.
 I have ultimately trusted your judgment.
 I have trusted ultimately your judgment.
 I have trusted your ultimately judgment.
 I have trusted your judgment ultimately.

Our meeting was canceled. (never)
 Never our meeting was canceled.
 Our never meeting was canceled.
 Our meeting never was canceled.
 Our meeting was never canceled.

I want you to go home. (instantly)
 Instantly I want you to go home.
 I instantly want you to go home.
 I want instantly you to go home.
 I want you instantly to go home.
 I want you to instantly go home.
 I want you to go instantly home.
 I want you to go home instantly.

I told my friend that I had seen that movie. (before)
 Before I told my friend that I had seen that movie.
 I before told my friend that I had seen that movie.
 I told before my friend that I had seen that movie.
 I told my before friend that I had seen that movie.
 I told my friend before that I had seen that movie.
 I told my friend that before I had seen that movie.
 I told my friend that I before had seen that movie.
 I told my friend that I had before seen that movie.
 I told my friend that I had seen before that movie.
 I told my friend that I had seen that before movie.
 I told my friend that I had seen that movie before.

I don't even know what to think about that. (today)
 Today I don't even know what to think about that.
 I today don't even know what to think about that.
 I don't today even know what to think about that.
 I don't even today know what to think about that.
 I don't even know today what to think about that.
 I don't even know what today to think about that.
 I don't even know what to today think about that.

I don't even know what to think today about that.
 I don't even know what to think about today that.
 I don't even know what to think about that today.

(Time) Frequency

His answers were wrong. (generally)
 Generally his answers were wrong.
 His generally answers were wrong.
 His answers generally were wrong.
 His answers were generally wrong.
 His answers were wrong generally.

His motives were questioned. (frequently)
 Frequently his motives were questioned.
 His frequently motives were questioned.
 His motives frequently were questioned.
 His motives were frequently questioned.
 His motives were questioned frequently.

Children hate the spinach. (always)
 Always children hate the spinach.
 Children always hate the spinach.
 Children hate always the spinach.
 Children hate the always spinach.
 Children hate the spinach always.

The paper comes. (daily)
 Daily the paper comes.
 The daily paper comes.
 The paper daily comes.
 The paper comes daily.

He has altered a good deal. (lately)
 Lately he has altered a good deal.
 He lately has altered a good deal.
 He has lately altered a good deal.
 He has altered lately a good deal.
 He has altered a lately good deal.
 He has altered a good lately deal.
 He has altered a good deal lately.

I see him at the theater. (often)
 Often I see him at the theater.
 I often see him at the theater.

I see often him at the theater.
 I see him often at the theater.
 I see him at often the theater.
 I see him at the often theater.
 I see him at the theater often.

He eats at the same restaurant. (constantly)
 Constantly he eats at the same restaurant.
 He constantly eats at the same restaurant.
 He eats constantly at the same restaurant.
 He eats at constantly the same restaurant.
 He eats at the constantly same restaurant.
 He eats at the same constantly restaurant.
 He eats at the same restaurant constantly.

He annoys me with the same question. (continuously)
 Continuously he annoys me with the same question.
 He continuously annoys me with the same question.
 He annoys continuously me with the same question.
 He annoys me continuously with the same question.
 He annoys me with continuously the same question.
 He annoys me with the continuously same question.
 He annoys me with the same continuously question.
 He annoys me with the same question continuously.

I take vitamins. (infrequently)
 Infrequently I take vitamins.
 I infrequently take vitamins.
 I take infrequently vitamins.
 I take vitamins infrequently.

I travel to different cities by bus. (occasionally)
 Occasionally I travel to different cities by bus.
 I occasionally travel to different cities by bus.
 I travel occasionally to different cities by bus.
 I travel to occasionally different cities by bus.
 I travel to different occasionally cities by bus.
 I travel to different cities occasionally by bus.
 I travel to different cities by occasionally bus.
 I travel to different cities by bus occasionally.

I don't really know what to say. (sometimes)
 Sometimes I don't really know what to say.
 I sometimes don't really know what to say.
 I don't sometimes really know what to say.
 I don't really sometimes know what to say.

I don't really know sometimes what to say.
 I don't really know what sometimes to say.
 I don't really know what to sometimes say.
 I don't really know what to say sometimes.

Marry eats three times a day. (usually)
 Usually Marry eats three times a day.
 Marry usually eats three times a day.
 Marry eats usually three times a day.
 Marry eats three usually times a day.
 Marry eats three times usually a day.
 Marry eats three times a usually day.
 Marry eats three times a day usually.

John and Chris go for a run in the park near their house. (normally)
 Normally John and Chris go for a run in the park near their house.
 John normally and Chris go for a run in the park near their house.
 John and normally Chris go for a run in the park near their house.
 John and Chris normally go for a run in the park near their house.
 John and Chris go f normally or a run in the park near their house.
 John and Chris go for normally a run in the park near their house.
 John and Chris go for a normally run in the park near their house.
 John and Chris go for a run normally in the park near their house.
 John and Chris go for a run in normally the park near their house.
 John and Chris go for a run in the normally park near their house.
 John and Chris go for a run in the park normally near their house.
 John and Chris go for a run in the park near normally their house.
 John and Chris go for a run in the park near their normally house.
 John and Chris go for a run in the park near their house normally.

Most of the companies do their financial reports. (annually)
 Annually most of the companies do their financial reports.
 Most annually of the companies do their financial reports.
 Most of annually the companies do their financial reports.
 Most of the annually companies do their financial reports.
 Most of the companies annually do their financial reports.
 Most of the companies do annually their financial reports.
 Most of the companies do their annually financial reports.
 Most of the companies do their financial annually reports.
 Most of the companies do their financial reports annually.

The little child was asking the same question. (repeatedly)
 Repeatedly the little child was asking the same question.
 The repeatedly little child was asking the same question.
 The little repeatedly child was asking the same question.
 The little child repeatedly was asking the same question.

The little child was repeatedly asking the same question.
 The little child was asking repeatedly the same question.
 The little child was asking the repeatedly same question.
 The little child was asking the same repeatedly question.
 The little child was asking the same question repeatedly.

My mother writes letters to our relatives overseas. (seldom)
 Seldom my mother writes letters to our relatives overseas.
 My seldom mother writes letters to our relatives overseas.
 My mother seldom writes letters to our relatives overseas.
 My mother writes seldom letters to our relatives overseas.
 My mother writes letters seldom to our relatives overseas.
 My mother writes letters to seldom our relatives overseas.
 My mother writes letters to our seldom relatives overseas.
 My mother writes letters to our relatives seldom overseas.
 My mother writes letters to our relatives overseas seldom.

I go to the gym to work out. (regularly)
 Regularly I go to the gym to work out.
 I regularly go to the gym to work out.
 I go regularly to the gym to work out.
 I go to regularly the gym to work out.
 I go to the regularly gym to work out.
 I go to the gym regularly to work out.
 I go to the gym to regularly work out.
 I go to the gym to work regularly out.
 I go to the gym to work out regularly.

Marina uses her roller-blades for which she paid so much money. (rarely)
 Rarely Marina uses her roller-blades for which she paid so much money.
 Marina rarely uses her roller-blades for which she paid so much money.
 Marina uses rarely her roller-blades for which she paid so much money.
 Marina uses her rarely roller-blades for which she paid so much money.
 Marina uses her roller-blades rarely for which she paid so much money.
 Marina uses her roller-blades for rarely which she paid so much money.
 Marina uses her roller-blades for which rarely she paid so much money.
 Marina uses her roller-blades for which she rarely paid so much money.
 Marina uses her roller-blades for which she paid rarely so much money.
 Marina uses her roller-blades for which she paid so rarely much money.
 Marina uses her roller-blades for which she paid so much rarely money.
 Marina uses her roller-blades for which she paid so much money rarely.

Our boss talks about giving us big raises. (periodically)
 Periodically our boss talks about giving us big raises.
 Our periodically boss talks about giving us big raises.
 Our boss periodically talks about giving us big raises.

Our boss talks periodically about giving us big raises.
 Our boss talks about periodically giving us big raises.
 Our boss talks about giving periodically us big raises.
 Our boss talks about giving us periodically big raises.
 Our boss talks about giving us big periodically raises.
 Our boss talks about giving us big raises periodically.

I've been there in my entire lifetime. (twice)
 Twice I've been there in my entire lifetime.
 I've twice been there in my entire lifetime.
 I've been twice there in my entire lifetime.
 I've been there twice in my entire lifetime.
 I've been there in twice my entire lifetime.
 I've been there in my twice entire lifetime.
 I've been there in my entire twice lifetime.
 I've been there in my entire lifetime twice.

(Manner) Action oriented

I read the letter. (carefully)
 Carefully I read the letter.
 I carefully read the letter.
 I read carefully the letter.
 I read the carefully letter.
 I read the letter carefully.

I went away. (quietly)
 Quietly I went away.
 I quietly went away.
 I went quietly away.
 I went away quietly.

John drove to the airport. (speedily)
 Speedily John drove to the airport.
 John speedily drove to the airport.
 John drove speedily to the airport.
 John drove to speedily the airport.
 John drove to the speedily airport.
 John drove to the airport speedily.

He drank the wine. (quickly)
 Quickly he drank the wine.
 He quickly drank the wine.
 He drank quickly the wine.

He drank the quickly wine.
He drank the wine quickly.

They brought the refrigerator into the room. (slowly)
Slowly they brought the refrigerator into the room.
They slowly brought the refrigerator into the room.
They brought slowly the refrigerator into the room.
They brought the slowly refrigerator into the room.
They brought the refrigerator slowly into the room.
They brought the refrigerator into slowly the room.
They brought the refrigerator into the slowly room.
They brought the refrigerator into the room slowly.

John worked in his yard. (carelessly)
Carelessly John worked in his yard.
John carelessly worked in his yard.
John worked carelessly in his yard.
John worked in carelessly his yard.
John worked in his carelessly yard.
John worked in his yard carelessly.

Henry lifted the lid. (clumsily)
Clumsily Henry lifted the lid.
Henry clumsily lifted the lid.
Henry lifted clumsily the lid.
Henry lifted the clumsily lid.
Henry lifted the lid clumsily.

The wood was burning. (quickly)
Quickly the wood was burning.
The quickly wood was burning.
The wood quickly was burning.
The wood was quickly burning.
The wood was burning quickly.

She teaches her class. (practically)
Practically she teaches her class.
She practically teaches her class.
She teaches practically her class.
She teaches her practically class.
She teaches her class practically.

Betsy is making the flag. (rapidly)
Rapidly Betsy is making the flag.
Betsy rapidly is making the flag.
Betsy is rapidly making the flag.

Betsy is making rapidly the flag.
 Betsy is making the rapidly flag.
 Betsy is making the flag rapidly.

John is flooding down the river. (swiftly)
 Swiftly John is flooding down the river.
 John swiftly is flooding down the river.
 John is swiftly flooding down the river.
 John is flooding swiftly down the river.
 John is flooding down swiftly the river.
 John is flooding down the swiftly river.
 John is flooding down the river swiftly.

He answered the question and sat down. (sharply)
 Sharply he answered the question and sat down.
 He sharply answered the question and sat down.
 He answered sharply the question and sat down.
 He answered the sharply question and sat down.
 He answered the question sharply and sat down.
 He answered the question and sharply sat down.
 He answered the question and sat sharply down.
 He answered the question and sat down sharply.

John fielded the grounder. (skillfully)
 Skillfully John fielded the grounder.
 John skillfully fielded the grounder.
 John fielded skillfully the grounder.
 John fielded the skillfully grounder.
 John fielded the grounder skillfully.

John began clapping suddenly understanding the point. (loudly)
 Loudly John began clapping suddenly understanding the point.
 John loudly began clapping suddenly understanding the point.
 John began loudly clapping suddenly understanding the point.
 John began clapping loudly suddenly understanding the point.
 John began clapping suddenly loudly understanding the point.
 John began clapping suddenly understanding loudly the point.
 John began clapping suddenly understanding the loudly point.
 John began clapping suddenly understanding the point loudly.

Mary designed her room. (perfectly)
 Perfectly Mary designed her room.
 Mary perfectly designed her room.
 Mary designed perfectly her room.
 Mary designed her perfectly room.
 Mary designed her room perfectly.

John discussed the proposal. (punctually)
 Punctually John discussed the proposal.
 John punctually discussed the proposal.
 John discussed punctually the proposal.
 John discussed the punctually proposal.
 John discussed the proposal punctually.

Mary had destroyed the evidence. (quickly)
 Quickly Mary had destroyed the evidence.
 Mary quickly had destroyed the evidence.
 Mary had quickly destroyed the evidence.
 Mary had destroyed quickly the evidence.
 Mary had destroyed the quickly evidence.
 Mary had destroyed the evidence quickly.

Susan and John entered the room. (quietly)
 Quietly Susan and John entered the room.
 Susan quietly and John entered the room.
 Susan and quietly John entered the room.
 Susan and John quietly entered the room.
 Susan and John entered quietly the room.
 Susan and John entered the quietly room.
 Susan and John entered the room quietly.

Marina and Ana know that Melissa sings. (beautifully)
 Beautifully Marina and Ana know that Melissa sings.
 Marina beautifully and Ana know that Melissa sings.
 Marina and beautifully Ana know that Melissa sings.
 Marina and Ana beautifully know that Melissa sings.
 Marina and Ana know beautifully that Melissa sings.
 Marina and Ana know that beautifully Melissa sings.
 Marina and Ana know that Melissa beautifully sings.
 Marina and Ana know that Melissa sings beautifully.

The man walked down the road. (lazily)
 Lazily the man walked down the road.
 The lazily man walked down the road.
 The man lazily walked down the road.
 The man walked lazily down the road.
 The man walked down lazily the road.
 The man walked down the lazily road.
 The man walked down the road lazily.

(Manner) Mental state

I acceded to his request. (gladly)
 Gladly I acceded to his request.
 I gladly acceded to his request.
 I acceded gladly to his request.
 I acceded to gladly his request.
 I acceded to his gladly request.
 I acceded to his request gladly.

He became a schoolmaster. (deliberately)
 Deliberately he became a schoolmaster.
 He deliberately became a schoolmaster.
 He became deliberately a schoolmaster.
 He became a deliberately schoolmaster.
 He became a schoolmaster deliberately.

Maria wishes to forget her past. (desperately)
 Desperately Maria wishes to forget her past.
 Maria desperately wishes to forget her past.
 Maria wishes desperately to forget her past.
 Maria wishes to desperately forget her past.
 Maria wishes to forget desperately her past.
 Maria wishes to forget her desperately past.
 Maria wishes to forget her past desperately.

I have listened to your judgment. (politely)
 Politely I have listened to your judgment.
 I politely have listened to your judgment.
 I have politely listened to your judgment.
 I have listened politely to your judgment.
 I have listened to politely your judgment.
 I have listened to your politely judgment.
 I have listened to your judgment politely.

John had discovered his mistake. (patiently)
 Patiently John had discovered his mistake.
 John patiently had discovered his mistake.
 John had patiently discovered his mistake.
 John had discovered patiently his mistake.
 John had discovered his patiently mistake.
 John had discovered his mistake patiently.

The child would ask for the permission of his mother. (calmly)
 Calmly the child would ask for the permission of his mother.
 The calmly child would ask for the permission of his mother.

The child calmly would ask for the permission of his mother.
 The child would calmly ask for the permission of his mother.
 The child would ask calmly for the permission of his mother.
 The child would ask for calmly the permission of his mother.
 The child would ask for the calmly permission of his mother.
 The child would ask for the permission calmly of his mother.
 The child would ask for the permission of calmly his mother.
 The child would ask for the permission of his calmly mother.
 The child would ask for the permission of his mother calmly.

Our manager was trying to fix his mistakes. (cleverly)
 Cleverly our manager was trying to fix his mistakes.
 Our cleverly manager was trying to fix his mistakes.
 Our manager cleverly was trying to fix his mistakes.
 Our manager was cleverly trying to fix his mistakes.
 Our manager was trying cleverly to fix his mistakes.
 Our manager was trying to cleverly fix his mistakes.
 Our manager was trying to fix cleverly his mistakes.
 Our manager was trying to fix his cleverly mistakes.
 Our manager was trying to fix his mistakes cleverly.

Stepmother would look at Cinderella. (angrily)
 Angrily Stepmother would look at Cinderella.
 Step angrily mother would look at Cinderella.
 Stepmother angrily would look at Cinderella.
 Stepmother would angrily look at Cinderella.
 Stepmother would look angrily at Cinderella.
 Stepmother would look at angrily Cinderella.
 Stepmother would look at Cinderella angrily.

She was analyzing every job opportunity. (carefully)
 Carefully she was analyzing every job opportunity.
 She carefully was analyzing every job opportunity.
 She was carefully analyzing every job opportunity.
 She was analyzing carefully every job opportunity.
 She was analyzing every carefully job opportunity.
 She was analyzing every job carefully opportunity.
 She was analyzing every job opportunity carefully.

Our maid always cleans the house. (sadly)
 Sadly our maid always cleans the house.
 Our sadly maid always cleans the house.
 Our maid sadly always cleans the house.
 Our maid always sadly cleans the house.
 Our maid always cleans sadly the house.
 Our maid always cleans the sadly house.

Our maid always cleans the house sadly.

He was walking down the dark street. (fearfully)
 Fearfully He was walking down the dark street.
 He fearfully was walking down the dark street.
 He was fearfully walking down the dark street.
 He was walking fearfully down the dark street.
 He was walking down fearfully the dark street.
 He was walking down the fearfully dark street.
 He was walking down the dark fearfully street.
 He was walking down the dark street fearfully.

Ana's boyfriend is hurting her. (intentionally)
 Intentionally Ana's boyfriend is hurting her.
 Ana's intentionally boyfriend is hurting her.
 Ana's boyfriend intentionally is hurting her.
 Ana's boyfriend is intentionally hurting her.
 Ana's boyfriend is hurting intentionally her.
 Ana's boyfriend is hurting her intentionally.

The dean was talking about our university. (proudly)
 Proudly the dean was talking about our university.
 The proudly dean was talking about our university.
 The dean proudly was talking about our university.
 The dean was proudly talking about our university.
 The dean was talking proudly about our university.
 The dean was talking about proudly our university.
 The dean was talking about our proudly university.
 The dean was talking about our university proudly.

Little Johnny was asking for more chocolate. (stubbornly)
 Stubbornly little Johnny was asking for more chocolate.
 Little stubbornly Johnny was asking for more chocolate.
 Little Johnny stubbornly was asking for more chocolate.
 Little Johnny was stubbornly asking for more chocolate.
 Little Johnny was asking stubbornly for more chocolate.
 Little Johnny was asking for stubbornly more chocolate.
 Little Johnny was asking for more stubbornly chocolate.
 Little Johnny was asking for more chocolate stubbornly.

He was saving his money. (wisely)
 Wisely he was saving his money.
 He wisely was saving his money.
 He was wisely saving his money.
 He was saving wisely his money.
 He was saving his wisely money.

He was saving his money wisely.

Grandmother was looking at her sick sister. (worriedly)
 Worriedly Grandmother was looking at her sick sister.
 Grandmother worriedly was looking at her sick sister.
 Grandmother was worriedly looking at her sick sister.
 Grandmother was looking worriedly at her sick sister.
 Grandmother was looking at worriedly her sick sister.
 Grandmother was looking at her worriedly sick sister.
 Grandmother was looking at her sick worriedly sister.
 Grandmother was looking at her sick sister worriedly.

Cindy asked for cup of coffee. (proudly)
 Proudly Cindy asked for cup of coffee.
 Cindy proudly asked for cup of coffee.
 Cindy asked proudly for cup of coffee.
 Cindy asked for proudly cup of coffee.
 Cindy asked for cup proudly of coffee.
 Cindy asked for cup of proudly coffee.
 Cindy asked for cup of coffee proudly.

All the stolen goods were hidden somewhere in the house. (cleverly)
 Cleverly all the stolen goods were hidden somewhere in the house.
 All cleverly the stolen goods were hidden somewhere in the house.
 All the cleverly stolen goods were hidden somewhere in the house.
 All the stolen cleverly goods were hidden somewhere in the house.
 All the stolen goods cleverly were hidden somewhere in the house.
 All the stolen goods were cleverly hidden somewhere in the house.
 All the stolen goods were hidden cleverly somewhere in the house.
 All the stolen goods were hidden somewhere cleverly in the house.
 All the stolen goods were hidden somewhere in cleverly the house.
 All the stolen goods were hidden somewhere in the cleverly house.
 All the stolen goods were hidden somewhere in the house cleverly.

John would accept any one of Ana's suggestions. (foolishly)
 Foolishly John would accept any one of Ana's suggestions.
 John foolishly would accept any one of Ana's suggestions.
 John would foolishly accept any one of Ana's suggestions.
 John would accept foolishly any one of Ana's suggestions.
 John would accept any foolishly one of Ana's suggestions.
 John would accept any one foolishly of Ana's suggestions.
 John would accept any one of foolishly Ana's suggestions.
 John would accept any one of Ana's foolishly suggestions.
 John would accept any one of Ana's suggestions foolishly.

He was playing with his pen. (anxiously)
 Anxiously he was playing with his pen.
 He anxiously was playing with his pen.
 He was anxiously playing with his pen.
 He was playing anxiously with his pen.
 He was playing with anxiously his pen.
 He was playing with his anxiously pen.
 He was playing with his pen anxiously.

Assertion

Even the Chinese helped to solve the crisis. (possibly)
 Possibly even the Chinese helped to solve the crisis.
 Even possibly the Chinese helped to solve the crisis.
 Even the possibly Chinese helped to solve the crisis.
 Even the Chinese possibly helped to solve the crisis.
 Even the Chinese helped possibly to solve the crisis.
 Even the Chinese helped to possibly solve the crisis.
 Even the Chinese helped to solve possibly the crisis.
 Even the Chinese helped to solve the possibly crisis.
 Even the Chinese helped to solve the crisis possibly.

Your uncle arrived yesterday. (positively)
 Positively your uncle arrived yesterday.
 Your positively uncle arrived yesterday.
 Your uncle positively arrived yesterday.
 Your uncle arrived positively yesterday.
 Your uncle arrived yesterday positively.

He decided to leave. (perhaps)
 Perhaps he decided to leave.
 He perhaps decided to leave.
 He decided perhaps to leave.
 He decided to perhaps leave.
 He decided to leave perhaps.

I don't think that you'll make it. (surely)
 surely I don't think that you'll make it.
 I surely don't think that you'll make it.
 I don't surely think that you'll make it.
 I don't think surely that you'll make it.
 I don't think that surely you'll make it.
 I don't think that you'll surely make it.
 I don't think that you'll make surely it.
 I don't think that you'll make it surely.

There's no money left. (undoubtedly)
 Undoubtedly there's no money left.
 There's undoubtedly no money left.
 There's no undoubtedly money left.
 There's no money undoubtedly left.
 There's no money left undoubtedly t.

This is true. (certainly)
 Certainly this is true.
 This certainly is true.
 This is certainly true.
 This is true certainly.

I believe that this fugitive is not guilty. (truly)
 Truly I believe that this fugitive is not guilty.
 I truly believe that this fugitive is not guilty.
 I believe truly that this fugitive is not guilty.
 I believe that truly this fugitive is not guilty.
 I believe that this truly fugitive is not guilty.
 I believe that this fugitive truly is not guilty.
 I believe that this fugitive is truly not guilty.
 I believe that this fugitive is not truly guilty.
 I believe that this fugitive is not guilty truly.

This is the best time of my life. (unquestionably)
 Unquestionably this is the best time of my life.
 This unquestionably is the best time of my life.
 This is unquestionably the best time of my life.
 This is the unquestionably best time of my life.
 This is the best unquestionably time of my life.
 This is the best time unquestionably of my life.
 This is the best time of unquestionably my life.
 This is the best time of my unquestionably life.
 This is the best time of my life unquestionably.

Mary was very sad about the loss of her brother. (indeed)
 Indeed Mary was very sad about the loss of her brother.
 Mary indeed was very sad about the loss of her brother.
 Mary was indeed very sad about the loss of her brother.
 Mary was very indeed sad about the loss of her brother.
 Mary was very sad a indeed bout the loss of her brother.
 Mary was very sad about indeed the loss of her brother.
 Mary was very sad about the indeed loss of her brother.
 Mary was very sad about the loss indeed of her brother.
 Mary was very sad about the loss of indeed her brother.

Mary was very sad about the loss of her indeed brother.
 Mary was very sad about the loss of her brother indeed.

This deal is the best that one can get. (evidently)
 Evidently this deal is the best that one can get.
 This evidently deal is the best that one can get.
 This deal evidently is the best that one can get.
 This deal is evidently the best that one can get.
 This deal is the evidently best that one can get.
 This deal is the best evidently that one can get.
 This deal is the best that evidently one can get.
 This deal is the best that one evidently can get.
 This deal is the best that one can evidently get.
 This deal is the best that one can get evidently.

I did not kick him. (definitely)
 Definitely I did not kick him.
 I definitely did not kick him.
 I did definitely not kick him.
 I did not definitely kick him.
 I did not kick definitely him.
 I did not kick him definitely.

He always spoke. (doubtless)
 Doubtless he always spoke.
 He doubtless always spoke.
 He always doubtless spoke.
 He always spoke doubtless.

He was a rebel. (clearly)
 Clearly he was a rebel.
 He clearly was a rebel.
 He was clearly a rebel.
 He was a clearly rebel.
 He was a rebel clearly.

The writers will believe the boy. (maybe)
 Maybe the writers will believe the boy.
 The maybe writers will believe the boy.
 The writers maybe will believe the boy.
 The writers will maybe believe the boy.
 The writers will believe maybe the boy.
 The writers will believe the maybe boy.
 The writers will believe the boy maybe.

This is one of the best workers that we had ever had. (unmistakably)
 Unmistakably this is one of the best workers that we had ever had.
 This unmistakably is one of the best workers that we had ever had.
 This is unmistakably one of the best workers that we had ever had.
 This is one unmistakably of the best workers that we had ever had.
 This is one of unmistakably the best workers that we had ever had.
 This is one of the unmistakably best workers that we had ever had.
 This is one of the best unmistakably workers that we had ever had.
 This is one of the best workers unmistakably that we had ever had.
 This is one of the best workers that unmistakably we had ever had.
 This is one of the best workers that we unmistakably had ever had.
 This is one of the best workers that we had unmistakably ever had.
 This is one of the best workers that we had ever unmistakably had.
 This is one of the best workers that we had ever had unmistakably.

She is still very angry with you. (doubtlessly)
 Doubtlessly she is still very angry with you.
 She doubtlessly is still very angry with you.
 She is doubtlessly still very angry with you.
 She is still doubtlessly very angry with you.
 She is still very doubtlessly angry with you.
 She is still very angry doubtlessly with you.
 She is still very angry with doubtlessly you.
 She is still very angry with you doubtlessly.

John has been working on this project for couple of years now. (indubitably)
 Indubitably John has been working on this project for couple of years now.
 John indubitably has been working on this project for couple of years now.
 John has indubitably been working on this project for couple of years now.
 John has been indubitably working on this project for couple of years now.
 John has been working indubitably on this project for couple of years now.
 John has been working on indubitably this project for couple of years now.
 John has been working on this indubitably project for couple of years now.
 John has been working on this project indubitably for couple of years now.
 John has been working on this project for indubitably couple of years now.
 John has been working on this project for couple indubitably of years now.
 John has been working on this project for couple of indubitably years now.
 John has been working on this project for couple of years indubitably now.
 John has been working on this project for couple of years now indubitably.

You will know what to do once you arrive there. (assuredly)
 Assuredly you will know what to do once you arrive there.
 You assuredly will know what to do once you arrive there.
 You will assuredly know what to do once you arrive there.
 You will know assuredly what to do once you arrive there.
 You will know what assuredly to do once you arrive there.

You will know what to assuredly do once you arrive there.
 You will know what to do assuredly once you arrive there.
 You will know what to do once assuredly you arrive there.
 You will know what to do once you assuredly arrive there.
 You will know what to do once you arrive assuredly there.

Tony is the best athlete in our school. (absolutely)
 Absolutely Tony is the best athlete in our school.
 Tony absolutely is the best athlete in our school.
 Tony is absolutely the best athlete in our school.
 Tony is the absolutely best athlete in our school.
 Tony is the best absolutely athlete in our school.
 Tony is the best athlete absolutely in our school.
 Tony is the best athlete in absolutely our school.
 Tony is the best athlete in our absolutely school.
 Tony is the best athlete in our school absolutely.

You are not sure about what to do next. (obviously)
 Obviously you are not sure about what to do next
 You obviously are not sure about what to do next.
 You are obviously not sure about what to do next.
 You are not obviously sure about what to do next.
 You are not sure obviously about what to do next.
 You are not sure about obviously what to do next.
 You are not sure about what obviously to do next.
 You are not sure about what to obviously do next.
 You are not sure about what to do obviously next.
 You are not sure about what to do next obviously.

Quantity/Degree

I agree with your suggestions. (greatly)
 Greatly I agree with your suggestions.
 I greatly agree with your suggestions.
 I agree greatly with your suggestions.
 I agree with greatly your suggestions.
 I agree with your greatly suggestions.
 I agree with your suggestions greatly.

I remember something of the kind. (partially)
 Partially I remember something of the kind.
 I partially remember something of the kind.
 I remember partially something of the kind.
 I remember something partially of the kind.
 I remember something of partially the kind.
 I remember something of the partially kind.

I remember something of the kind partially.

I was delighted. (truly)
 Truly I was delighted.
 I truly was delighted.
 I was truly delighted.
 I was delighted truly.

It is hot. (oppressively)
 Oppressively it is hot.
 It oppressively is hot.
 It is oppressively hot.
 It is hot oppressively.

Our suggestion is absurd. (least)
 Least our suggestion is absurd.
 Our least suggestion is absurd.
 Our suggestion least is absurd.
 Our suggestion is least absurd.
 Our suggestion is absurd least.

She refused to have anything to do with me. (almost)
 Almost she refused to have anything to do with me.
 She almost refused to have anything to do with me.
 She refused almost to have anything to do with me.
 She refused to almost have anything to do with me.
 She refused to have almost anything to do with me.
 She refused to have anything almost to do with me.
 She refused to have anything to almost do with me.
 She refused to have anything to do almost with me.
 She refused to have anything to do with almost me.
 She refused to have anything to do with me almost.

She was angry. (very)
 Very she was angry.
 She very was angry.
 She was very angry.
 She was angry very.

She is young. (remarkably)
 Remarkably she is young.
 She remarkably is young.
 She is remarkably young.
 She is young remarkably.

This has a biter taste. (sufficiently)
 Sufficiently this has a biter taste.
 This sufficiently has a biter taste.
 This has sufficiently a biter taste.
 This has a sufficiently biter taste.
 This has a biter sufficiently taste.
 This has a biter taste sufficiently.

This solution is simple. (quite)
 Quite this solution is simple.
 This quite solution is simple.
 This solution quite is simple.
 This solution is quite simple.
 This solution is simple quite.

Your initiative is important. (most)
 Most your initiative is important.
 Your most initiative is important.
 Your initiative most is important.
 Your initiative is most important.
 Your initiative is important most.

Your sister missed getting run over. (just)
 Just your sister missed getting run over.
 Your just sister missed getting run over.
 Your sister just missed getting run over.
 Your sister missed just getting run over.
 Your sister missed getting just run over.
 Your sister missed getting run just over.
 Your sister missed getting run over just.

He had finished his dinner when the quests arrived. (hardly)
 Hardly he had finished his dinner when the quests arrived.
 He hardly had finished his dinner when the quests arrived.
 He had hardly finished his dinner when the quests arrived.
 He had finished hardly his dinner when the quests arrived.
 He had finished his hardly dinner when the quests arrived.
 He had finished his dinner hardly when the quests arrived.
 He had finished his dinner when hardly the quests arrived.
 He had finished his dinner when the hardly quests arrived.
 He had finished his dinner when the quests hardly arrived.
 He had finished his dinner when the quests arrived hardly.

He is ridiculous. (completely)
 Completely he is ridiculous.
 He completely is ridiculous.

He is completely ridiculous.
He is ridiculous completely.

His article is readable. (barely)
Barely his article is readable.
His barely article is readable.
His article barely is readable.
His article is barely readable.
His article is readable barely.

It is a difficult task. (excessively)
Excessively It is an difficult task.
It excessively is a difficult task.
It is excessively a difficult task.
It is an excessively difficult task.
It is a difficult excessively task.
It is a difficult task excessively.

The journal is an available document. (barely)
Barely the journal is an available document.
The barely journal is an available document.
The journal barely is an available document.
The journal is barely an available document.
The journal is a barely available document.
The journal is an available barely document.
The journal is an available document barely.

The jury is convinced. (slightly)
Slightly the jury is convinced.
The slightly jury is convinced.
The jury slightly is convinced.
The jury is slightly convinced.
The jury is convinced slightly.

This task is difficult. (equally)
Equally this task is difficult.
This equally task is difficult.
This task equally is difficult.
This task is equally difficult.
This task is difficult equally.

This point was important. (crucially)
Crucially this point was important.
This crucially point was important.
This point crucially was important.
This point was crucially important.

This point was important crucially.

Domain

That term is not acceptable. (politically)

Politically that term is not acceptable.

That politically term is not acceptable.

That term politically is not acceptable.

That term is politically not acceptable.

That term is not politically acceptable.

That term is not acceptable politically.

Tomato is a fruit. (botanically)

Botanically tomato is a fruit.

Tomato botanically is a fruit.

Tomato is botanically a fruit.

Tomato is a botanically fruit.

Tomato is a fruit botanically.

This area is considered to be very big. (geographically)

Geographically this area is considered to be very big.

This geographically area is considered to be very big.

This area geographically is considered to be very big.

This area is geographically considered to be very big.

This area is considered geographically to be very big.

This area is considered to geographically be very big.

This area is considered to be geographically very big.

This area is considered to be very geographically big.

This area is considered to be very big geographically.

That sentence is incorrect. (grammatically)

Grammatically that sentence is incorrect.

That grammatically sentence is incorrect.

That sentence grammatically is incorrect.

That sentence is grammatically incorrect.

That sentence is incorrect grammatically.

Pollution is considered to be a very big problem. (globally)

Globally pollution is considered to be a very big problem.

Pollution globally is considered to be a very big problem.

Pollution is globally considered to be a very big problem.

Pollution is considered globally to be a very big problem.

Pollution is considered to globally be a very big problem.

Pollution is considered to be globally a very big problem.

Pollution is considered to be a globally very big problem.

Pollution is considered to be a very globally big problem.
 Pollution is considered to be a very big globally problem.
 Pollution is considered to be a very big problem globally.

That fact has not been proven. (historically)
 Historically that fact has not been proven.
 That historically fact has not been proven.
 That fact historically has not been proven.
 That fact has historically not been proven.
 That fact has not historically been proven.
 That fact has not been historically proven.
 That fact has not been proven historically.

He is almost perfect. (muscularly)
 Muscularly he is almost perfect.
 He muscularly is almost perfect.
 He is muscularly almost perfect.
 He is almost muscularly perfect.
 He is almost perfect muscularly.

The problem is unsolvable. (technically)
 Technically the problem is unsolvable.
 The technically problem is unsolvable.
 The problem technically is unsolvable.
 The problem is technically unsolvable.
 The problem is unsolvable technically.

This is a improbable outcome. (statistically)
 Statistically this is an improbable outcome.
 This statistically is an improbable outcome.
 This is statistically an improbable outcome.
 This is a statistically improbable outcome.
 This is an improbable statistically outcome.
 This is an improbable outcome statistically.

Your answer does not make much sense. (logically)
 Logically your answer does not make much sense.
 Your logically answer does not make much sense.
 Your answer logically does not make much sense.
 Your answer does logically not make much sense.
 Your answer does not logically make much sense.
 Your answer does not make logically much sense.
 Your answer does not make much logically sense.
 Your answer does not make much sense logically.

The bomb may have failed to explode. (physically)
 Physically the bomb may have failed to explode.
 The physically bomb may have failed to explode.
 The bomb physically may have failed to explode.
 The bomb may physically have failed to explode.
 The bomb may have physically failed to explode.
 The bomb may have failed physically to explode.
 The bomb may have failed to physically explode.
 The bomb may have failed to explode physically.

I don't think that's possible. (scientifically)
 Scientifically I don't think that's possible.
 I scientifically don't think that's possible.
 I don't scientifically think that's possible.
 I don't think scientifically that's possible.
 I don't think that's scientifically possible.
 I don't think that's possible scientifically.

Patients with Aphasia utter sentences that are unpredictable. (syntactically)
 Syntactically patients with Aphasia utter sentences that are unpredictable.
 Patients syntactically with Aphasia utter sentences that are unpredictable.
 Patients with syntactically Aphasia utter sentences that are unpredictable.
 Patients with Aphasia syntactically utter sentences that are unpredictable.
 Patients with Aphasia utter syntactically sentences that are unpredictable.
 Patients with Aphasia utter sentences syntactically that are unpredictable.
 Patients with Aphasia utter sentences that syntactically are unpredictable.
 Patients with Aphasia utter sentences that are syntactically unpredictable.
 Patients with Aphasia utter sentences that are unpredictable syntactically.

He is a very popular singer. (locally)
 Locally he is a very popular singer.
 He locally is a very popular singer.
 He is locally a very popular singer.
 He is a locally very popular singer.
 He is a very locally popular singer.
 He is a very popular locally singer.
 He is a very popular singer locally.

I do not consider this to be one of the acceptable theories. (linguistically)
 Linguistically I do not consider this to be one of the acceptable theories.
 I linguistically do not consider this to be one of the acceptable theories.
 I do linguistically not consider this to be one of the acceptable theories.
 I do not linguistically consider this to be one of the acceptable theories.
 I do not consider linguistically this to be one of the acceptable theories.
 I do not consider this linguistically to be one of the acceptable theories.
 I do not consider this to linguistically be one of the acceptable theories.

I do not consider this to be linguistically one of the acceptable theories.
 I do not consider this to be one linguistically of the acceptable theories.
 I do not consider this to be one of linguistically the acceptable theories.
 I do not consider this to be one of the linguistically acceptable theories.
 I do not consider this to be one of the acceptable linguistically theories.
 I do not consider this to be one of the acceptable theories linguistically.

John never really had good standing. (academically)
 Academically John never really had good standing.
 John academically never really had good standing.
 John never academically really had good standing.
 John never really academically had good standing.
 John never really had academically good standing.
 John never really had good academically standing.
 John never really had good standing academically.

Your teaching approach is not consider to be very good. (pedagogically)
 Pedagogically You're teaching approach is not consider to be very good.
 Your pedagogically teaching approach is not consider to be very good.
 Your teaching pedagogically approach is not consider to be very good.
 Your teaching approach pedagogically is not consider to be very good.
 Your teaching approach is pedagogically not consider to be very good.
 Your teaching approach is not pedagogically consider to be very good.
 Your teaching approach is not consider pedagogically to be very good.
 Your teaching approach is not consider to pedagogically be very good.
 Your teaching approach is not consider to be pedagogically very good.
 Your teaching approach is not consider to be very pedagogically good.
 Your teaching approach is not consider to be very good pedagogically.

I am not talented at all. (musically)
 Musically I am not talented at all.
 I musically am not talented at all.
 I am musically not talented at all.
 I am not musically talented at all.
 I am not talented musically at all.
 I am not talented at musically all.
 I am not talented at all musically.

That is very debatable question. (philosophically)
 Philosophically that is very debatable question.
 That philosophically is very debatable question.
 That is philosophically very debatable question.
 That is very philosophically debatable question.
 That is very debatable philosophically question.
 That is very debatable question philosophically.

In our study we're dealing with people that are very impaired. (psychologically)
 Psychologically in our study we're dealing with people that are very impaired.
 In psychologically our study we're dealing with people that are very impaired.
 In our psychologically study we're dealing with people that are very impaired.
 In our study psychologically we're dealing with people that are very impaired.
 In our study we're psychologically dealing with people that are very impaired.
 In our study we're dealing psychologically with people that are very impaired.
 In our study we're dealing with psychologically people that are very impaired.
 In our study we're dealing with people psychologically that are very impaired.
 In our study we're dealing with people that psychologically are very impaired.
 In our study we're dealing with people that are psychologically very impaired.
 In our study we're dealing with people that are very psychologically impaired.
 In our study we're dealing with people that are very impaired psychologically.

Evaluation

The job is finished. (fortunately)
 Fortunately the job is finished.
 The fortunately job is finished.
 The job fortunately is finished.
 The job is fortunately finished.
 The job is finished fortunately.

They arrived on time. (luckily)
 Luckily they arrived on time.
 They luckily arrived on time.
 They arrived luckily on time.
 They arrived on luckily time.
 They arrived on time luckily.

He altered the facts. (unfortunately)
 Unfortunately he altered the facts.
 He unfortunately altered the facts.
 He altered unfortunately the facts.
 He altered the unfortunately facts.
 He altered the facts unfortunately.

They won't come. (hopefully)
 Hopefully they won't come.
 They hopefully won't come.
 They won't hopefully come.
 They won't come hopefully.

I got the thing open. (oddly)
 Oddly I got the thing open.

I oddly got the thing open.
 I got oddly the thing open.
 I got the oddly thing open.
 I got the thing oddly open.
 I got the thing open oddly.

The scientists managed to find a solution. (peculiarly)
 Peculiarly the scientists managed to find a solution.
 The peculiarly scientists managed to find a solution.
 The scientists peculiarly managed to find a solution.
 The scientists managed peculiarly to find a solution.
 The scientists managed to peculiarly find a solution.
 The scientists managed to find peculiarly a solution.
 The scientists managed to find a peculiarly solution.
 The scientists managed to find a solution peculiarly.

He put some of his money into insurance. (wisely)
 Wisely he put some of his money into insurance.
 He wisely put some of his money into insurance.
 He put wisely some of his money into insurance.
 He put some wisely of his money into insurance.
 He put some of wisely his money into insurance.
 He put some of his wisely money into insurance.
 He put some of his money wisely into insurance.
 He put some of his money into wisely insurance.
 He put some of his money into insurance wisely.

My project will be done by the end of this month. (ideally)
 Ideally my project will be done by the end of this month.
 My ideally project will be done by the end of this month.
 My project ideally will be done by the end of this month.
 My project will ideally be done by the end of this month.
 My project will be ideally done by the end of this month.
 My project will be done ideally by the end of this month.
 My project will be done by ideally the end of this month.
 My project will be done by the ideally end of this month.
 My project will be done by the end ideally of this month.
 My project will be done by the end of ideally this month.
 My project will be done by the end of this ideally month.
 My project will be done by the end of this month ideally.

The two of them got divorced after being married for only couple of months. (strangely)
 Strangely the two of them got divorced after being married for only couple of months.
 The strangely two of them got divorced after being married for only couple of months.
 The two strangely of them got divorced after being married for only couple of months.
 The two of strangely them got divorced after being married for only couple of months.

The two of them strangely got divorced after being married for only couple of months.
 The two of them got strangely divorced after being married for only couple of months.
 The two of them got divorced strangely after being married for only couple of months.
 The two of them got divorced after strangely being married for only couple of months.
 The two of them got divorced after being strangely married for only couple of months.
 The two of them got divorced after being married strangely for only couple of months.
 The two of them got divorced after being married for strangely only couple of months.
 The two of them got divorced after being married for only strangely couple of months.
 The two of them got divorced after being married for only couple strangely of months.
 The two of them got divorced after being married for only couple of strangely months.
 The two of them got divorced after being married for only couple of months strangely.

He followed all the rules while driving in front of the examiner. (properly)
 Properly he followed all the rules while driving in front of the examiner.
 He properly followed all the rules while driving in front of the examiner.
 He followed properly all the rules while driving in front of the examiner.
 He followed all properly the rules while driving in front of the examiner.
 He followed all the properly rules while driving in front of the examiner.
 He followed all the rules properly while driving in front of the examiner.
 He followed all the rules while properly driving in front of the examiner.
 He followed all the rules while driving properly in front of the examiner.
 He followed all the rules while driving in properly front of the examiner.
 He followed all the rules while driving in front properly of the examiner.
 He followed all the rules while driving in front of properly the examiner.
 He followed all the rules while driving in front of the properly examiner.
 He followed all the rules while driving in front of the examiner properly.

Maya answered the question. (brilliantly)
 Brilliantly Maya answered the question.
 Maya brilliantly answered the question.
 Maya answered brilliantly the question.
 Maya answered the brilliantly question.
 Maya answered the question brilliantly.

He entered the minefield even though he was very afraid. (stupidly)
 Stupidly he entered the minefield even though he was very afraid.
 He stupidly entered the minefield even though he was very afraid.
 He entered stupidly the minefield even though he was very afraid.
 He entered the stupidly minefield even though he was very afraid.
 He entered the minefield stupidly even though he was very afraid.
 He entered the minefield even stupidly though he was very afraid.
 He entered the minefield even though stupidly he was very afraid.
 He entered the minefield even though he stupidly was very afraid.
 He entered the minefield even though he was stupidly very afraid.
 He entered the minefield even though he was very stupidly afraid.
 He entered the minefield even though he was very afraid stupidly.

I don't think that you're dressed for this special occasion. (appropriately)
 Appropriately I don't think that you're dressed for this special occasion.
 I appropriately don't think that you're dressed for this special occasion.
 I don't appropriately think that you're dressed for this special occasion.
 I don't think appropriately that you're dressed for this special occasion.
 I don't think that appropriately you're dressed for this special occasion.
 I don't think that you're appropriately dressed for this special occasion.
 I don't think that you're dressed appropriately for this special occasion.
 I don't think that you're dressed for appropriately this special occasion.
 I don't think that you're dressed for this appropriately special occasion.
 I don't think that you're dressed for this special appropriately occasion.
 I don't think that you're dressed for this special occasion appropriately.

I do not have to baby-sit my sister tonight. (happily)
 Happily I do not have to baby-sit my sister tonight.
 I happily do not have to baby-sit my sister tonight.
 I do happily not have to baby-sit my sister tonight.
 I do not happily have to baby-sit my sister tonight.
 I do not have happily to baby-sit my sister tonight.
 I do not have to happily baby-sit my sister tonight.
 I do not have to baby-sit happily my sister tonight.
 I do not have to baby-sit my happily sister tonight.
 I do not have to baby-sit my sister happily tonight.
 I do not have to baby-sit my sister tonight happily.

He approached his boss and asked for the sick leave. (inappropriately)
 Inappropriately he approached his boss and asked for the sick leave.
 He inappropriately approached his boss and asked for the sick leave.
 He approached inappropriately his boss and asked for the sick leave.
 He approached his inappropriately boss and asked for the sick leave.
 He approached his boss inappropriately and asked for the sick leave.
 He approached his boss and inappropriately asked for the sick leave.
 He approached his boss and asked inappropriately for the sick leave.
 He approached his boss and asked for inappropriately the sick leave.
 He approached his boss and asked for the inappropriately sick leave.
 He approached his boss and asked for the sick inappropriately leave.
 He approached his boss and asked for the sick leave inappropriately.

You should not have done that. (regardlessly)
 Regardlessly you should not have done that.
 You regardlessly should not have done that.
 You should regardlessly not have done that.
 You should not regardlessly have done that.
 You should not have regardlessly done that.
 You should not have done regardlessly that.

You should not have done that regardlessly.

The job was done. (terribly)

Terribly the job was done.

The terribly job was done.

The job terribly was done.

The job was terribly done.

The job was done : terribly.

He left his luggage in the locker at the train station. (conveniently)

Conveniently he left his luggage in the locker at the train station.

He conveniently left his luggage in the locker at the train station.

He left conveniently his luggage in the locker at the train station.

He left his conveniently luggage in the locker at the train station.

He left his luggage conveniently in the locker at the train station.

He left his luggage in conveniently the locker at the train station.

He left his luggage in the conveniently locker at the train station.

He left his luggage in the locker conveniently at the train station.

He left his luggage in the locker at conveniently the train station.

He left his luggage in the locker at the conveniently train station.

He left his luggage in the locker at the train conveniently station.

He left his luggage in the locker at the train station conveniently.

The math question that he assigned to his students was answered. (accurately)

Accurately the math question that he assigned to his students was answered.

The accurately math question that he assigned to his students was answered.

The math accurately question that he assigned to his students was answered.

The math question accurately that he assigned to his students was answered.

The math question that accurately he assigned to his students was answered.

The math question that he accurately assigned to his students was answered.

The math question that he assigned accurately to his students was answered.

The math question that he assigned to accurately his students was answered.

The math question that he assigned to his accurately students was answered.

The math question that he assigned to his students accurately was answered.

The math question that he assigned to his students was accurately answered.

The math question that he assigned to his students was answered accurately.

He was accused for something that he had not done. (implausibly)

Implausibly he was accused for something that he had not done.

He implausibly was accused for something that he had not done.

He was implausibly accused for something that he had not done.

He was accused implausibly for something that he had not done.

He was accused for implausibly something that he had not done.

He was accused for something implausibly that he had not done.

He was accused for something that implausibly he had not done.

He was accused for something that he implausibly had not done.

He was accused for something that he had implausibly not done.
He was accused for something that he had not implausibly done.
He was accused for something that he had not done implausibly.

Appendix B2**Test and Questionnaire****Additional Test Sentences**

Group _____
 Subject's Id. No. _____

Task 1:

Please make a judgment call about the grammaticality of the next sentences and circle your confidence level at the confidence scale.

Eg.	Grammaticality		Confidence Scale		
	yes	no	very	somewhat	unsure
Tom went home quietly.					
Ultimately, I have trusted your judgment.					
He eats at the constantly same restaurant.					
I got the thing oddly open.					
He was playing with his pen anxiously.					
That term is not politically acceptable.					
I agree greatly with your suggestion.					
I did not definitely kick him.					
I went quietly away.					
Fred opened clumsily the cupboard.					
Wednesday came, and indeed it was a fine day.					
The jury is slightly convinced.					
Linguistically, that definition has little to offer.					
Politely I have answered your question.					
She did not afterwards know what to do.					
Peter says that he rarely smokes one or two cigarettes.					
He will be here on time, fortunately.					
Luckily, I was able to understand his point.					
I go regularly to the gym to work out.					
I have not been lately myself.					

7	The paper comes. (daily)	_____	very	somewhat	unsure
8	He became a good student. (recently)	_____	very	somewhat	unsure
9	I got through that old town. (eventually)	_____	very	somewhat	unsure
10	He had not been satisfied with this relationship. (completely)	_____	very	somewhat	unsure
11	I go to the park. (always)	_____	very	somewhat	unsure
12	Both of them were very late. (unfortunately)	_____	very	somewhat	unsure
13	I am happy for you. (truly)	_____	very	somewhat	unsure
14	The scientists managed to find a solution. (peculiarly)	_____	very	somewhat	unsure
15	Our meeting was cancelled. (never)	_____	very	somewhat	unsure
16	The pictures that I paint are sold. (often)	_____	very	somewhat	unsure
17	Melissa got up and went outside. (lazily)	_____	very	somewhat	unsure

18	His father was assembling his gun. (skillfully)	<hr/> very	somewhat	unsure
19	Lisa shouted at her son. (angrily)	<hr/> very	somewhat	unsure
20	She is one of our best students. (unquestionably)	<hr/> very	somewhat	unsure
21	John never had good standing. (academically)	<hr/> very	somewhat	unsure
22	I believe that this fugitive is not guilty. (truly)	<hr/> very	somewhat	unsure
23	I have been listening to all your complaints. (carefully)	<hr/> very	somewhat	unsure
24	The car is in a very good shape. (mechanically)	<hr/> very	somewhat	unsure

Group _____
 Subject's Id. No. _____

Task 1:

Please make a judgment call about the grammaticality of the next sentences and circle your confidence level at the confidence scale.

	Grammaticality		Confidence Scale		
	yes	no	very	somewhat	unsure
Wednesday came, and indeed it was a fine day.	yes	no	very	somewhat	unsure
I went quietly away.	yes	no	very	somewhat	unsure
That term is not politically acceptable.	yes	no	very	somewhat	unsure
He will be here on time, fortunately.	yes	no	very	somewhat	unsure
John patiently had discovered his mistake	yes	no	very	somewhat	unsure
Surely, he must be there by this time.	yes	no	very	somewhat	unsure
Ana discussed punctually the proposal.	yes	no	very	somewhat	unsure
Ultimately, I have trusted your judgment.	yes	no	very	somewhat	unsure
The jury is slightly convinced.	yes	no	very	somewhat	unsure
I go regularly to the gym to work out.	yes	no	very	somewhat	unsure
I have not been lately myself.	yes	no	very	somewhat	unsure
This is a geographically very small place.	yes	no	very	somewhat	unsure
I got the thing oddly open.	yes	no	very	somewhat	unsure
I did not definitely kick him.	yes	no	very	somewhat	unsure
She did not afterwards know what to do.	yes	no	very	somewhat	unsure
Luckily, I was able to understand his point.	yes	no	very	somewhat	unsure
He eats at the constantly same restaurant.	yes	no	very	somewhat	unsure
He was playing with his pen anxiously.	yes	no	very	somewhat	unsure
Fred opened clumsily the cupboard.	yes	no	very	somewhat	unsure
Linguistically, that definition has little to offer.	yes	no	very	somewhat	unsure
I agree greatly with your suggestion.	yes	no	very	somewhat	unsure

Peter says that he rarely smokes one or two cigarettes.	yes	no	very	somewhat	unsure
Politely I have answered your question.	yes	no	very	somewhat	unsure
Paul said that he terribly was sorry for what he had done.	yes	no	very	somewhat	unsure

Task 2:

Please rewrite the given sentences by inserting words from parenthesis into them (into the position that you think is grammatically acceptable) and circle your confidence level.

- 1 He became a good student. (recently)
 _____ very somewhat unsure
- 2 Melissa got up and went outside. (lazily)
 _____ very somewhat unsure
- 3 I am happy for you. (truly)
 _____ very somewhat unsure
- 4 His father was assembling his gun. (skillfully)
 _____ very somewhat unsure
- 5 He is very popular singer. (locally)
 _____ very somewhat unsure
- 6 John never had good standing. (academically)
 _____ very somewhat unsure
- 7 The scientists managed to find a solution. (peculiarly)
 _____ very somewhat unsure
- 8 Your uncle arrived yesterday. (positively)
 _____ very somewhat unsure

9	Lisa shouted at her son. (angrily)	_____	very	somewhat	unsure
10	Maria wishes to forget her past. (desperately)	_____	very	somewhat	unsure
11	I got through that old town. (eventually)	_____	very	somewhat	unsure
12	She is one of our best students. (unquestionably)	_____	very	somewhat	unsure
13	I have been listening to all your complaints. (carefully)	_____	very	somewhat	unsure
14	Our meeting was cancelled. (never)	_____	very	somewhat	unsure
15	I believe that this fugitive is not guilty. (truly)	_____	very	somewhat	unsure
16	Mary designed her room. (perfectly)	_____	very	somewhat	unsure
17	The pictures that I paint are sold. (often)	_____	very	somewhat	unsure
18	He had not been satisfied with this relationship. (completely)	_____	very	somewhat	unsure
19	I go to the park. (always)	_____	very	somewhat	unsure

20 I remember something of the kind. (partially)

_____ very somewhat unsure

21 The paper comes. (daily)

_____ very somewhat unsure

22 Both of them were very late. (unfortunately)

_____ very somewhat unsure

23 The car is in a very good shape. (mechanically)

_____ very somewhat unsure

24 They won't come. (hopefully)

_____ very somewhat unsure

Group _____
 Subject's Id. No. _____

Task 1:

Please make a judgment call about the grammaticality of the next sentences and circle your confidence level at the confidence scale.

	Grammaticality		Confidence Scale		
	yes	no	very	somewhat	unsure
John patiently had discovered his mistake	yes	no	very	somewhat	unsure
This is a geographically very small place.	yes	no	very	somewhat	unsure
I got the thing oddly open.	yes	no	very	somewhat	unsure
Ana discussed punctually the proposal.	yes	no	very	somewhat	unsure
That term is not politically acceptable.	yes	no	very	somewhat	unsure
He will be here on time, fortunately.	yes	no	very	somewhat	unsure
Surely, he must be there by this time.	yes	no	very	somewhat	unsure
Wednesday came, and indeed it was a fine day.	yes	no	very	somewhat	unsure
I went quietly away.	yes	no	very	somewhat	unsure
I go regularly to the gym to work out.	yes	no	very	somewhat	unsure
Ultimately, I have trusted your judgment.	yes	no	very	somewhat	unsure
The jury is slightly convinced.	yes	no	very	somewhat	unsure
I have not been lately myself.	yes	no	very	somewhat	unsure
Fred opened clumsily the cupboard.	yes	no	very	somewhat	unsure
Linguistically, that definition has little to offer.	yes	no	very	somewhat	unsure
I agree greatly with your suggestion.	yes	no	very	somewhat	unsure
Politely I have answered your question.	yes	no	very	somewhat	unsure
Paul said that he terribly was sorry for what he had done.	yes	no	very	somewhat	unsure
I did not definitely kick him.	yes	no	very	somewhat	unsure
She did not afterwards know what to do.	yes	no	very	somewhat	unsure
Luckily, I was able to understand his point.	yes	no	very	somewhat	unsure

He eats at the constantly same restaurant.	yes	no	very	somewhat	unsure
He was playing with his pen anxiously.	yes	no	very	somewhat	unsure
Peter says that he rarely smokes one or two cigarettes.	yes	no	very	somewhat	unsure

Task 2:

Please rewrite the given sentences by inserting words from parenthesis into them (into the position that you think is grammatically acceptable) and circle your confidence level.

- 1 I am happy for you. (truly)
_____ very somewhat unsure
- 2 His father was assembling his gun. (skillfully)
_____ very somewhat unsure
- 3 The scientists managed to find a solution. (peculiarly)
_____ very somewhat unsure
- 4 Your uncle arrived yesterday. (positively)
_____ very somewhat unsure
- 5 Lisa shouted at her son. (angrily)
_____ very somewhat unsure
- 6 Maria wishes to forget her past. (desperately)
_____ very somewhat unsure
- 7 I got through that old town. (eventually)
_____ very somewhat unsure

8	She is one of our best students. (unquestionably)	_____	very	somewhat	unsure
9	I have been listening to all your complaints. (carefully)	_____	very	somewhat	unsure
10	Our meeting was cancelled. (never)	_____	very	somewhat	unsure
11	The pictures that I paint are sold. (often)	_____	very	somewhat	unsure
12	He had not been satisfied with this relationship. (completely)	_____	very	somewhat	unsure
13	I go to the park. (always)	_____	very	somewhat	unsure
14	They won't come. (hopefully)	_____	very	somewhat	unsure
15	The car is in a very good shape. (mechanically)	_____	very	somewhat	unsure
16	Both of them were very late. (unfortunately)	_____	very	somewhat	unsure
17	I remember something of the kind. (partially)	_____	very	somewhat	unsure

18	The paper comes. (daily)	<div><div></div></div> very	somewhat	unsure
19	I believe that this fugitive is not guilty. (truly)	<div><div></div></div> very	somewhat	unsure
20	Mary designed her room. (perfectly)	<div><div></div></div> very	somewhat	unsure
21	He became a good student. (recently)	<div><div></div></div> very	somewhat	unsure
22	Melissa got up and went outside. (lazily)	<div><div></div></div> very	somewhat	unsure
23	He is very popular singer. (locally)	<div><div></div></div> very	somewhat	unsure
24	John never had good standing. (academically)	<div><div></div></div> very	somewhat	unsure

Questionnaire

To what extent do each of these items describe you?

0 10
not at all exactly

1 When using the computer to learn about the grammar of English I felt able to work at my own speed:

0 1 2 3 4 5 6 7 8 9 10

2 When using the computer to learn about the grammar of English I was able to easily review material when I needed to:

0 1 2 3 4 5 6 7 8 9 10

3 When using the computer to learn about the grammar of English I was able to focus on material that I felt needed most improvement:

0 1 2 3 4 5 6 7 8 9 10

4 When using the computer to learn about the grammar of English I could work on my grammar at any time and as much as I like.

0 1 2 3 4 5 6 7 8 9 10

5 When using the computer to learn about the grammar of English I could take breaks when necessary to make my learning easier

0 1 2 3 4 5 6 7 8 9 10

6 Do you find that getting corrections helped you improve your learning of grammar?

0 1 2 3 4 5 6 7 8 9 10

- 7 I prefer getting a correction right away rather than waiting for it:
0 1 2 3 4 5 6 7 8 9 10
- 8 I found that getting immediate corrections helps me learn faster:
0 1 2 3 4 5 6 7 8 9 10
- 9 Immediate feedback helps me to instantly realize what my problematic areas are:
0 1 2 3 4 5 6 7 8 9 10
- 10 Immediate feedback helps me focus on my weak points (materials that I had difficulty with):
0 1 2 3 4 5 6 7 8 9 10
- 11 Do you prefer getting your grammatical mistakes pointed out to you?
0 1 2 3 4 5 6 7 8 9 10
- 12 Would you prefer getting corrections from the computer rather than from the teacher?
0 1 2 3 4 5 6 7 8 9 10
- 13 Do you feel uncomfortable when being corrected by the teacher?
0 1 2 3 4 5 6 7 8 9 10
- 14 Do you prefer being corrected in private rather than in class and in front of other people?
0 1 2 3 4 5 6 7 8 9 10
- 15 Do you prefer individual work rather than group work when learning grammar?
0 1 2 3 4 5 6 7 8 9 10

16 Would you prefer learning grammar on the computer rather than in class from the teacher?

0 1 2 3 4 5 6 7 8 9 10

Please write a few sentences about your knowledge before and after the '5 days session' that you had with us (how much did you know about adverbs before, and what do you know now).

Please write a few sentences about the program that you used (what did you and what did you not like about it).

Additional Test Sentences

Melissa got up and went outside. (lazily)
 Lazily Melissa got up and went outside.
 Melissa lazily got up and went outside.
 Melissa got lazily up and went outside.
 Melissa got up lazily and went outside.
 Melissa got up and lazily went outside.
 Melissa got up and went lazily outside.
 Melissa got up and went outside lazily.

His father was assembling his gun. (skillfully)
 Skillfully his father was assembling his gun.
 His skillfully father was assembling his gun.
 His father skillfully was assembling his gun.
 His father was skillfully assembling his gun.
 His father was assembling skillfully his gun.
 His father was assembling his skillfully gun.
 His father was assembling his gun skillfully.

He became a good student. (recently)
 Recently he became a good student.
 He recently became a good student.
 He became recently a good student.
 He became a recently good student.
 He became a good recently student.
 He became a good student recently.

Our meeting was canceled. (never)
 Never our meeting was canceled.
 Our never meeting was canceled.
 Our meeting never was canceled.
 Our meeting was never canceled.
 Our meeting was canceled never.

I go to the park. (always)
 Always I go to the park.
 I always go to the park.
 I go always to the park.
 I go to always the park.
 I go to the always park.
 I go to the park always.

The pictures that I paint are sold. (often)
 Often the pictures that I paint are sold.
 The often pictures that I paint are sold.

The pictures often that I paint are sold.
 The pictures that often I paint are sold.
 The pictures that I often paint are sold.
 The pictures that I paint often are sold.
 The pictures that I paint are often sold.
 The pictures that I paint are sold often.

Both of them were very late. (unfortunately)
 Unfortunately both of them were very late.
 Both unfortunately of them were very late.
 Both of unfortunately them were very late.
 Both of them unfortunately were very late.
 Both of them were unfortunately very late.
 Both of them were very unfortunately late.
 Both of them were very late unfortunately.

He had not been satisfied with this relationship. (completely)
 Completely He had not been satisfied with this relationship.
 He completely had not been satisfied with this relationship.
 He had completely not been satisfied with this relationship.
 He had not completely been satisfied with this relationship.
 He had not been completely satisfied with this relationship.
 He had not been satisfied completely with this relationship.
 He had not been satisfied with completely this relationship.
 He had not been satisfied with this completely relationship.
 He had not been satisfied with this relationship completely.

I am happy for you. (truly)
 truly I am happy for you.
 I truly am happy for you.
 I am truly happy for you.
 I am happy f truly or you.
 I am happy for truly you.
 I am happy for you truly.

Lisa shouted at her son. (angrily)
 angrily Lisa shouted at her son.
 Lisa angrily shouted at her son.
 Lisa shouted angrily at her son.
 Lisa shouted at angrily her son.
 Lisa shouted at her angrily son.
 Lisa shouted at her son angrily.

I have been listening to all of your complaints. (carefully)
 Carefully I have been listening to all of your complaints.
 I carefully have been listening to all of your complaints.

I have carefully been listening to all of your complaints.
 I have been carefully listening to all of your complaints.
 I have been listening carefully to all of your complaints.
 I have been listening to carefully all of your complaints.
 I have been listening to all carefully of your complaints.
 I have been listening to all of carefully your complaints.
 I have been listening to all of your carefully complaints.
 I have been listening to all of your complaints carefully.

She is one of our best students. (unquestionably)
 Unquestionably She is one of our best students.
 She unquestionably is one of our best students.
 She is unquestionably one of our best students.
 She is one unquestionably of our best students.
 She is one of unquestionably our best students.
 She is one of our unquestionably best students.
 She is one of our best unquestionably students.
 She is one of our best students unquestionably.

The car is in very good shape. (mechanically)
 Mechanically the car is in very good shape.
 The mechanically car is in very good shape.
 The car mechanically is in very good shape.
 The car is mechanically in very good shape.
 The car is in mechanically very good shape.
 The car is in very mechanically good shape.
 The car is in very good mechanically shape.
 The car is in very good shape mechanically.

Appendix B3**Teacher's Resume****Teaching Methodology**

NOTE TO USERS

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UMI

C. W.
Address

Phone: (613) 000-0000

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Ottawa, ON

E-mail: cw@xxmail.com

Certified ESL teacher with experience in needs assessment, research, design, development and evaluation of curricula, lesson plans and evaluative language tests. Seeking teaching opportunity in a challenging environment.

Professional Expertise

- Evaluative listener with the ability to identify and prioritize second language patterns and the development of appropriate activities to advance second language learning.
- Excellent interpersonal and communication skills with the ability to work with people at various language skill levels and to be sensitive to individual needs within a group environment.
- Excellent organizational and planning strengths for educational environments including policy and program design, development, implementation and evaluation.
- Natural leadership ability with strengths in delegating, coordinating and organizing people, information and tasks.
- Committed team player with sensitivity to team members.
- Written communication skills for the preparation of presentations.

Professional Work Experience

- ESL teaching assistant at Carleton University. Responsible for Self Directed Language Learning (SDLL) component of a credit ESL class. Co-designer of Teaching Assistant Manual for the SDLL class.
- EFL teacher in Cd. Valles, Mexico. Responsible for Beginner and Intermediate classes as well as Oral Skills placement testing.
- Editing team member for the development of the Manitoba Canadian Language Benchmarks (CLB) Core Language Objectives.
- Facilitator of the professional development seminar for the introduction of the Manitoba CLB Core Language Objectives.
- Team member for the evaluation and development of the CLB Learning Objectives for Reading
- ESL classroom teacher across a variety of language learning levels as both a full-time and substitute teacher.

Education

September 1999-
Present

Masters Program, School of Linguistics and Applied Language Studies
Carleton University, Ottawa, ON

Education cont.

June 1996

Certificate of Teaching English as a Second Language
School of Linguistics and Applied Language Studies
Carleton University, Ottawa, ON

Ottawa, ON

E-mail: cw@xxmail.com

October 1992 Bachelor of Arts (Advanced) Linguistics/Psychology
University of Manitoba, Winnipeg, MB

Employment History

October 2000 - Classroom teacher - English in the workplace
Present Malkam Cross Cultural Training
Ottawa, ON

July - August 2000 Substitute teacher - LINC program
Ottawa Language Training Centre
Ottawa, ON

September 1999 - Teaching Assistant, 21.130 Self Directed Language Learning
Present Writing Tutorial Service
Carleton University, Ottawa, ON

May-August 1999 Student intern for Coordinator of all workplace education programs in Manitoba
Workplace Education Manitoba, Winnipeg, MB

August - EFL teacher for Beginner and Intermediate Classes
December 1998 Oral skills placement testing
Four Arrows Mexico, Cd. Valles, Mexico

February 1997 - Teacher for Intermediate class
May 1999 Substitute teacher across all offered levels
Applied Linguistics Centre, Winnipeg, MB

January 1998 - CLB Core Language Objectives Editing Team Member
June 1998 Professional Development seminar facilitator
Manitoba Culture Heritage and Citizenship, Settlement and Language Training,
Winnipeg, MB

Volunteer Experience

April 2000- Present TESL Ottawa Executive - Standing Member

October 1999 - TESL Ottawa Conference Planning Committee Member.
April 2000

September - Conversation Partner
December 1996 University of Winnipeg, Winnipeg, MB

January - Literacy skills facilitator
April 1996 Capitol Region Centre for the Hearing Impaired, Ottawa, ON

additional experience available on request

References Provided on request

Teacher's evaluation

Teaching Methodology - In Class Group

General Methodology

There were two parts to each activity. These classroom tasks were essentially the same as those provided by the computer program in the computer group. One major difference is that the activities of the in-class group were teacher directed, I set the order of the tasks and provided all of the materials.

I tried to keep the class as communicative as possible, which meant that we did a lot of pair and group work and some of the material was presented in jigsaws (one group has information on a topic that the other group needs to acquire).

The feedback was limited to the same feedback that was provided in the computer tasks. The classes were 1 hour in length.

Day 1

Once the pretest was finished we talked a little about what would happen in the class, stressing that the students had to come up with their own rules for the use of adverbials.

I wrote the sentences for task one on the board. We did the first 4 sentences together, I asked each student if the sentence was correct or incorrect. If they all agreed and got the sentence correct, I moved on, if there was any debate, I showed them the type/subtype of adverb and some other adverbs that belonged to the same group. Then I put the students into groups and made them come to a group decision about the remaining 4 sentences. When they were finished, the same feedback was given.

8 sentences, one for each group of adverbials, were presented in task one.

Once task one was complete, I wrote the sentences for task two on the board, the sentences were presented in their groups, 3 per group, and the groups were presented in random order. Each group was identified by name (time, degree etc.).

I asked the students to put the adverb into the sentence in every possible position. We did the first two groups together, then I split the remaining 6 groups of adverbs between 2 groups of students and asked them to finish the task as a group. The students presented their answers and the opposite group got to agree or disagree with the constructions.

Task two was completed very quickly by the students, much faster and with more confidence than task one.

Day 2

An overhead projector was used to present the information.

Task one, same as day one except that I only asked for individual answers, I didn't ask them to confer before asking for their judgement call. If all of the students got it wrong, or if there was a mix of answers, I asked them to identify the adverb in the sentence and which group of adverbs it belonged to. If they couldn't identify the type of adverb, or if they got it wrong I provided the answer. Other adverbs of the group were also provided.

Task two - I presented the 3 time adverb sentences to the whole class and asked them to insert the adverb into every possible position. Then I divided the class into groups and randomly distributed the rest of the sentences and asked them to insert the adverbs. Then I collected the work and we looked at the possibilities that the students had come up with and decided if there were any errors or omissions.

Day 3

Task one - I wrote the sentences on the board, in their adverb groups, from day one and two and added day three. I asked the students to judge the sentences and based on their judgements, to create a rule for the placement of the adverb in that group. We did the time and frequency adverbs together, then I put the students into groups and asked them to generate their own rules. These were then presented to the class and the students looked for errors or omissions. The rules only determined where the adverb could appear, not where it couldn't. I did not make any judgements about the rules that were created.

Task two - I asked the students to insert adverbs based on the rules they had created, and to determine whether or not they had to make any adjustments to the rules. This was done with the whole class participating.

At the end of the class I asked the students which task was easier, one or two. They said that two, because it is easier to create a sentence than to figure out if a sentence is correct or incorrect.

Day 4

I offered the students handouts of the tasks, but they didn't want to use them if they couldn't keep them, so the activities were done on the board.

Task one - I asked the students to make individual judgements, when they shared their answers, only 2 were incorrect. I asked the students to identify the type of adverb that was in the sentence and to provide a correct option. Then I asked the students to compare the sentences to the rules that they had generated, and asked them if they wanted to make any additions.

Task two - we did this as a whole class. I asked them to create a sentence, and then we checked it against the rules, making adjustments to the rules as necessary.

Day 5

Task one - we went through the last group of sentences as a whole class. I asked the students to make a judgement, provide the group of adverbs that the adverb belonged to and to make a correct or alternative placement. Again, there were only two mistakes.

Task two - I divided the class into two groups, gave them 4 groups of adverbs each, and asked them to come up with the possible placements of the adverbs in the sentences. Once they were finished, I asked them to create a correct or incorrect version of the sentence in order to create a task one activity for the opposite group.

Day 6

Task one - we used the sentences that the students had generated to do the task one activity. The class was asked as a group to determine whether or not the sentence was correct, what was the adverb, which group it belonged to, and correct or provide an alternative sentence to the one that was

presented.

Task two - the sentences from day three were used to do this activity. It was completed with the class working together, the possible sentences that they created were checked against the rules that they had created.

The students were given the post-test at the end of the instructional hour.