Language acquisition during a stay abroad period following formal instruction

Temporal effects on oral fluency development

Margalida Valls Ferrer
Abstract

This study investigates the development of fluency in 30 advanced L2 learners of English over a period of 15 months. In order to measure fluency, several temporal variables and hesitation phenomena are analyzed and compared. Oral competence is assessed by means of an oral interview carried out by the learners. Data collection takes place at three different times: before (T1) and after (T2) a six-month period of FI (80 hours) in the home university, and after a three-month SA term (T3). The data is analyzed quantitatively. Developmental gains in fluency are measured for the whole period, adopting a view of complementarity between the two learning contexts. From these results, a group of high fluency speakers is identified. Correlations between fluency gains and individual and contextual variables are executed and a more qualitative analysis is performed for high fluency speakers' performance and behavior. Results show an overall development of students' oral fluency during a period of 15 months favored by the combination of a period of FI at home followed by a 3-months SA.

Keywords

Oral Fluency, Second Language Acquisition, Study Abroad, Contextual Variables
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Treball de Recerca

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Abstract

This study investigates the development of fluency in 30 advanced L2 learners of English over a period of 15 months. In order to measure fluency, several temporal variables and hesitation phenomena are analyzed and compared. Oral competence is assessed by means of an oral interview carried out by the learners. Data collection takes place at three different times: before (T1) and after (T2) a six-month period of FI (80 hours) in the home university, and after a three-month SA term (T3). The data is analyzed quantitatively. Developmental gains in fluency are measured for the whole period, adopting a view of complementarity between the two learning contexts. From these results, a group of high fluency speakers is identified. Correlations between fluency gains and individual and contextual variables are executed and a more qualitative analysis is performed for high fluency speakers' performance and behavior. Results show an overall development of students' oral fluency during a period of 15 months favored by the combination of a period of FI at home followed by a 3-months SA.
Introduction

From the early days, second language acquisition (SLA) research has tried to account for what it is that makes L2 acquisition different from that of L1. Learners’ linguistic system and the development of this system have been main topics of research in this young discipline which first emerged within the applied linguistics studies\(^1\). At present, SLA research is a very prolific field and many are the studies published every year from very different perspectives giving new insights and helping to understand further how such a complex system as human language works (see Ellis 2000, Larsen-Freeman & Long 1991, Gass & Selinker 2001 for an overview).

Two learning contexts have often been explicitly differentiated (classroom and naturalistic contexts) and research has been developed for both settings, often contrasting the effects of one and the other. The following quote clearly illustrates the view that most researchers hold on the issue: “classroom instruction is often equated with an emphasis on grammar and vocabulary drills, whereas residents in a foreign country are supposed to master the language through communication, with little conscious attention paid to structure.” (DeKeyser 1991;104). Of all possible naturalistic contexts, in the last years there is one that has been given particular attention, that corresponding to periods spent in the target language (TL) country. This line of research has often been labeled Study Abroad studies. It is to this domain that the present study aims to contribute.

The perception of a stay abroad (SA) as the only way to become proficient in a language is shared not only by the general public but it is also common among foreign language students and teachers. Many are the studies which have been devoted to describing and understanding acquisition in such naturalistic settings as the SA (DeKeyser 1991; Freed 1995, 2000; Freed et al 2004; among others). From these studies, a general picture emerges claiming the supremacy of fluency gains while abroad compared to other linguistic gains. Nonetheless, most of the studies on

\(^1\) Not all scholars agree considering SLA as a discipline on its own. (for further reading on this matter refer to Towell & Hawkins, 1994; Ellis, 2000; Sharwood Smith 1994)
second language fluency seem to highlight a high variability among speakers, and the need for analyzing individual and contextual variables in future research (Huebner 1995; Towell 2002; Churchill & DuFon 2006). Besides, the question of what exactly produces these gains and why such differences in fluency attainment emerge among speakers has still not been answered in a conclusive way, hence further research is necessary in order to draw a more complete picture of the issue.

This study seeks to bring new light into the research on learners' interlanguage development, specifically fluency development, and at the same time, on individual and contextual variables shaping language growth in advanced learners in two learning contexts, FI at home and SA in an English speaking country.

The study is structured in two parts. The first part describes the theoretical background of the study and contains chapters 1-4. The second part presents the empirical study and includes chapter 5-8.

Chapter 1 introduces existent research on SLA acquisition and speech production so far. First, main approaches, theories and models in SLA research are outlined, followed by a thorough description of Individual Differences’ (ID) research in SLA. The chapter finishes with a section on speech production which presents Levelt's and Anderson's models and a discussion on specific matters related to speech production.

Chapter 2 focuses on SA studies and gives an overview of the work on context effects on SLA. The first part of the chapter revises the concept of learning context. This is followed by a review of studies on SA, which ends with a summary of the main findings, presented by linguistic competences.

Chapter 3 is devoted to the development of fluency in L2 learner's interlanguage. It starts with a discussion of the term fluency, presenting several definitions which have been used in SLA research. After adopting a specific position for the present study, an overview of existent approaches dealing with fluency development is provided.
The chapter finishes with a review of the measures used in second language fluency research.

Chapter 4 provides a recapitulation of Part I by giving a summary of the main points discussed and relating them to the empirical study. The research agenda is then provided, giving an overview and stating the objectives of the empirical study.

Part II starts with chapter 5 which presents the research questions and hypothesis of the study. This is followed by chapter 6 with the design of the study. First, an overview of the context where the study takes place is given, followed by the presentation of variables, participants and instruments for the data collection, to finish with the process of data analysis.

Chapter 7 illustrates the results obtained through the empirical study. These results have been divided into three sections for the purpose of clarity. Section one contains the results for temporal and hesitation phenomena, which are key to the understanding of fluency development. Next section deals with results on contact variables and ID. And the last one is devoted to the results on the performance and behavior of a group of high fluency speakers.

The last chapter, chapter 8, contains the discussion of the results in relation to the hypotheses presented in chapter 5. At the end of this chapter, conclusions and suggestions for further research are presented.
PART I. THEORETICAL BACKGROUND
1. Second Language Acquisition research and speech production

This chapter is divided in three parts. It starts with an introductory overview of the predominant theories applied in SLA research, followed by a second part which gives a thorough account of research on ID. The last part presents two models which seek to describe speech production processes with a focus on SA and SLA.

1.1. Approaches, theories and models in SLA research

The term interlanguage was first used in 1972 by Selinker referring to the language that L2 learners produce. Sharwood-Smith (1994) defines interlanguage as 'the systematic linguistic behavior of learners of a second or other language' (p.7). Interlanguage is characterized as being a system in its own right and also being dynamic in nature. It has been observed that learners' interlanguage develops along time and it is widely agreed that learners' interlanguage develops following a common route, although it may take a different rate (speed). Nevertheless, not all theories have understood the term interlanguage in the same fashion. The different approaches to the term will be tackled in the following subsections.

1.1.1. Behaviorism

For behaviorists, language learning is seen as the formation of habits. These habits are created by stimulus-response pairing. Learners will face stimulus which will prompt a response from them. If the response is appropriate, reinforcement will be obtained, and through repeated reinforcement, the response will become a habit. If there is a communication breakdown, the response will not be reinforced and with time, the learner will abandon it in favor of a proper response that will have been reinforced.
Behaviorists believe that the L1 habits can either help or inhibit the acquisition of new L2 habits depending on the distance between two languages. If two languages have a very similar structure, learning will take place easily. On the contrary, languages with very different linguistic structures will make learning difficult.

For the behaviorist, the term interlanguage did not exist. At that time, they believed that learning was just a question of habit formation. For them, development takes place through practice. Learners are involved in the repetition of the same structures time after time. The more they practice different structures, the further their language will develop. It is important to practice more intensively those structures which are thought to be difficult or distant from the L1. (for an overview see Gass & Selinker 2001; Mitchell & Miles 2004).

Behaviorist researchers focus their research on the comparison of pairs of languages in order to identify those structures in which the languages differ. This type of research was named Contrastive Analysis, and it has perdurated until very recently.

1.1.2. Generativism and UG

Generative linguistics involves a radical change from structural linguistics, which dominated the field for decades. It emphasizes the rule-governed and creative nature of human language. Over the years, generative linguistics has changed from an early stage of phrase structure rules, to the more recent Minimalist Program. (see Towell et al. 1994; Larsen Freeman 1991 for an overview)

It is within the framework of generative linguistics that Noam Chomsky develops his Universal Grammar (UG) approach. This approach implied a revolution at that time, and it has been one of the most influential both in linguistic theory and SLA. Universal Grammar is a property theory, since it attempts to characterize the linguistic knowledge that is present in the mind of the L2 learner. Mitchel & Millers
(2004) refer to UG research as having been 'primarily concerned with the description and explanation of the formal system underlying languages.' (p.91).

UG attempts to explain what the exact nature of the language system is for first languages and also for the interlanguages of second language learners. This theory has very little to say about what is that triggers development of the interlanguage, since its scope is not that of a processing theory, but of a property theory.

1.1.3. Krashen's Monitor Model

Krashen's theory emerged as a result of previous findings on morpheme studies in second language acquisition. These studies showed that L2 learners followed a very similar pattern of development when learning the target language. It was in this period that the notion of interlanguage emerged. Krashen's theory was based on five basic hypotheses, which have been extremely important in SLA research. (see Sharwood-Smith 1994; Ritchie & Bhatia 1996) They are summarized below:

- **Acquisition-learning hypothesis**

  The main claim of this hypothesis is that acquisition and learning are two separate processes. Acquisition is the 'subconscious process identical in all important ways to the process children utilize in acquiring their first language' (Krashen 1985;1) and learning is the 'conscious process that results in "knowing about" language' (Krashen 1985;1). For Krashen, acquisition is the result of natural interaction in which learners are involved in real communication. Developmental processes similar to those of first language acquisition are present. On the opposite side, learning is the result of classroom experience where rules have to be learned and the focus is on form. Acquisition is a subconscious process while learning is conscious. For him, something which has been learned through conscious rules cannot become part of the acquired system.
Monitor hypothesis

The monitor is used to modify the output produced by the acquired system when focus on form is important for the learner. The Monitor hypothesis states that 'learning has only one function, and that is as a Monitor or editor' and that learning comes into play only to 'make changes in the form of our utterance, after it has been 'produced' by the acquired system' (Krashen 1982;15).

The notion of Monitor has been used to explain individual differences. For Krashen, there were three types of learners: 'Monitor over-users', 'Monitor under-users' and 'optimal Monitor users'. The first ones are too concerned with producing accurate language, checking for errors all the time. This makes them produce very slow and halting speech. The second one prime fluency and speed over accuracy, so they do not apply rules to their acquired system. And the third are the ones who use the Monitor when appropriate, not interfering with communication.

Natural Order hypothesis

Krashen based this hypothesis on the previous studies on morpheme acquisition. He states that:

'We acquire the rules of language in a predictable order, some rules tending to come early and others late. The order does not appear to be determined solely by formal simplicity and there is evidence that it is independent of the order in which rules are taught in language classes.' (Krashen 1985;1)

This hypothesis has been highly criticized for being too strong. It does not account for language transfer or individual variability.

Input hypothesis

The main claim of the Input Hypothesis is that we move along a developmental continuum by receiving comprehensible input. Comprehensible input is the kind of
input received in the form of $i + 1$. This means that the L2 input is just beyond the learner's L2 current competence, in terms of syntactic complexity. Only input of the type $i + 1$ will be successfully acquired. If learners are provided with input which is not comprehensible or it is too easy, no acquisition will take place.

- **Affective Filter Hypothesis**

As we have just seen, comprehensible input is necessary for language acquisition to take place. However, Krashen believes that this is not sufficient. Learners need to 'let that input in' and this regulated by the Affective Filter. This filter decides which comprehensible input goes in and which is left outside. 'The Affective Filter Hypothesis captures the relationship between affective variables and the process of second language acquisition by positing that acquirers vary with respect to the strength or level of their affective filters.' (Krashen 1982:31) Learners with lower filter will benefit the most from comprehensible input, while learners with high filter will not let comprehensible input get in.

All Krashen's hypotheses have undergone wide criticism from the very beginning. However, it is true that they have also largely contributed to the understanding of second language acquisition. For Krashen, interlanguage development takes place if learners obtain comprehensible input. This comprehensible input can then become acquired. All learners follow the exact same pattern of development, and variability can only be explained by the intervention of the monitor, depending on the affective filter of each learner.

### 1.1.4. Cognitive approaches

Cognitive approaches are rooted in transition theories, since they attempt to provide a detailed examination of the learning process itself. They approach the acquisition of a second language by examining how the brain processes and learns new information. Cognitive theories can be divided into two main groups: processing
approaches, and emergentist or constructionist approaches. (see Skehan 1998; Robinson 2001; Sanz 2005 for an overview)

Processing approaches are concerned with how second language learners process linguistic information and how this ability to process develops over time. On the other hand, constructivists or emergentist’s approaches believe that second language is acquired through usage, by extracting patterns and regularities from the input. Language development is produced through associations made during language use.

Within the processing approaches, there is one which has been widely followed by SLA researchers, the information-processing approach. McLaughlin (1987) and Anderson (1983, 1985) models are the best exponents of this approach. Its main characteristic is that second language learning is seen as the acquisition of a complex cognitive skill. In order to learn a language, practice of this language is essential, since this will enable the movement from controlled to automatic processing. This movement results in a constant restructuring of the linguistic system of the L2 learner. Due to this constant restructuring, variability among learners takes place. A more accurate description of the application of this approach to SLA is given in next section.

In general, cognitive approaches are very suitable when explaining the development of L2 learners' interlanguage, since they are mainly concerned with explaining the processes that take place in the mind of the L2 learners when acquiring a new language.

1.1.5. Socio-cultural and Sociolinguistic theories.

The theories presented in the previous sections have a common basic assumption. They are all concerned with understanding language learners as autonomous individuals. In this section, on the contrary, we present socio-cultural and sociolinguistic perspectives on SLA, which view language learning in more social
terms. They are mainly concerned with the role of language use in interlanguage development. Both perspectives reject the assumption that target language interaction serves merely as input for autonomous learning mechanism. They believe that interaction has a more important role in the learning process and that it is social in nature.

Socio-cultural perspectives in SLA have emerged from the works of the Soviet psychologist Vygotsky. James Lantolf was the first researcher to apply Vigotskyan thinking to SLA. Socio-cultural theories, as cognitive theories, assume that language learning will undergo the same acquisition mechanism as any other skill. However, they claim that all learning is first social, and then individual. For learning to be accomplished, co-construction of new language and immediate use in discourse has to take place. Interlanguage development will only take place if this co-construction of new language occurs within the Zone of Proximal Development (ZPD).

On the other hand, sociolinguistics refers to the study of language in use and diverse theoretical perspectives conform it. Second language variation is among the most studied perspectives and it focuses on the interlanguage variability at a lexical and morphological level. Sociolinguistics uses the techniques of ethnographers and conversational analysis in order to provide accounts of the social processes of second language development. Learners themselves are seen as socially contributing to their own learning context. Sociolinguists is concerned with the relationships between linguistic and non-linguistic aspects of communication. (see Mitchell and Miles 2004 Doughty & Long 2003).

The development of interlanguage is seen as taking place through linguistic and non-linguistic interaction within a social context. The interaction of the learner with the social context will determine both the rate and route of acquisition.

In sum, the present section has given an overview of the main theories developed in the field of SLA research with the emphasis on explaining the development of L2
learners' interlanguage. Some of the theories presented, such as behaviorism and Krashen's model are part of the history of SLA research, providing interesting insights into the field. Much research is still undertaken within the generativist approach. Somehow newer is the application of cognitive theories to SLA research and large number of studies are currently developed using this approach. The last two theories share the common basic assumption that language learning is a social phenomenon, in contrast with the other theories that believed language learning to be mainly an individual process.

For the purpose of the present study, the cognitive approach is regarded as the most convenient, since it is very suitable to explain the development in learners' IL system. (Skehan 1998; DeKeyser 2007). The following section deals with individual differences, since they have proven to be highly influential in the shaping of learners’ IL.
1.2. Individual Differences (ID) in SLA

The study of individual differences started within the field of psychology and over the years has become a central issue in SLA research. Although quite a few attempts have been made to define the term ID, it is not an easy one to agree on. Dörnyei, in his book about ID distinguishes between a broad definition of the term, where IDs are said to be anything that marks a person as distinct and unique, and a narrower definition where he defines ID constructs as concerning “stable and systematic deviations from a normative blueprint.” (Dörnyei 2005).

From the previous definitions, it can be discerned that there is a high variation among language learners. This was proved by a number of SLA studies as early as in the 60s (reviews are found in Skehan 1989; Robinson 2002; Dörnyei 2005 among others). In those early studies, IDs were primarily devoted to language aptitude and motivation. It was not until the 70s that new factors started to emerge, such as learning styles and strategies, due to the interest of research in the good language learner. Nowadays, personality, ability/aptitude, motivation, learning styles, age and gender seem to be among the most widely studied.

In this section we will focus on the IDs that we think have been more relevant for the study of SLA, based on the reviews provided by Skehan (1989), Robinson (2002), and Dörnyei (2006). Age and gender will not be dealt with since they have been controlled for in our study. The following features are covered: personality, aptitude, motivation and learning styles. First a definition of the term is provided, followed by an overview of the research carried out in each specific domain.

1.2.1. Personality

The Collins English Dictionary defines personality as “the distinctive characteristics which make an individual unique”. This broad definition is refined by psychologists
giving very different perspectives on it. Dörnyei (2005) remarks Pervin and John's (2001) standard definition, “personality represents those characteristics of the person that account for consistent patterns of feeling, thinking, and behaving”.

Early studies on personality in SLA were very much linked to the ‘good language learner’ studies. For instance, Naiman et al. (1978) tried to relate personality factors to success in language learning. Among personality factors, SLA research has paid most attention to the extraversion-intraversion dichotomy. The results for these studies have been rather mixed and have not provided conclusive evidence for a strong relationship between extraversion-introversion and success in language learning. However, Dörney (2005) argues that the approaches and methods used in these early studies have often been very varied, not allowing faithful comparisons among them and that in many cases researchers have not asked the right questions. He encourages future research to look more into the complementarity of personality factors with other ID variables. Skehan (1989) also points out to the adequacy of personality factors as extroversion-introversion for studies in SLA compared to other educational domains.

1.2.2. Aptitude

One of the most studied factors in SLA research is aptitude. It has usually been defined, in the wide sense, as a specific talent for foreign language learning that varies among individuals. More specific definitions have been provided recently, as DeKeyser’s “readiness to learn from exposure to a variety of forms of information in a variety of cognitive and behavioral domains” (2007; 305) representing a cognitive view of the term.

In spite of general and professional interest in aptitude as an ID throughout the twentieth century, it is by the middle of it that the field experiments a boom and two language aptitude tests are developed. The first and most widely used is the Modern Language Aptitude Test (MLAT; Carroll and Sapon 1959). From its development, it
has been used to measure aptitudes of learners in most of the studies in SLA research covering aptitudes and their relation with language learning. The other test, the Pimsleur Language Aptitude Battery (PLAB; Pimsleur 1966) had also a very good acceptance among scholars, but has probably not been as widely used as the MLAT.

After Carroll’s aptitude theory, the advances in cognitive psychology have given rise to other important contributions, such as Grigorenko, Sternberg and Ehrman’s (2000) Cognitive Ability for Novelty in Acquisition of Languages as applied to foreign language test (CANAL-FT). And in the last decade, two important lines of research in aptitudes have emerged. Robinson's Aptitude-Treatment Interaction, which has been the first attempt to link IDs research and aspects of SLA. In his work, abilities such as pattern recognition are enclosed in what he calls "higher-order cognitive factors" such as noticing the gap, in special learning situations. The second approach is Skehan's conception of language aptitude and SLA which attempts to link aptitude to different stages of language acquisition.

To conclude this section on aptitudes, it is worthwhile mentioning that most of the studies on aptitudes have focused only on formal learning. However, Gass and Selinker (2001) claim the importance of aptitude in natural settings where no instructor or learning materials are available.

1.2.3. Motivation

Motivation was first grounded in social psychology by Lambert, Gardner and Clément in the 1970s. Their research on the Canadian situation produced a number of studies which developed a motivational theory, centered on language attitudinal variables.

Central to Gardner's (1985) motivation theory was the integrative versus instrumental motivation. Instrumental motivation is driven by special needs and the immediate rewards that may derive from learning. Integrative motivation, on the other hand,
refers to the desire to integrate into the TL community. For Gardner and his colleagues, integrative motivation is hypothesized to evolve in greater success of L2 acquisition.

Gardner's motivation theory, although very much followed by many researchers, has also received some criticism. One of the main objections being its localness, hence lack of generalizability to other contexts. However, his theory served as a base for many later approaches. For example, Dörnyei (2006) points forward the process-oriented conceptualization of motivation and the reinterpretation of the integrative motive.

The process-oriented approach to motivation takes the assumption that motivation is a dynamic process that changes over time. Motivation is seen as a more situated approach affected by the immediate context of learning and as a dynamic system for which Dörnyei and Ottos (1998) have distinguished a number of stages. New studies have started to emerge following this approach and providing evidence that motivation experiences change during the learner's lifespan (Ushioda 2001; Shoaib & Dörnyei 2005).

The reinterpretation of the integrative motivation to learn has been seen as necessary in nowadays world among many scholars. The main reason being globalization, and above all the emergence of the concept of English as an international language. Learners of English as an L2 many not need to integrate with the native English community but with a more international identity, having some special features as well. Dörney (1990) proposed to expand Gardner's notion of integrative motivation by talking about some sort of a virtual or metaphorical identification with the sociocultural loading of a language rather than with the actual L2 community.

But other approaches have also been developed by some researchers, such as Schumann's (1997) neurobiological research, one of the first attempts to link L2 findings to neuroscience. Or the Willingness to communicate (WTC) approach which attempts to explain and individual's “readiness to enter into discourse at a particular
time with a specific person or persons, using a L2” (MacIntyre, Clément, Dörnyei, & Noels 1998). This approach brings together several linguistic and psychological variables such as linguistic self-confidence, the desire to affiliate with a person, interpersonal motivation, intergroup attitudes, motivation and climate, parameters of social situation, communicative competence and experience, and various personality traits. As Dörnyei & Skehan (2003) point out, this approach represents a “construct in which psychological and linguistic factors are integrated in an organic manner” (2003; 621).

1.2.4. Learning Styles and Cognitive Styles

Dörnyei and Skehan 2003 define cognitive styles as “a predisposition to process information in a characteristic manner” and learning styles as “a typical preference for approaching learning in general” (Dörnyei & Skehan 2003). In studies of L2 acquisition, these two terms have been interchangeably used, not making a distinction between them. This may be the first cause for findings in this field of styles not being very relevant and losing its interest among scholars.

It was in the 1960s that one of the widest studied areas in the filed of L2 styles emerged: field independence-field dependence (FI-FD) construct by Witkin. In the field of SLA, Skehan summarizes the state of the field:

“In sum, the FI individual benefits from the way he or she processes information but is seen to avoid situations in which language is actually going to be used for communication. FD individuals, while comfortable and sensitive in communication situations, are not seen to be effective information processors, and so, although provided with more information to work with, will exploit it less” (1998; 238)

In the early days, studies on FI-D seemed to find evidence on the direction that FI learners would do better. But, when changing the purpose of the task, other studies found that FDs were the ones performing better. These mixed results, together with
the criticism about its strong association with ability, gave rise to new approaches to L2 styles research.

There are a wide number of published instruments for assessing learning styles such as the Perceptual Learning Style Preference Questionnaire (PLSPQ developed by Reid in the 1980s. Some years later, Oxford (1993) presented her Style Analysis Survey (SAS), similar to the PLSPQ in many ways. And years later, Cohen, Oxford and Chi (2001) improved the SAS with the Learning Style Survey (LSS) based in a new construct developed by Ehrman and Leaver (2003). This E&L Construct is based in the distinction between ectenic and synoptic. As they define it, “an ectenic learner wants or needs conscious control over the learning process, whereas a synoptic learner leaves more to preconscious or unconscious processing”.

The last model we would like to mention is Skehan's (1998) Conceptualization of Learning Styles, which was born within the field of linguistics. The main claim being that learners have a 'dual-coding' approach to language: a rule-based and a memory-based system. From this, he further developed the idea of the existence of analysis-oriented and memory-oriented learners. As he explains, high-analysis learners develop organized and rule based representations of language, engaging in regular restructuring and complixification of the underlying interlanguage system. High-memory learners would not rely as much in a complex analytic system, but on lexicalized exemplars in their memory systems which would be used for communication in real time. Dörnyei (2005) claims the high relevance of this construct since, as he points out, previous studies support a similar distinction, such as Krashen's (1978) and Seliger (1980). However, he also calls for further research in the area, due to his belief in its enormous potential.

To summarize this section on IDs we would like to stress the fact that in spite of the number of studies dealing with IDs, findings are still relatively inconclusive. On the basis of these studies, and using the new advances in both psychology and cognitive sciences, SLA research can now redefine most of the terms and develop new models linked to the current theories of L2 learning and acquisition.
The strong emphasis placed on context mentioned in recent literature is of great interest for our study. From the beginning of this chapter, we have been able to observe the evermore increasing need for IDs studies to be placed in more situated approaches. ID factors are no more thought to be context independent and absolute, but they are thought to be dynamic, changing over time and regarding the situation where the learning takes place. Future research combining both IDs and context variables can provide a more complete picture of the process of learning in SLA. Skehan and Dörney, among others, claim the usefulness of combining factors to achieve a better understanding of them and providing optimal combinations of what can be a good language learner. In this study, by combining motivation, attitudes and learning styles with context variables, we intended to contribute to this more contextualized knowledge of the process of learning in relation to the good language learner.

Next section focuses on the development of speech in L2 learners' interlanguage analyzing a series of models and concepts key to the understanding of this development. Special attention is paid to fluency as it is the key phenomenon addressed in this study.
1.3. Speech Production and Interlanguage Development

Being able to speak in the target language is one of the most acclaimed goals of foreign language learners. And how this production of speech develops along time within the learners’ interlanguage is one of the main aims of SLA researchers.

Studies on L2 speech production have been grounded on previous findings in L1 speech production research (see Kormos 2006 for an overview). Two main theories arise from it: spreading activation and modular theories. In spreading activation models, the backward flow of activation from a subordinate level to the superordinate level is permitted. Within this theory it is also assumed that frames for sentences and phonetic representations are constructed and then speakers choose the appropriate words or phonetic features to fill in these frames. For modular theories, the processing components in the speech production system are autonomous and activation can only spread forward. They are lexically driven, meaning that words activate the syntactic building procedures. They also claim that lexical encoding comes before syntactic encoding and that phonological encoding can only take place when lexico-syntactic processes are completed. (see Kormos 2006; DeKeyser 2007)

Even though L2 speech production studies are based in L1 speech production theories, several features differentiate L1 and L2 production. The most prominent refers to the lack of completeness of the L2 learner's knowledge of the target language compared to the L1. This lack of knowledge derives into an increased effort, having to pay explicit attention to what is being produced and not being able to accomplish real-life communication. Apart from that, transfer from the L1 into the L2, which can take place at any level; lexical, syntactic or phonological must also be taken into account, as well as code-switching, usually with the L1 influencing the L2. The third difference concerns the speed at which speech is produced. In L1 speech processing is largely automatic in both the formulator and articulator, whereas in the L2, this automatization has generally not taken place and attention needs to be paid, even for proficient learners.
This chapter covers the main elements of speech production related to interlanguage development. Particular attention is devoted to the acquisition of L2 fluency. First, Levelt’s (1989, 1993) speech production model is presented, to be complemented by Anderson’s ACT theory. Then, three main concepts for the development of fluency in L2 learners’ interlanguage are revised: automatization, output and practice.

1.3.1. Levelt’s speech production model and application to SLA research

This section contains the description of Levelt's model, complemented by Anderson's ATC theory. In SLA research these two models have been found to complement each other, providing a complete explanation of how speech production functions in SLA.

1.3.1.1. Levelt's model

Levelt's speech production model was originally designed to account for language production of mature monolingual native-speakers. However, since De Bot (1992) claimed its adaptativeness to L2 language development, many other researchers have applied it to their studies (de Bot 1992; Doughty 2001; Towell, Hawkins, & Barzergui 1996; among others)

Levelt distinguishes two kinds of knowledge: declarative knowledge and procedural knowledge. Declarative knowledge is the knowledge 'that' or knowledge 'about the world'. Procedural knowledge is the knowledge 'how' or the knowledge that underlie skill behavior. According to his model, fluent speech production requires procedural knowledge due to the speed of speech production and the nature of working memory.

Levelt's speech production model consists of three major components: the Conceptualizer, the Formulator and the Articulator. In the Conceptualizer, relevant

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2 Both descriptions have been primarily based on the work of Kormos (2006) on speech production
information is selected and ordered and procedural knowledge takes the form of a production with the format of a condition/action pair (IF/THEN). This constitutes the propositional content of the message, which is carried out by accessing the different types of conceptual knowledge (encyclopedic, situational and discourse). Here the speaker monitors his/her message. The output of the conceptualizer is expressed as a propositional pre-verbal message which serves as input to the formulator.

The formulator is in charge of giving form to the propositional message and converting it into linguistic form. It involves two steps, the grammatical and the phonological encoding of the message. For the grammatical encoding, it takes the semantic and pragmatic meanings in the pre-verbal message and searches in the lexicon for the means of expressing them. The lexicon contains form/meaning pairs called ‘lemmas’. These lemmas contain both semantic and syntactic information which is retrieved and combined in order to produce syntactic and meaningful units. The knowledge present in this syntactic building process is regarded as procedural knowledge. This grammatical encoding produces a set of surface syntactic forms which are temporarily stored into what Levelt calls a syntactic buffer and later on passes the surface structures to the phonological encoding part of the formulator. In this part, a phonetic and articulatory planning is created for the surface structures. Once this plan is complete, it is stored in a temporary storage called articulatory buffer and from there it is retrieved by the articulator which is in charge of converting it into overt speech.

For L1 mature speakers the operations undergone in the three stages are proceduralized, they run automatically. This must be so in order to fulfill the speed requirements of the language. However, this is not the case for L2 speakers who have a limited command of the language. For these L2 speakers, knowledge is clearly declarative in the conceptualizer and highly controlled in the formulator and articulator. Levelt's model does not give an explanation of how knowledge goes from declarative to procedural in L2 learners. In order to account for how the procedural knowledge is created, SLA research has referred to Anderson's ACT model.
1.3.1.2. ACT* model

Developed by Anderson over a number of years, but mainly in The Architecture of Cognition (Anderson 1983). The Adaptive Control of Thought model of cognitive development was proposed by Crookes (1991) as potentially applicable to SLA. He especially remarked that “use of ACT* may provide one means of probing SLA fluency” (p118).

This model assumes that there are three kinds of memory that interact with each other. Long-term memory, which comprises declarative memory and production memory, and working memory. Long-term memory can only be accessed through working memory. Long-term memory can contain explicit and implicit knowledge. Explicit knowledge is consciously learnt, retrieved and verbalized. On the other hand, implicit knowledge is not learnt consciously, it is casually acquired as a slow process. Implicit and explicit knowledge are combined in production in order to produce fluent speech at a high speed.

For the ACT* model, all knowledge is assumed to be initially declarative. And for speech production, as we have previously seen in Levelt's model, conversion from declarative to procedural knowledge is essential in order to speak fluently. The main reason for having to convert declarative knowledge to procedural one is given by the nature of the working memory. Working memory has a limited capacity and declarative knowledge requires a lot of attention, hence a large amount of space. Besides, the knowledge stored in declarative form is retrieved by 'interpretive' mechanisms which are controlled by the speaker. On the contrary, procedural knowledge does not need the attention of the speaker, since it consists of productions in the form IF/THEN, which are accessed by match and execution. Hereby, procedural knowledge can be processed by the working memory in larger units without exhausting its capacity.

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3 ACT* (read, ACT-star) is a revision from Anderson ACT model, made by the same author.
Learning to perform involves, as already mentioned, the careful conversion from declarative knowledge into procedural knowledge. According to Anderson (1985) the following three stages are present in such a mechanism: “a cognitive stage, in which a description of the procedure is learned, an associative stage, in which a method for performing the skill is worked out and, an autonomous stage, in which the skill becomes more and more rapid and automatic” (Anderson 1985 cited in Towell & Hawkings 1994).

For the first stage, knowledge is always declarative. In the second stage, both declarative and procedural knowledge are present. And in the third stage, knowledge is fully procedural. It is in this third autonomous stage that knowledge is rapidly accessed. Nevertheless, once this autonomous stage is reached, no modifications are allowed. What is that speeds up the process of declarative knowledge becoming proceduralized is another matter related to the concept of practice (see section 1.3.2.3.)

All in all, we have seen how declarative knowledge can become proceduralized knowledge, going through different stages and reaching a point where it becomes automatized. Understanding how this works is crucial in attempting to explain how the development of learners’ fluency is produced, which will be illustrated in the next sections.

1.3.2. Specific issues: automaticity, output, practice

1.3.2.1. Automaticity

The term automaticity has been used by scholars from very different fields. Nevertheless, a number of characteristics emerge common to them all. The first one, speed of processing, is regarded as the most widely used feature related to the term automaticity. Something which has become automatic is performed faster than before being automatized. Second, something which is automatic is also ballistic or unstoppable. And third, something is automatic if it is effortless.
Within SLA studies, DeKeyser (2007a) observes that the term automatization has been used with different senses. In the broadest sense, automatization refers to the whole process of converting the rules present in declarative knowledge to “the final stage of fully spontaneous, effortless, fast, and errorless use of that rule, often without being aware of it anymore.” (p.3). As for the narrow sense, “it refers to the slow process of reducing error rate, reaction time, and interference with/from other tasks that takes place after proceduralization.” (p.3). He still distinguishes a more specific sense, which is merely a “quantitative change in the subcomponents of procedural knowledge to the exclusion of any qualitative change or restructuring.” (p. 3).

As stated above, Anderson's ACT theory provides a comprehensible account of how declarative knowledge becomes automatized in speech production. In an attempt to adapt this theory to the development of fluency, Towell, Hawkins & Bazergui (1996) provided a model which related Anderson's theory to Levelt's (1989) model of speech production. They argued that the natural place for proceduralization to take place is the formulator of Levelt's model, where linguistic shape is given to the message and then passed to the articulator. When applied to their study (Towell et al. 1996), they hypothesized that proceduralization would take place if the mean length of fluent runs increased, the mean length of pauses was maintained or decreased and the phonation time ratio was also maintained or increased. When analyzing the results, they observed that mean length of fluent runs was the measure that most improved. Then they took a step further by analyzing qualitatively the productions of two learners. This analysis provided evidence that these two learners succeeded in proceduralizing the syntactic knowledge, hence claiming that the participants converted “linguistic knowledge already acquired into rapidly-usable on-line productions” (Towell et al. 1996;113). Apart from fluency, Anderson's ACT Theory has also been shown to be effective for explaining the acquisition of syntactic rules in laboratory settings (see DeKeyser 1997).
Kormos (2006) argues that in order to account for how L2 learners’ speech becomes fluent, three processes need to be considered: “the automatization of syntactic, morphological, and phonological encoding processes, the creation of formulaic sequences from smaller units of language, and the deduction of rules from memorized chunks acquired as an unanalyzed unit.” (p.165). Anderson's ACT Theory can account for the first process, providing an explanation of how linguistic rules become automatized. In order to explain the second and third processes, strength theory and theories of chunking would be needed.

It is within the scope of SA research that SLA studies have provided documentation on L2 learners' development of fluency (Möhle, 1984; Raupach 1987; Towell et al. 1996; Freed et al. 2004). These studies have shown improvement in oral fluency after a period abroad with substantial practice. However, methods used have not followed consistent procedures, making data difficult to interpret. Further research should be aimed at evaluating fluency in stay abroad contexts, but with greater experimental control and refined methodology. Especial attention should be paid to the role of output and practice since they are key to understand how fluency develops.

1.3.2.2. Output

The notion of output in SLA research emerged as a reaction to Krashen’s Input hypothesis. First, Long (1981) argued that the unidirectional input was not enough to account for the acquisition of an L2. He presented his ‘Interaction hypothesis’, which claimed the importance of interaction between interlocutors in order to negotiate meaning. It is through this negotiated meaning that the input the learner receive becomes more directed to his/her developmental needs. Merill Swain (1998) went even further in her research by rejecting the idea that comprehensible input was enough for the complete interlanguage development. She introduced the notion of output as an essential element to promote acquisition (see Gass & Mackey 2006; Izumi 2002; Shehadeh 1999, for an overview).
The role of output has not been as widely accepted as that of input in SLA research. Researchers in the line of Krashen (1982) argue that output’s only function is the generation of comprehensible input. Van Pattern (1996) also argues that the production of mechanical output should not be encouraged, since it does not lead to the processing of input. In the same fashion, Ellis’ (1994) arguments stress the lack of evidence for output resulting in acquisition of new linguistic forms.

Nonetheless, a number of researchers have advocated the important role of output in SLA.According to Swain’s Output Hypothesis, production causes learners to engage in syntactic processing and in doing so, acquisition is promoted. In her revised form of “pushed output”, learners have to produce messages that are concise and socially appropriate. Ellis claims that “production requires learners to process syntactically; they have to pay attention to form.” (2003: 113). This production will then assist interlanguage development. De Bot (1996) advocates for the role of output in enhancing fluency and automaticity of processing.

Skehan 1995, building on Swain's Output Hypothesis, distinguishes three aspects of production: fluency, accuracy and complexity. For fluency, learners are required to “draw on their memory-based system, accessing and deploying ready-make chunks of language, and, when problems arise, using communication strategies to get by.” (Skehan 1995). The kind of processing needed for fluency is semantic rather than syntactic.

Logan's Instance Theory (1988) can also account for the role of output in interlanguage development, proposing that skill acquisition is a process of moving from rule-based production, which is necessarily slow, to instance-based production, which requires less attention and is therefore automatic.

In trying to comprehend in what way L2 output affects cognitive processes involved in SLA, Swain identified the following specific roles of output in L2 learning: noticing, hypothesis formulation and testing, and metalinguistic function and syntactic processing.
Noticing plays a significant role in understanding the relevance of learners’ output. When speaking an L2, learners may notice that there are some things which they cannot say in a proper way. This makes them recognize their limitations and focus their attention on the relevant input necessary to overcome these limitations. Hence, the production of output promotes noticing a hole in the IL system, and noticing the gap between what they can say and the target language. Murano (2007) states that noticing “trigger[s] important cognitive processes such as selective attention and cognitive comparison” (p.57).

Hypothesis formulation and testing refer to learners using output in order to try new forms (hypothesis) to transmit meaning (Swain 1998). This produced output serves to create feedback for the same learners, since their hypotheses can be tested against the feedback they receive from either external resources or internal knowledge (Schachter 1986). Support to the positive effect of external feedback on learners’ output has been given by interaction studies (Long, Inagaki & Ortega 1998; Murano 2000; among others). In testing hypotheses, learners are seen as pushing their interlanguage systems in order to produce output.

The metalinguistic function advocated by Swain claims that learners use language to reflect on language (Swain 1995, 1998). The metatalk helps learners to reflect on their language, making them aware of forms and linguistic rules (Swain 1998). Related to the metalinguistic function is syntactic processing. Swain (1985) claims that learners need to recur to syntactic processing when producing language in order to convey their intended meaning.

The specific roles of output described above, and proposed by Swain, are linked to different psychological and cognitive processes which can account for acquisition in an L2. For the development of fluency, noticing is the most essential role. Empirical studies testing the effects of output developmentally are still very limited, however, promising insights are emerging in this field.
1.3.2.3. Practice

The role of output in the development of fluency is very closely related to practice. The concept of practice has gained renewed attention in the last years, especially with DeKeyser’s (2007) monographic book on practice. The current understanding of the term goes in the opposite direction from the previous views. Behaviorists believed that practicing highly mechanistic, form-focused exercises (commonly known as controlled drills) led to linguistic achievement (see section 1.1.). Likewise, Chomsky (1986) and Ellis (1993) considered practice as relevant only for performance or procedural knowledge, having nothing to do with grammar rules.

In contrast, cognitive theories of acquisition claim the need for practice in the context of ‘real operating conditions’ (Johnson 1988 cited in DeKeyser 2007). The focus is not only on form, but especially on meaning. For skill acquisition theory, practice has a crucial role in transforming declarative/explicit knowledge into procedural/implicit knowledge. This procedural knowledge can be later transformed into automatized knowledge (see section 1.3.1.2). As we have seen in section 1.3.2.1., automatization is the process through which procedural knowledge becomes automatized by reducing the reaction time, error rate and interference with other tasks. The only way for learners to achieve the automatization stage is through practice. Fluency has been demonstrated to highly benefit from this practice.

However, not all kinds of practice result in acquisition, and specific kinds of practice are required to achieve automatization of linguistic knowledge. DeKeyser (2007) provides a cognitivist definition of practice: “specific activities in the second language, engaged in systematically, deliberately, with the goal of developing knowledge of and skills in the second language” (p. 1). Among cognitive psychologists, it is commonly agreed that reaction time and error rate decline gradually as a function of practice.

SLA studies on practice have mainly focused on the skill-specificity issue. DeKeyser (1997), DeKeyser and Sokalski (1996) and Izumi (2002) observe lack of transfer
between receptive and productive skills. In the same direction, Ellis (1992, 1993) and VanPatten (VanPatten & Cardierno 1993) coincide in arguing that output practice, contrary to input practice that leads to acquisition, merely serves to improve fluency.

The issue of transfer between declarative knowledge and procedural skill has also been largely studied in the last decade (DeKeyser 1997, 2003; Ellis 1992, 1993, Skehan 1998). Somehow newer is the issue of transfer from classroom context to the real world, exemplified by the SA. Studies so far have observed that this transfer may not always take place (Brecht, Davidson, & Ginsberg 1995; DeKeyser, 2007b). However, no conclusive results have yet been provided.

As previously mentioned, some researchers believe that practice may lead only to an improvement in fluency, not promoting any other kind of acquisition. However, ‘good practice’ should be able to enhance acquisition of any kind. DeKeyser (2007c) states that “good practice consists of activities that make students process form-meaning links.” (p.295). Several studies have demonstrated the importance of practice, especially production practice (opposite to comprehension practice), in improving production ability and stretching IL competence (DeKeyser 2007c).

From the findings above, there seems to be a straightforward relationship between practice and fluency development, not present in other aspects of knowledge. The more practice learners get, the more fluent they become. However, some studies focusing on learner’s fluency have observed that not all learners improve their fluency under apparently the same conditions of practice. The role of practice is not what is questioned in this assumption, but the type of practice that learners get. Good practice should attend to the learning context, the relevance of skills and the characteristics of the individual learner. Different forms of practice can benefit different learners in different situations and at different times.

For learners in SA contexts, practice is the best allied. However, it may be the case that learners do not always get the kind of practice which leads to automatization and hence, acquisition. Learners may be tempted to speak in their native language. It may
also be the case that the practice they obtain is mainly passive, repetitive or difficult to comprehend. They may not have completed the proceduralization stage, leading to an automatization of formulas. Another explanation for the lack of development during SA may be that learners are incapable of transferring the knowledge learned in classroom to the SA context (for a complete review see DeKeyser 2007b). The above arguments may help to understand why some learners do not develop their fluency while abroad. In order to test these hypotheses, research needs to concentrate on the interplay between the linguistic factors and the individual and contextual variables.

DeKeyser (2007b) provides a number of insights to the kind of practice that should be promoted in SA programs. First, when going abroad, learners should have at least an intermediate level in grammar which would enable them to complete the process of proceduralization and progress towards automaticity. The abroad context is perfect to automatize knowledge, since the opportunity for practicing real-life language is very easily available to learners. Second, learners should be provided with pre-departure preparation. It is very often the case that learners do not know how to behave communicatively when abroad. Some learning strategies, or suggestions of how to interact with native speakers could help them to enhance real practice. This can then be complemented with certain living conditions that promote the creative use of practice. Finally, the re-entry into the home institution should not be overlooked. A proper follow up of the stay abroad should be made, and appropriate activities to further develop their knowledge should be promoted.

Considering everything, the arguments provided above have depicted SA contexts to be excellent situations for practicing real-life language and hence, enhancing automatization of linguistic knowledge, giving way to acquisition. However, the success in this context is not always guaranteed and it seems that other factors may have an influence on success: previous experience in the home institution can play a significant role. Future studies investigating the relationship between these two contexts should be encouraged in order to provide consistent evidence of the complementarity of both contexts for learners’ interlanguage development. Next
chapter focuses on how learning contexts play a role in this development, as this is a central issue in our study.
2. Stay Abroad studies

Stay Abroad (SA) studies pertain to the broader field of learning contexts in second language acquisition research. The context where learning occurs is relevant to all second language acquisition studies, therefore it becomes an obligatory variable to be included in this type of research. The first part of the chapter revises the concept of context in SLA. The second part reviews previous research on SA, organized around the different skills of non-native language competence, and focusing mainly on speaking, where fluency resides.

2.1. Learning Contexts

The relevance of learning contexts has not gone unnoticed for SLA researchers. In an attempt to describe Second Language Acquisition, Ellis writes: “‘L2 acquisition’ can be defined as the way in which people learn a language other than their mother tongue, inside or outside the classroom, and ‘Second Language Acquisition’ (SLA) as the study of this.” (Ellis 2000). This definition already mentions the existence of different learning contexts in the study of SLA. These contexts are the ‘at home’ (AH), which usually takes the form of formal instruction (FI), the domestic immersion programs (IM), and the natural environments, represented by a stay abroad (SA). During the last decade a new context has emerged, the content and language integrated learning (CLIL), which in a way can be understood as a mix between AH and IM, and has sometimes been referred to as part of immersion programs. Regular content subjects are taught AH, but in a foreign language, aiming at the learning of both content and the foreign language.

According to Cenoz & Perales (2000), the distinction of the three learning contexts is not as clear-cut as it has been postulated by some researchers. As they put it, “the big diversity of instruction’s practices, the diversity of natural contexts of acquisition and the individual differences present in this process do not allow considering the
difference between formal and natural contexts in terms of an absolute dichotomy.” (Cenoz & Perales 2000). They understand these terms as a continuum where the ends are formal and natural contexts and intermediate positions are accepted (see fig. 1). In the intermediate positions we could find ‘mixed’ contexts, representing these situations where formal instruction is provided while being abroad or those where formal instruction is complemented by natural exposure of some sort. Some special types of formal instruction could also be found in the intermediate positions, such as domestic immersion programs and the content based or task based approaches.

![Figure 1: Learning Context (Cenoz & Perales 2000)](image)

Our study follows into one of these intermediate positions, since it aims to track the development of L2 learners' fluency during a period of time that encompasses 6 months of formal instruction, complemented by a period of 3 months spent in an English speaking country with some FI.

### 2.2. Language Acquisition and SA studies

There is a consistent body of research approaching the issue of how learning contexts affect acquisition. Quite a few of the studies have focused on the comparison of SA and FI at home, focusing on the differences between these two contexts. It is in fact the SA context which has been analyzed alongside numerous studies (Collentine 2004; Collentine & Freed 2004; DeKeyser 1991; Freed, Segalowitz & Dewey 2004; Lafford 2004; Juan-Garau & Pérez-Vidal 2007, among others).
The 1960s is accounted as the period when SA research started to emerge. During those initial stages, studies were sporadic and they “relied almost exclusively on test scores to document the linguistic advantages of a period spent abroad” (Freed 1998). It was in the 1980s that research on SA experimented an important growth. Studies such as Kaplan’s (1989) regarding the use of French by American students when in France and Diller and Markert’s (1983) reporting scores for reading and grammar for students going to Germany are representative of this period. Some researchers started using the ACTFL/ILR Oral Proficiency Interview (OPI) as standardized measure as well. However, these studies have been found to be somehow limited, since “they reveal little, if anything, about specific qualitative changes in students’ language proficiency” (Freed 1998).

It is the 1990s decade that brings a change in perspective in SA research. Multi-dimensional projects and collections of individual studies emerge, focusing not only in the linguistic advantages of SA, but regarding different perspectives of SA. One of the best known multi-dimensional studies is that of the landmark American Council of Teachers of Russian/National Foreign Language Center (ACTR/NFLC) project (Brecht & Robinson 1993; Brecht, Davidson & Ginsberg 1995; Miller & Ginsberg 1995), whose second phase focused on “an ethnographic study of the in-country language-learning process, documented by self-report diaries, observations, interviews, and recordings” (Brecht & Robinson 1993). Brecht and his colleagues worked in a study of American students who spent a semester or more in Russia to learn Russian.

Lapkin et al. (1995) investigated Canadian adolescents who participated in a bilingual interprovincial exchange program in Canada. Despite the differences in the formulation of the studies, similarities emerge from both. The most salient one is the “anticipated findings that students who participate in programs such as these are more likely to reach higher levels of proficiency than are their peers who have not participated in exchange or sojourn abroad programs” (Freed 1998). In Europe, the European Language Proficiency Survey conducted by Coleman, the largest of its
kind, involving more than 1000 students from about 100 institutions, is the biggest multi-dimensional study.

Research studies conducted by individual researchers are usually of a shorter scale, but as important as the multidimensional ones, since they have helped to redefine objectives in SA research. The early studies are linguistically-focused. (De Keyser 1991; Milton and Meara 1995, to name but two). But, in the mid-1990s a change in focus was apparent, brought into light with the publication of Second Language Acquisition in a Study Abroad Context (Freed 1995). Freed divides the research field in SA into four general areas, setting the agenda for research in the following years: “predicting and measuring language gains in study abroad settings; descriptions of the linguistic abilities which differentiate students who have been abroad from those whose language learning has been limited to the formal language classroom at home; the acquisition of sociolinguistic competence by students in immersion settings and student views of learning abroad” (Freed 1998). Although this classification is appealing, the body of research does not lend itself to easy adscription to categories. Instead, a classification based on the conventional domains of linguistic skills, as done by DeKeyser (2007) is provided below, reviewing studies investigating learners’ language proficiency gains in both at home and stay abroad contexts.

- **Listening**

Not many studies have assessed listening competence, and most of them are part of multiple-skills studies, such as Meara (1994) which report substantial improvement, especially in listening and speaking skills of British students going abroad. Carroll (1967) study also presents results for listening revealing the greater importance of a period abroad, above learning aptitude or number of years at school. DeKeyser (2007) reports the findings by Allen (2002) which document a medium-effect size in listening skills by students of French spending six weeks abroad.
Stay Abroad Studies

- **Reading**

As it happens with listening, many of the studies on reading are part of multiple-skill studies, most of them reporting very little or no gains in this skill. Dewey (2004) presented a study based on reading development of two groups of students, one doing a stay abroad in Japan and the others on an immersion program at home. The results reveal no significant differences for the two groups in most of the measures.

- **Writing**

Similarly to what has been summarized above, studies devoted to writing on different learning contexts are scarce. Freed, So, and Lazar (2003) compared oral and written gains in students of French during a semester abroad. No significant gains were found for written production. Pérez-Vidal & Juan Garau (2004) reported overall gains in writing in linguistic accuracy and lexical and grammatical complexity for Spanish students of English during a period of three months abroad. A recent study by Pérez-Vidal & Juan-Garau (2007) with the same group of learners as the present study explores the gains in written skills during a period of three months abroad. Contrary to Freed et al. (2003) significant gains were found in the three domains measured, fluency, accuracy and complexity, after the three months’ stay abroad.

- **Speaking**

Most research in SA has focused on speaking competence, probably because it is one of the main goals of people learning a second language, especially those going abroad. Speaking is thought to be very difficult to acquire inside a classroom and SA is seen as the solution to this dearth. Studies up to this moment do not show a consistent pattern regarding progress in speaking skills while abroad. As mentioned in DeKeyser (2007b) while Carlson et al. (1991) report substantial gains after a stay abroad in speaking proficiency only for learners who had spent a year or more,
Golonka (2001) found that his learners had reached similar results in only one semester.

Freed and Segalowitz have also made important contributions to research in speaking gains. In Freed (1995), two groups were compared in two different learning contexts, at home and stay abroad. Little differences were found between them in overall gains, but higher fluency gains were detected for the group abroad, especially for those who started with a lower fluency level. Segalowitz and Freed (2004) also report gains in fluency measured as speech rate and longest fluent run. And in Freed, Segalowitz and Dewey (2004), where three learning contexts were compared, at home, stay abroad and immersion programs, gains were also reported for various aspects of fluency but only for stay abroad and immersion students, not for the at home group.

Towell, Hawkins and Bazergui (1996) developed a very complete study on fluency for learners of French who spent a year abroad. They found that gains in speech rate and especially the increase in mean length of runs were responsible for the good results in students’ fluency after the period abroad. In a later study, Towell (2002) tried to explain why some learners attained higher scores on temporal variables than others and why the ones with a low initial level increased the most but never reached the levels of the former.

Other researchers have also reported gains in speaking skills, such as DeKeyser (1991) following up a group of American students in Spain. He found out that even though students gained in fluency and expanded their vocabulary, no changes were observed for their use of communication strategies. Juan-Garau & Pérez-Vidal (2007) reported substantial gains in oral fluency during a period abroad for a group of Spanish students compared with no gains during the formal instruction period at home.

Considering everything, it becomes clear that learning contexts have received a great deal of attention in the last decades, specially the stay abroad context. Most studies
have usually been concerned with either classroom achievement or language development during a stay abroad. A remarkable number have relied on the comparison and contrasts of gains for each context and not on the complementarity of these two learning contexts. As DeKeyser (1991) already mentions, "a semester in the native-speaking environment, following or combined with a (high) intermediate course with some focus on the explicit teaching of grammar, provides a prolonged opportunity for an ideal mix of focus on form and focus on meaning" (p.116). It is our strong belief that there is a need for research focusing on the transition from one context to the other, since they complement each other in many ways. It is with such a scope that the present study evolves, focusing on the development of learners who have undergone the learning experience in both contexts, first a six month FI period complemented by a 3 months stay abroad.
3. The development of fluency in L2 learner's interlanguage

As seen above speech production studies have developed in different directions and disciplines. Here we are concerned with studies which observe the development of fluency evolving within the SLA research and more specifically those tackling the analysis of SA effects. The first ones to appear were Moehle, 1984; Moehle and Raupach, 1983; Raupach, 1984, 1987, that documented on the speech of German and French college students going abroad. Studies on speech production in SA contexts have focused more on specific features of interlanguage development such as fluency development when abroad.

The area of L2 fluency has experienced an increasing interest in the last decades, and an appreciable number of studies have resulted from it (Raupach 1980; Lennon 1990; Kormos and Denés 2004; Kormos 2006; among others). Nonetheless, the term fluency remains as a difficult one to define and a wide range of definitions are being used for it.

3.1. Definitions:

Kormos (2006) distinguishes the term to be used in two senses. Fluency in the broad sense, which would equal oral proficiency and fluency in the narrow sense, which would be considered one of the components of oral proficiency.

Fillmore's (1979) conceptualization of fluency is an instance of how fluency can be accounted in the broad sense, being very much comparable to global oral proficiency. This inability to separate both terms, fluency and oral proficiency, has brought some controversy to Fillmore's conceptualization.

The definition that Derwing, Rossiter, Munro & Thomson (2004) elaborate from Schmidt: “an automatic procedural skill on the part of the speaker and a perceptual
phenomenon in the listener” (p.656) can be accounted as one of the most complete definitions, since it focuses on both the speaker and the listener. Most of the studies examining fluency in second language acquisition have focused on the speakers’ productions (Lennon 1990; Towell, Hawkins & Bazergui 1996; Riggenbach 1991, 2000; and others). Only few studies have been addressed from the listener’s point of view, using judgments from assessors (Ejzenberg 1992; Lennon 1990; Riggenbach 1991; Derwing et al. 2004).

For this study, we will adopt a narrow interpretation of fluency. One of the researchers that has most contributed to this interpretation is Lennon (1990, 2000). He first defined fluency as “an impression on the listener's part that the psycholinguistic processes of speech planning and speech production are functioning easily and efficiently” (Lennon 1990; 331-332). Kormos quotes Schmidt’s (1992) redefinition of Lennon's fluency by saying that fluency in speech production is an “automatic procedural skill” and that fluent speech is “automatic, not requiring much attention or effort' (Kormos 2006; 155). Both of these definitions give an account of how fluency in the narrow sense can be understood, laying emphasis in the psychological nature of speech production and the importance of automaticity. A synthesized definition provided by Lennon (2000) summarizes these ideas arguing that “a working definition of fluency might be that rapid, smooth, accurate, lucid, and efficient translation of thought or communicative intention into language under the temporal constraints of on-line processing” (p.26). For this study, we will adopt this definition of fluency.

3.2. Approaches to the development of fluency

The development of fluency has been investigated within the information-processing models taking two different approaches, the *Universalist approach* and the *Individual Differences approach*. The former views fluency development as the result of practice which has allowed the automatization of the processes involved in speech production. As we have seen in section 1.3.1.2. with the ACT model, it is
practice that transforms declarative knowledge (what) into procedural knowledge (how). At first, practice serves to turn declarative knowledge into procedural knowledge and once it has been proceduralized, further practice drives to automatization of that knowledge (for a more detailed description turn to section 1.3.1.2.) Studies supporting this model have been undertaken by DeKeyser (1997) and Towell, Hawkins, and Bazergui (1996). However, these studies do not specify the type of practice that may be necessary to promote fluency. Segalowitz (2000) attempts to do it by claiming that practice has to be transfer-appropriate, in the sense that the cognitive operations that have to be activated are the ones that the learner will shortly put into practice. In summary, this approach emphasizes the role of extensive and repetitive practice which leads to automaticity, and that it is also meaningful, so it is transfer-appropriate. In his monograph on practice, DeKeyser (2007) provides different approaches to what kind of practice may be more appropriate for acquiring a second language.

Good practice needs to involve real operating conditions as soon as possible, which means comprehending and expressing real thoughts, and this necessarily involves a variety of structures, some of which will be much further along the declarative-procedural-automatic path than others. (DeKeyser 2007:292)

In order to enhance fluency, many are the researchers who have confirmed the importance of practice in production (Swain & Lapkin 1995; Shehadeh 1999; Izumi 2002; VanPatten 2004; Muranoi 2007).

The *individual differences approach*, developed by Skehan (2002) proposes that differences in fluency among learners are due to the differences in the memory component of aptitude. In his previous work (Shekan 1989, 1998) Skehan proposed that analysis-oriented learners prioritize accuracy whereas memory-oriented learners prioritize fluency. Some support to this approach has been given by Kormos (1999). Learning styles are also a key part of this approach (see chapter 1.2. above for further details).
3.3. Use of measures in fluency studies

The use of appropriate fluency measures has been an issue of discussion among researchers. Kormos (2006) establishes four different approaches delineating the measures of fluency existing in the investigation of L2 learner’s speech: 1) temporal aspects of speech production (e.g. Lennon 1990), 2) the combination of the temporal variables with the study of interactive features such as turn-taking mechanisms (e.g. Riggenbach 1991), and 3) phonological aspects of fluency (e.g. Hieke 1984). She also mentions studies including the analysis of formulaic speech (Towell et al. 1996).

Temporal variables have been largely used to measure fluency gains of second language learners in the field of second language acquisition. Raupach, in one of his early studies (1980), reported on the temporal variables in speech production and concluded that temporal variables “allow us to determine different degrees of fluency” (pp. 269-270). Towell (2002) claims that temporal variables provide “objective measurements of the output of the productions which must lie behind language processing” (p.119) and, in second language acquisition, they show “what developments in fluency have taken place” (pp.119-120).

Many researchers have reported some variables to be better predictors than others (Raupach 1980; Lennon 1990; Freed, 1995; Segalowitz & Freed 2004). Speech rate (SR), defined as the number of syllables spoken per minute, has been regarded as one of the most reliable measures for fluency gains (Freed 1995; Lennon 1990; Riggenbach 1991; Towell et al. 1996; Kormos and Denès 2004). However, this measure alone cannot give account of the development of a learner’s L2 fluency. Other variables are needed to give a more complete account of this development. Mean Length of Runs (MLoR), Articulation rate (AR), Phonation time ratio (PTR), Pause frequency (PF), Pause duration ratio (PDR), Internal pause duration ratio (IPDR) and number of dysfluencies (DR) have been reported as being good predictors of fluency gains in different studies (Raupach 1980; Towell et al. 1996; Kormos and Denés 2004).
Up to this moment, none of the previous studies have examined all these variables together with a large population (30 participants) and on a longitudinal study comprising two learning contexts. In our study, using these eight temporal variables on a large number (30) of participants and along a long period of time (15 months), we aim at gaining a better understanding of which of the variables are better predictors of language success and why. The results will try to further the current knowledge of the type of development undergoing learner’s L2 fluency along time.
Recapitulation and research agenda

4. Recapitulation and research agenda.

4.1. Summary

So far, the theoretical background for the empirical study has been provided. Chapter 1 compiled existent research on SLA theories and speech production approaches. First, the main theories, models and approaches in SLA research are briefly presented, and related to L2 learner's IL development. Although some of the theories may seem to be rather outdated (i.e. Krashen's model), they have provided valuable bases for current research in SLA. Cognitive approaches have been claimed to be among the most suitable to explain the development taking place in the IL system (refer to 1.1.4. for further details). The second part of the chapter consists in a thorough review of research in IDs. The value of IDs as a complement to the linguistic results and as predictor of changes in learners’ interlanguage has been especially explicated. To conclude the chapter, an exhaustive description of the process of speech production is given, presenting two of the models more widely applied to SLA research. A further discussion on the process of automatization, the role of output and the importance of practice is included in this chapter, since these three issues are essential for the development of fluency in learner’s IL.

After commenting on the most common type of research on learning contexts, a new approach to the concept is presented in Chapter 2. This approach views learning contexts as a continuum, and not as opposed terms as it had previously been understood. This is followed by a thorough review of the research so far on learning contexts and the main finding in the different linguistic domains, paying special attention to speaking.

Chapter 3 is devoted to the central topic of the present study, fluency. First, a discussion on different definitions of the term fluency is presented, followed by the decision to regard fluency as a temporal phenomenon for the present study. The second section presents an overview of how the development of fluency has been
undertaken by other researchers, followed by a revision of measures used in previous studies on fluency development. A number of temporal measures have been selected to be tested in the empirical study.

4.2. Research agenda

After considering everything presented in Part I, specific questions arise, which are sought to be answered in Part II with the empirical study. The focus of the empirical study falls into the category of predicting and measuring language gains in study abroad settings, but as a complement to formal instruction. The main concern is to find out the different stages in the development of fluency in the interlanguage of L2 learners.

The empirical study elaborates on two fields: first, we investigate the development of learners’ L2 fluency at two different times during a period of 15 months, each time corresponding to a different learning context (formal instruction at home and a stay abroad in an English speaking country). And second, we detect and analyze the individual and contextual variables that shape the behavior of the learners who obtained higher fluency rates during this period of time.

Results to the first objective give us information about the patterns of development followed by L2 learners regarding fluency, differentiating between different types of speakers.

The second objective, tracking L2 learners’ behavior towards language learning helps us to understand the factors which make successful (highly fluent) L2 learners and how they correlate with the development of fluency.

The empirical study is developed within the university context in Catalonia, instigating certain patterns of behavior. Participants are students of Translation and Interpreting at the Universitat Pompeu Fabra. Data is collected longitudinally using
the SALA\textsuperscript{4} tests and protocols. Developmental gains in fluency are measured on participant's oral productions and correlated with data about individual differences and contact variables extracted from questionnaires. The results and discussion are presented making reference to previous finding in the field.

\textsuperscript{4} Stay Abroad and Language Acquisition (HUM2004-05442-C02-01/FILO). This project examines the effects and variables of success of a stay abroad on the acquisition of a second language (English) by advanced university students, comparing it to the FI at home. The SALA project is develop within the Group Consolidat ALLENCAM (SGR2005).
PART II. THE EMPIRICAL STUDY
5. Research Questions and Hypotheses

Taking into account the objectives stated in the chapter above and after reviewing the literature on SLA research, speech production, and specially SA studies and fluency development, the following research questions and hypotheses are formulated:

5.1. Research questions

1. – In which direction and up to what extent is the fluency of L2 learners going to be modified during a period of 15 months, measured at two different times corresponding to two different learning contexts?

2. – Does the fluency of all L2 learners develop in the same direction and at the same pace? Or do different patterns of development emerge?

3. – Which features characterize an L2 high fluency speaker in terms of linguistic knowledge, proceduralization and performance, as opposed to less fluent speakers?

4. – Which individual variables and external factors correlate with the development of fluency in L2 high fluency speakers?

5.2. Hypotheses

On the basis of the above research questions we formulate the following hypotheses:

1. – We expect there to be continuous development in the L2 fluency of advanced EFL university students as a function of time and learning contexts measured over a period of 15 months comprising two different learning contexts. This development is expected to take place due to an increase in linguistic knowledge, exposure and practice of the TL and hence automatisation of knowledge.
2. – Different patterns of fluency development among L2 speakers are anticipated to emerge as a function of time and learning contexts measured over a period of 15 months comprising two different learning contexts. During the first period, corresponding to the FI at home, fluency is predicted to decrease due to the lack of oral production practice. On the other hand, fluency is predicted to increase during the second period corresponding to the SA, due to a higher linguistic onset level, and an increase of exposure and practice of the TL.

3. – A group of L2 highly fluent speakers are expected to emerge according to the levels of fluency attained by the participants, allowing the identification of features of oral performance which characterize this type of speaker.

4. – Certain individual and contact variables are expected to be constant in L2 high fluency speakers, and significantly different from those in low fluency speakers.
6. Design

6.1. Context of the SA program

In a world growing towards globalization, studies on second language acquisition are gaining ever increasing importance and relevance. Our study is placed in a complex sociolinguistic context, common to other universities in Europe. In order to better understand our participants’ performance, university students of Translation and Interpreting at the Pompeu Fabra University in Barcelona, we will describe the sociolinguistic context where they are immersed.

As many researchers have already mentioned (Crystal, 1987; Sharwood-Smith 1994; Kormos 2006 among others), monolingual speakers are extinguishing and bilingualism (or even multilingualism) is becoming the norm. There is an ever increasing need among people to communicate with others who speak different languages from their own. This clear tendency towards multilingualism is promoted by the increasing ease to travel, immigration fluxes, working needs, and tourism growth.

Within Europe, many are the communities where two (or even three) languages are spoken. For children born there, the acquisition of both languages is fairly automatic, acquiring them at the same time and as first languages. However, latecomers to these bilingual speaking communities do not experience the same fate. The processes involved in learning the new languages as adults bear a series of differences from the acquisition of their L1. New languages are learnt as second languages, with all the difficulties and endeavors entailed in the process.

In its commitment to integration at European level, the European Union operates with the mandate to promote the linguistic and cultural diversity of its citizens. In 2005, the Council of the European Union (EU) adopted a policy on multilingualism with three main aims: “to encourage language learning and promoting linguistic
diversity in society, to promote a healthy multilingual economy, and to give citizens access to European Union legislation, procedures and information in their own languages.” (p.3). The Commission’s long-term objective is to “increase individual multilingualism until every citizen has practical skills in at least two languages in addition to his or her mother tongue”. (see Pérez Vidal 2002 for a more comprehensive view)

6.1.1. The University System in Catalonia.

The University System in Catalonia comprises three types of Universities distributed in: 7 Public Universities, 4 Private Universities and 1 Open University.

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<tr>
<td>Universitat de Barcelona</td>
<td>56,111</td>
<td>Universitat Ramon Llull</td>
<td>12,140</td>
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<tr>
<td>Universitat Autònoma de Barcelona</td>
<td>38,117</td>
<td>Universitat de Vic</td>
<td>5,113</td>
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<tr>
<td>Universitat Politècnica de Catalunya</td>
<td>33,242</td>
<td>Universitat Internacional de Catalunya</td>
<td>2,406</td>
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<tr>
<td>Universitat Pompeu Fabra</td>
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<td>Universitat Abat Cilica</td>
<td>564</td>
</tr>
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<td>Universitat de Girona</td>
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<td>Universitat Oberta de Catalunya</td>
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<td>Universitat de Lleida</td>
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<td>Universitat Rovira i Virgili</td>
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<td>TOTAL</td>
<td>170,750</td>
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<td>69,219</td>
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Table 1: Students enrolled in the Catalan universities (04/05).
Source: Comissionat per a Universitats i Recerca

In Catalonia, as in all the Spanish territory, university studies are structured in cycles. Three cycles can be distinguished according to the duration: first cycle (3 years), second cycle (2 years) and first and second cycles (4-5 years) (see Figure 2). There also exists a so called third cycle (2 years plus a doctoral thesis) leading to the PhD.
Catalan universities offered 441 official and accredited studies during the year 04-05, from which 180 were first cycle studies, 67 second cycle studies, and 194 first and second cycle. The number of students enrolled at the Catalan universities during that year was 225,969.

The admission to higher education is conditioned by the requirement of a secondary school credential and an entrance exam. There is a minimum mark required to access a university. This mark reflects the offer and demand of the studies, not its difficulty. For translation and interpreting studies, a complementary language exam is also required.

The university plan of study is structured in courses that students have to follow consecutively. These courses include required subjects which are chosen by general directives or by the university and elective subjects which the students can choose freely.
Students have the possibility to enroll in mobility programs offered by all the universities. The most widely followed program is the ERASMUS which is described in section 6.1.3.

6.1.2. Sociolinguistic context

Since the year 1980, Catalan and Spanish are the two official languages spoken in Catalonia, creating a situation of official bilingualism.

![Territories where Catalan is spoken and official status.](source)

Catalan and Spanish are the two official languages in the Catalan Universities. The use of the official languages in university activities is governed by Law 1/1998, of 7 January, governing language policies. Both the government and the universities have the duty to promote the use and knowledge of Catalan among all members of the university community. The Universities of Catalonia have long contributed to the process of language normalization instigated by the Catalan Government.
University lectures and seminars are mainly conducted in Catalan (about two thirds in the year 04/05). However, at present, with the creation of the new spaces of Higher Education and the promotion of students’ mobility, new language policies are emerging among the Catalan universities, introducing a new multilingual classroom reality.

The Universitat Pompeu Fabra has recently launched a Plan of Action for Multilingualism, which introduces English as a working language for all studies offered, together with the already used Catalan and Spanish. (see www.upf.edu/llengues/)

6.1.3. SA program

The ERASMUS program, promoting the mobility of university students within Europe, has become essential in this process towards multilingualism. It was first established in 1987 by the European Union and during its first year, a total of 3.244 students participated in the experience. In only ten years the figure had grown to 85,999 and the most recent, 2006 statistics, revealed an ever growing increase to 154,553 students. Coleman (1998) refers to the ERASMUS as having “made European cooperation between universities into the norm rather than the exception.” (p.170)

In Spain, the participation in the program has turned from being practically insignificant to being one of the countries that more students sent abroad in 2006. (see figure 4)

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5 All information on ERASMUS figures has been extracted from the "Movilidad de Estudiantes" of the Agencia Nacional Erasmus http://www.mec.es/educa/ccuniv/erasmus/
Students from all countries in the EU have shown a clear tendency to choose the UK as the first destination. Spanish students in particular prefer the UK, France, Germany and from the year 2000 Italy as well. (see figure 5)
The profile of Spanish students participating in the ERASMUS program depicts university students from an age between 18 and 30 (most figures accumulating between 20 and 25), with women representing almost two thirds of the students (see figure 6) and going abroad on the second half of their studies. The duration of the stay ranges from 3 to 12 months, with an average of 7 months.
The study areas which sent more students abroad are Technology and Engineering, Business Studies, and Languages and Philological Studies. (see figure 7). For this last area most of the students were women.
Within Spain, the autonomous communities which send more students abroad are Madrid, Catalonia and Andalusia. Catalonia sent during the year 05/06 3,400 students abroad. The first two have been pioneers from the beginning of the program. And within Catalonia, the Universitat Politècnica de Catalunya is the one that sends more students abroad, followed by the Universitat de Barcelona, Universitat Autònoma de Barcelona and Universitat Pompeu Fabra. The year 05/06 this last university sent 361 students abroad.

6.1.4. Summary

The sociolinguistic context of the study is framed within a climate of multilingualism. As we have seen in the previous sections, the importance of knowing more than one language is a major issue in the current European context.
State members are called to develop language policies to promote the learning of foreign languages.

Universities are core institutions for reaching these objectives. In the last years, new language policies are emerging among Catalan universities to face the new multilingual reality. The official bilingualism characteristic of the Catalan society and its universities is giving way to an imminent trilingualism at the university context. Some universities are starting to urge their students to be competent in three languages if they want to ensure success in the academic life. The recommendation to spend a period abroad is often made by professors.

The ERASMUS program, funded by the EU, is helping to promote the learning of European languages within the university context. Increasing number of students enroll every year in this experience, creating cultural and linguistic links among countries and individuals. The main goal of students participating in this mobility program is very often to become more proficient in the foreign language.

So, the question of why study language acquisition at university level, and linked to SA, becomes highly relevant when looking at this sociolinguistic context. The European actions towards multilingualism, the university promotion of foreign languages and the current number of students spending time abroad are central to this interest. SA programs offer the opportunity to benefit from “informal out-of-class exposure to the TL [target language]” (Huebner 1998;2). This kind of exposure has been demonstrated to be of great value for learners since it provides real input, it enhances interaction and negotiation of meaning, and it requires output. All these processes are of central concern for SLA theories. In addition, the experience also represents a real turn towards personal growth.
6.2. Variables of the study

In order to address the research questions above, the following variables have been specified:

**Dependent variable:** oral fluency (measured by temporal variables: speech rate, mean length of runs, articulation rate, phonation time ratio, pause frequency, pause duration and number of dysfluencies per minute).

**Independent variables:** time and learning contexts (measured at three different points in time, corresponding to two different learning contexts).

**Controlled variables:** age, gender, native languages, motivation, initial linguistic level, initial fluency level, accommodation, contact with the host culture (newspapers, TV...).

6.3. Participants

Participants (n=30) were selected from a larger group of students at the Pompeu Fabra University in Barcelona studying Translation and Interpreting. All subjects were bilinguals, with ages between 17 and 20, and with an advanced level of proficiency in English.

The base line data was provided by a group of ten highly comparable subjects, with ages between 19 and 21 from the College of the Holy Cross in the USA, having English as their mother tongue. At the time of the data collection, these subjects were participating in an international exchange program at the Universitat de les Illes Balears, Spain.
Before entering the University, participants in the experimental group had successfully completed secondary school and taken a university entrance exam (PAAU). A minimum mark was required to enroll in Translation and Interpreting studies, as well as a text measuring the linguistic competence in their mother tongues and target language (English).

Translation and Interpreting undergraduate courses at the UPF last 4 academic years, and each year is divided in three terms. During the first two terms of the first year, students attend English lectures for a total of 80 hours. These lectures are all given in English and they cover lexical, syntactic and morphological aspects of the language, as well as practicing reading and writing skills. No explicit training is provided for listening or oral production during the course.

Students are required to spend the first term of the second year, abroad, in an English speaking country. This is accomplished through the ERASMUS program. During this three-month period, students attend lectures and seminars at the host university. Accommodation arrangements may be provided by the host university, but this is not always the case. Students may live in university dorms, shared apartments (either with natives or non-native mates) or with host families.

After the SA term, students go back to the UPF and follow the regular curriculum for the Translation and Interpreting Studies, which do not include any other subject on English language for the remaining two and a half years. However, it should be noticed that some lectures may be given in English.
6.4. Instruments: tests and administration

The administered tests are part of the SALA\textsuperscript{6} project battery of oral and written tests. Written tests include three questionnaires: linguistic profile, administered at T1 only, attitude’s questionnaire, at all three data collection times, and stay abroad conditions at T3, after the stay abroad. Participants were also asked to write a composition in English and fill in a grammar, cloze, listening, and two aural perception tests. Oral tests consist of three tasks: a reading aloud, an interview and a role play (see figure 8).

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{sala_tests_diagram}
\caption{SALA battery of tests. Red boxes mark the tests used in the present study.}
\end{figure}

Data collection took place at three different times over a 15-month period (see figure 9):

T1. Upon students entrance at the home university, before starting any FI.

T2. After a six-month period of formal instruction (80 hours) at the home university.

T3. Upon return to the home university after a three-month stay abroad term in an English speaking country.

Data obtained through this design enable the analysis of acquisition in different learning contexts, FI at home and SA. At the same time, the data, being longitudinally collected, allows an exhaustive analysis of the linguistic development of each participant.

The oral interviews and the three questionnaires have been the data source for the present study (see red boxes in figure 8). For the oral interview, participants were
grouped in pairs (student A and student B) and a battery of questions was given to each participant (see appendix A). First, student A formulated all the questions to student B. Once finished, they changed roles and student B formulated the questions to student A. Time allowance for this test was five minutes. The recordings took place in a translation booth in the presence of a researcher, who gave the instructions. For T1 and T2, speech samples were recorded on tape, for T3 minidisks were used. The same proceedings were followed at the three data collection times.

The questionnaires were administered at the written sessions. The Language Profile Questionnaire was handed at the beginning of T1 written session, consisting of 2 sections (see appendix B). Section one collects information on participants’ personal details and linguistic background. The second section gathers information about the use of the L2 (English). A maximum of 10 minutes was given to fill out the questionnaire.

The Attitude-Motivation questionnaire was administered at the three data collection times (see appendix C). The questionnaire consisted of 5 parts evaluating attitudes, motivations, personality and learning styles. A 7 point Likert scale was used for the responses of sections one to three and a 5 point scale for section four and five. Time allowance for this questionnaire was 12 minutes.

The Questionnaire on Stay Abroad Conditions was designed to gather information about the sociolinguistic experience when abroad. The questionnaire consists of 21 questions ranging from the type of contact with the reality abroad, daily life, accommodation, amount of contact with natives and non-natives, to self-perceptions on the personal and linguistic domains.
6.5. Analysis

Participants’ L2 oral productions were analyzed in terms of fluency of speech. Speech samples were transcribed\(^7\) for each participant and at the three different data collection times using a speech analyzer (Goldwave 519). By means of this program dysfluent pauses were detected and measured in milliseconds. The cut off point for pauses was established at 0.4 sec. The 0.4-s criterion has been selected as the defining criterion of a dysfluent silent pause, following Riggenbach, who suggested that “pauses shorter than 400 ms are within the range of normal or fluent speech and do not reflect dysfluency” (Riggenbach 1991;426).

Others studies using these same temporal measures among L2 learners have established the cut-off point for pauses at different counts. The 0.25 cut-off point has been largely applied, at least in the first studies (see Grosjen and Deschamps 1975; Raupach 1987). However, Raupach (1980) used the 0.3 sec. criterion to measure silent pauses of German and French learners and Towell et al. (1996) applied the 0.28 sec. criterion to measure the French productions of English speakers who spend a period of time in France. Riggenbach (1991) made a distinction between type of pauses: 'Micropauses' of 0.2 sec. or less, 'hesitations' of 0.3 to 0.4 sec. and 'unfilled pauses' of 0.5 sec. or greater. Freed (1995b) established the cut-off point at 0.4 sec. after native judges' fluency evaluations of two groups of L2 learners’ performance, one group that spent a period abroad and the other that remained at home. This 0.4 sec. criterion accounts for dysfluent pauses produced by L2 learners. For the purpose of our study, this 0.4 sec. criterion has also been adopted, since we are interested in measuring dysfluent pauses, that is, pauses which break the fluent run of speech.

The construct of oral fluency based on temporal measures and hesitation phenomena has been adopted for the present study. Previous research on SLA has largely used this construct of oral fluency (Lennon 1990; Raupach 1987; Towell et al. 1996).

\(^7\) CLAN conventions were used and adapted for the purpose of this study.
Freed et al. 2004). Kormos and Denes (2004) claim that a cluster of temporal variables can explain in a high proportion the variation in fluency scores, leaving hesitation phenomena in a second place. However, we believe that some measures of hesitation can provide results as relevant as the ones obtained through temporal measures. On the basis of the commented previous research the following measures were adopted in this study:

6.5.1. Measures

- **Temporal Phenomena:**

  **Speech rate (SR):** total number of syllables produced in a given speech sample divided by the amount of total time required to produce the speech sample (including pause time) expressed in seconds. This figure is then multiplied by sixty to obtain syllables per minute. This has been calculated following Riggenbach (1991).

  **Mean Length of Runs (MLoR):** Average number of syllables produced in utterances between pauses of 0.40 seconds and above (refer to the beginning of this section for the argumentation on the selection of 0.40 sec. criterion).

  **Articulation Rate (AR):** total number of syllables produced in a given speech sample divided by the amount of time taken to produce them (excluding pause time) in seconds. This figure has been calculated following Kormos & Dénes (2004).

  **Phonation-time Ratio (PTR):** “percentage of time spent speaking as a percentage proportion of the time taken to produce the speech sample.” (Towell et al. 1996;91)
Hesitation Phenomena:

**Pause Frequency (PF):** total number of pauses divided by the total amount of time expressed in seconds and multiplied by 60. Only pauses of 0.40 s. and above have been used for the calculations.

**Pause duration ratio (PDR):** average duration of pauses calculated by dividing the total length of pauses above 0.4 seconds by the total number of pauses of above 0.4 seconds.

**Internal Pause duration ratio (IPDR):** average duration of internal pauses calculated by dividing the total length of internal pauses above 0.4 seconds by the total number of internal pauses of above 0.4 seconds.

**Dysfluencies per minute (DR):** total number of dysfluencies (repetitions, restarts and repairs) divided by the total amount of time expressed in seconds and multiplied by 60.

First, a quantitative analysis, using temporal measures and hesitation phenomena to track changes in participants’ oral fluency was performed. Second, these results were compared to the performance of participants in the base line data group consisting of English native speakers. Differences between the two groups emerged. Then, the analysis was refined by taking the results of the five non-native participants whose performance most approximated to that of native speakers. A subgroup of non-native speakers whose performance was very close to that of native speakers was identified, and labeled as ‘highly fluent speakers’ subgroup. Several further analysis were performed on these participants, providing accurate information about their linguistic performance and sociolinguistic behavior.

The SPSS statistical package was used. The alpha level of significance was set at 0.05 for all analyses. Repeated Measures ANOVAS were applied to track the
development of fluency along time. In order to measure the incidence of the two learning contexts on the development of fluency, T-Tests were performed comparing gains at two data collection times corresponding to the two learning contexts. This same test was also used to compare native and non-native speakers’ performance, as well as *highly fluent* and *low fluent speakers*’ performance in relation to contact variables. Pearson correlations were performed in order to measure the incidence of some variables on others, especially temporal measures and both ID and contact variables.
7. Results

The results of the study have been divided in three separate sections. In the first section, *Temporal and Hesitation phenomena*, the development of fluency on participants’ oral productions is examined. Both, an overview of the results and the illustration of each variable is provided. Afterwards, four developmental patterns, emerging from participants’ performance, are presented. The section ends with a comparison between participants’ results and the native speakers’ (NSs) group performing the same task. It is through this comparison that a group of learners whose performance in fluency is very high is identified. Several other analysis are performed on these learners in the third section of the results. The second section, *Contact Variables and Individual Differences*, examines the answers in the questionnaires in relation to the fluency measures. Results for the first and second section are presented in quantitative form. The third section combines both quantitative and qualitative analysis and examines the performance and behavior of the *high fluency speakers*’ group previously identified. Such presentation of the results intends to assist in the interpretation for the posterior discussion of the hypotheses.

7.1. Temporal and Hesitation Phenomena

Results in this section provide information to better understand the development of fluency in learners’ interlanguage. Four temporal measures and four hesitation phenomena have been used to analyze this development in participants’ oral productions. The mean and standard deviation (in brackets) for all eight measures at the three different data collection times for the experimental group (NNSs) and the base line data group (NSs) are represented in table 2.

Results indicate that there is a clear tendency towards improvement for all measures during the period of time under examination. Temporal variables tend to increase
Results

along time, while the hesitation phenomena tend to decrease. When compared to the NSs group, the figures in the experimental group never reach the same level of attainment.

<table>
<thead>
<tr>
<th>Fluency Measures</th>
<th>Data Collection Times</th>
<th>NNSs</th>
<th>NSs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1</td>
<td>T2</td>
<td>T3</td>
</tr>
<tr>
<td>SR</td>
<td>155.72 (27.97)</td>
<td>157.28 (27.90)</td>
<td>176.12 (29.40)</td>
</tr>
<tr>
<td>MLoR</td>
<td>7.74 (2.24)</td>
<td>7.42 (2.20)</td>
<td>9.30 (2.43)</td>
</tr>
<tr>
<td>PTR</td>
<td>75.21 (5.63)</td>
<td>73.41 (6.31)</td>
<td>77.38 (6.05)</td>
</tr>
<tr>
<td>AR</td>
<td>3.44 (0.51)</td>
<td>3.56 (0.48)</td>
<td>3.78 (0.47)</td>
</tr>
<tr>
<td>DR</td>
<td>8.25 (3.76)</td>
<td>7.51 (3.58)</td>
<td>6.22 (3.41)</td>
</tr>
<tr>
<td>PF</td>
<td>10.43 (2.90)</td>
<td>11.50 (2.98)</td>
<td>8.44 (2.83)</td>
</tr>
<tr>
<td>IPDR</td>
<td>12.14 (3.89)</td>
<td>13.57 (4.64)</td>
<td>9.44 (3.76)</td>
</tr>
<tr>
<td>PDR</td>
<td>24.79 (5.63)</td>
<td>26.59 (6.31)</td>
<td>22.62 (6.05)</td>
</tr>
</tbody>
</table>

Table 2: Fluency variables: means and standard deviation 3 data collection times NNSs and NS.

*SR=speech rate; MLoR=mean length of runs; PTR=phonation time ratio; AR=articulation rate; DR=dysfluency ratio; PF=pause frequency; IPDR=internal pause duration ratio; PDR=pause duration ratio.

In order to provide a statistical interpretation of the results above, a repeated measures ANOVA was performed for all measures. This test gives us information about significant differences in fluency measures as a function of data collection time. Results are shown in table 3.

An overall statistical significance (with \( p < 0.01 \)) is found for all measures as a function of time. Participants’ fluency scores at T3 are significantly higher than those at T1. All temporal measures increase and all hesitation phenomena decrease significantly. These results indicate that there has been a definite development in participants’ oral fluency from the beginning of the experimental period to the end.
Results

Table 3: Fluency measures' statistical significance at the three data collection times.

<table>
<thead>
<tr>
<th>Variables*</th>
<th>Data Collection Times</th>
<th>Overall</th>
<th>T1-T2</th>
<th>T2-T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>155.72 (27.97)</td>
<td>157.28 (27.90)</td>
<td>176.12 (29.40)</td>
<td>.000 (**)</td>
</tr>
<tr>
<td>MLoR</td>
<td>7.74 (2.24)</td>
<td>7.42 (2.20)</td>
<td>9.30 (2.43)</td>
<td>.000 (**)</td>
</tr>
<tr>
<td>PTR</td>
<td>75.21 (5.63)</td>
<td>73.41 (6.31)</td>
<td>77.38 (6.05)</td>
<td>.000 (**)</td>
</tr>
<tr>
<td>AR</td>
<td>3.44 (0.51)</td>
<td>3.56 (0.48)</td>
<td>3.78 (0.47)</td>
<td>.000 (**)</td>
</tr>
<tr>
<td>DR</td>
<td>8.25 (3.76)</td>
<td>7.51 (3.58)</td>
<td>6.22 (3.41)</td>
<td>.000 (**)</td>
</tr>
<tr>
<td>PF</td>
<td>10.43 (2.90)</td>
<td>11.50 (2.98)</td>
<td>8.44 (2.83)</td>
<td>.000 (**)</td>
</tr>
<tr>
<td>IPDR</td>
<td>12.14 (3.89)</td>
<td>13.57 (4.64)</td>
<td>9.44 (3.76)</td>
<td>.000 (**)</td>
</tr>
<tr>
<td>PDR</td>
<td>24.79 (5.63)</td>
<td>26.59 (6.31)</td>
<td>22.62 (6.05)</td>
<td>.000 (**)</td>
</tr>
</tbody>
</table>

** Indicates p < 0.01

*SR=speech rate; MLoR=mean length of run; PTR=phonation time ratio; AR=articulation rate; DR=dysfluency ratio; PF=pause frequency; IPDR=internal pause duration ratio; PDR=pause duration ratio.

7.1.1. Variables development

In addition to representing the overall picture for the whole period under study in tables 2 and 3, the above figures provide information about the specific gains obtained after each separate period of time when data was collected, corresponding to two different learning contexts, FI (at home) and SA. These results are represented in figures 10 to 17 which show the pattern of development for each measure, with the mean value at each data collection time.

During the first period, corresponding to the FI at home, no significant differences emerge for any of the measures. Two temporal measures, SR and AR, show a small, non-significant increase, while all the others decrease slightly (and non-significantly) during this first period. For the hesitation phenomena all results are non-significant; dysfluencies decrease, while pausing behavior increases. This lack of significant gains, and the negative tendency of the measures seem to point at a drawback from the initial level at T1.

Whereas during the first period non-significant differences in gains are found, highly significant differences in gains for all measures during the second period,
corresponding to the SA, are recorded. Temporal measures increase while the hesitation phenomena decrease. Such a behavior of both types of fluency measures has been reported by other researchers to be the ideal combination for the improvement of fluency (Towell et al. 1996; Kormos 2004). In our study, the period spent abroad seems to have been decisive for the oral fluency development, in the sense that it is during this period that the fluency of participants improves the most. These results are in contradiction with findings by some studies which have not been able to demonstrate growth for advance level students after a study abroad period (Brecht et al. 1995; Freed 1990, 1995; Lapkin et al. 1995).

Figure 10: Speech Rate

Figure 11: Mean Length of Runs

Figure 12: Phonation Time Ratio

Figure 13: Articulation Rate
After checking the gains in participant’s oral fluency as a function of time, and observing significant differences for all fluency measures, we now perform a rank-order correlation analysis. This analysis permits to find out the strength and direction of the relationship between our fluency variables.
Table 4 presents the rank-order correlations of all temporal variables and hesitation phenomena used in our study.

<table>
<thead>
<tr>
<th></th>
<th>T3_SpeechRate</th>
<th>T3_MLoR</th>
<th>T3_PhonRAT</th>
<th>T3_AR</th>
<th>T3_DYS</th>
<th>T3_PauseFreq</th>
<th>T3_IntPDurRAT</th>
<th>T3_PDurRAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>T3_SpeechRate</td>
<td>r: 0.730(***), sig: 0.000</td>
<td>r: 0.707(**), sig: 0.000</td>
<td>r: 0.895(**), sig: 0.000</td>
<td>r: -0.227, sig: 0.228</td>
<td>r: -0.267, sig: 0.154</td>
<td>r: -0.532(**), sig: 0.002</td>
<td>r: -0.707(**), sig: 0.000</td>
<td></td>
</tr>
<tr>
<td>T3_MLoR</td>
<td>r: 0.871(**), sig: 0.000</td>
<td>r: 0.433(*), sig: 0.017</td>
<td>r: 0.068, sig: 0.723</td>
<td>r: -0.414(*), sig: 0.023</td>
<td>r: -0.596(**), sig: 0.011</td>
<td>r: -0.871(**), sig: 0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3_PhonRAT</td>
<td>r: 0.321, sig: 0.030</td>
<td>r: -0.303, sig: 0.104</td>
<td>r: -0.530(**), sig: 0.003</td>
<td>r: -1.000(**), sig: 0.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3_AR</td>
<td>r: -0.329, sig: 0.076</td>
<td>r: -0.171, sig: 0.367</td>
<td>r: -0.390, sig: 0.033</td>
<td>r: -0.321, sig: 0.083</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3_DYS</td>
<td>r: 0.163, sig: 0.390</td>
<td>r: 0.189, sig: 0.317</td>
<td>r: -0.030, sig: 0.873</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3_PauseFreq</td>
<td>r: 0.835(**), sig: 0.000</td>
<td>r: 0.303, sig: 0.104</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3_IntPDurRAT</td>
<td>r: 0.530(**), sig: 0.003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3_PDurRAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Indicates p < 0.05  
** Indicates p < 0.01

Table 4: Rank-order correlations of the temporal variables and hesitation phenomena.

There is a positive and strong correlation between three of the four temporal variables measured: SR, MLoR and PTR. The Pearson correlation coefficient (r) takes a high value, approximating +1, in the three cases. The other variable, AR, also has a positive and strong correlation with SR, and a more moderate positive correlation with MLoR, but no significant correlation is perceived between this one and PTR.

Hesitation phenomena also show some positive correlations. IPDR strongly correlates with PDR and PF, but no correlation can be observed between PDR and PF. As for dysfluency ratio, no correlations are found with any other measure.

Correlations between temporal measures and hesitation phenomena are negative, as expected. For instance, when SR increases, IPDR decreases, and the other way
around. The three temporal measures which correlate the best (SR, MLoR and PTR) have also strong correlations with IPDR and PDR.

From all the measures, SR, MLoR, PTR and, IPDR and PDR are the ones with larger correlations. This means that, having the value of one of these variables, we can approximately determine the value of the other variables.

In order to corroborate this finding, we have performed a principal component analysis (PCA) incorporating all these variables, and the result has been the reduction to 1 component which explains 77.40% of variance (see table 5). This Component has been further used in the following section as a new variable which captures most of the essence of the 5 primary variables used to provide a finely-tuned description of participants’ oral performance.

<table>
<thead>
<tr>
<th>Principal Component Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

Table 5: Principal Component Analysis for fluency measures with percentage of variance.

7.1.2. Patterns of development

At the beginning of this section we observed certain patterns of development for each variable as a function of time. These patterns have emerged from the means of the 30 participants in all fluency measures of the study. We now want to look at participants’ scores individually and find out whether they can be grouped according to different patterns of fluency development along the three data collection times.

The compound variable mentioned at the end of the previous section has been used for this purpose. It was obtained by performing a PCA with the five primary
variables (3 temporal and 2 hesitation phenomena) with largest correlations. The relative weight of each variable is shown in Table 6. From now on this new variable (Component 1) will be referred to as *Total Fluency* (TFL).

![Table 6: Principal Component Analysis: components loadings.](image)

Once the TFL variable was computed for each data collection time, we analyzed the results for each participant and observed certain specific patterns of behavior which were recurrent among participants. Four patterns were established, with a non-balanced distribution of participants.

**PATTERN A**

![Figure 18: Pattern A. Total Fluency: Increase between T1- T2 and T2-T3.](image)
Pattern A is characterized by an increase in fluency during the FI period, followed by an increase during the SA. The development of this participants’ fluency is positive and gradual along time.

Pattern B is characterized by an increase during the FI period followed by a decrease during the SA. However, when looking at the development for the whole period of study, fluency seems to develop positively for all participants, except one that shows a negative development along time (pink line).

Figure 19: Pattern B Total Fluency: Increase between T1 - T2 and decrease between T2 - T3
Pattern C presents a decrease during FI and SA. This is a very uncommon picture for the development of fluency during a period of time when both FI and SA have taken place.

Figure 20: Pattern C. Total Fluency: Decrease between T1 - T2 and T2-T3
Pattern D is characterized by a decrease in fluency during the FI period followed by an increase during the SA. This pattern is the most common among the participants in our study.
As figure 22 indicates, the most common patterns of fluency development in our study are Pattern A and Pattern D. They account for more than two thirds of the participants. Pattern D is the most widely represented, but closely followed by Pattern A. They both have in common the increase during the SA period. Pattern B and C shows a decrease during the SA period. However, the overall development between T1 and T3 for participants in this pattern is positive, except for one participant.

Figure 22: Percentage of participants according to patterns of development

Up to now, we have interpreted the results from a developmental perspective, observing the changes that occur in the participants’ oral productions for a certain period of time. Overall, results have revealed significant gains for participants’ oral production from T1 to T3, especially from T2 to T3. These gains suggest that fluency has developed in learners’ interlanguage as a function of both time and learning contexts.

7.1.3. Native vs Non-Native Speakers

The next step in our analysis consists in comparing the oral performance of the experimental group (NNS) with that of a base line data group of native speakers.
This analysis pretends to detect similarities and differences between native and non-native speakers, which will serve as the basis to detect a group of non-native highly fluent speakers.

Independent sample T-tests have been used to compare NSs and NNSs' oral performance. This test measures the differences between two groups by comparing the mean scores of both groups with the dependent variable.

Table 7: NSs vs NNSs oral performance means

When comparing NSs with NNSs' results at T1, statistical significances are revealed in all measures. The oral fluency of NSs and NNSs differ in significant terms. For the temporal variables, NSs scores are much higher than NNSs'. Speech is delivered at a faster rate by NSs, fluent runs are longer, time spent speaking is greater and more syllables are articulated within the same range of time. In contrast, for the hesitation phenomena, NSs scores are lower than NNSs. NNSs produce more dysfluencies than NSs and both the frequency and duration of pauses is higher for the first.

However, when looking at the results of NNSs' productions at T3, and comparing them to those of NS, the picture is completely different. Differences in SR, PTR, DysR, PF and IPDR are not statistically significant anymore. The only measures where significant differences are still found are MLoR, AR and PDR. This means that, in terms of fluency understood as a temporal and hesitation phenomena, NNSs' productions are approximating those of NSs.
If we now take the mean score of NSs for the *Total Fluency* variable, and compare it to NNSs’ scores for that same variable at T3, we observe that some of the participants' scores are very close to those of NSs (see table 8).

<table>
<thead>
<tr>
<th>NNSs</th>
<th>Total Fluency</th>
<th>NNSs</th>
<th>Total Fluency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>136.50</td>
<td>16</td>
<td>100.12</td>
</tr>
<tr>
<td>2</td>
<td>90.46</td>
<td>17</td>
<td>88.38</td>
</tr>
<tr>
<td>3</td>
<td>66.05</td>
<td>18</td>
<td>127.01</td>
</tr>
<tr>
<td>4</td>
<td>105.96</td>
<td>19</td>
<td>115.38</td>
</tr>
<tr>
<td>5</td>
<td><strong>131.54</strong></td>
<td>20</td>
<td>106.77</td>
</tr>
<tr>
<td>6</td>
<td>116.61</td>
<td>21</td>
<td>107.70</td>
</tr>
<tr>
<td>7</td>
<td>86.38</td>
<td>22</td>
<td>82.95</td>
</tr>
<tr>
<td>8</td>
<td>118.87</td>
<td>23</td>
<td>109.83</td>
</tr>
<tr>
<td>9</td>
<td>90.68</td>
<td>24</td>
<td><strong>133.89</strong></td>
</tr>
<tr>
<td>10</td>
<td>107.55</td>
<td>25</td>
<td>83.41</td>
</tr>
<tr>
<td>11</td>
<td>77.75</td>
<td>26</td>
<td>107.86</td>
</tr>
<tr>
<td>12</td>
<td>87.04</td>
<td>27</td>
<td>82.23</td>
</tr>
<tr>
<td>13</td>
<td>90.41</td>
<td>28</td>
<td>103.21</td>
</tr>
<tr>
<td>14</td>
<td><strong>132.84</strong></td>
<td>29</td>
<td>97.04</td>
</tr>
<tr>
<td>15</td>
<td>111.10</td>
<td>30</td>
<td>75.52</td>
</tr>
<tr>
<td><strong>NSs</strong></td>
<td><strong>144.14</strong></td>
<td><strong>NSs</strong></td>
<td><strong>144.14</strong></td>
</tr>
</tbody>
</table>

Table 8: NSs vs NNSs Total Fluency scores

The figures highlighted in dark blue are the NNSs' results closer to NS mean scores. This resulted in a subgroup of five NNSs labeled *highly fluent speakers*. These speakers are the ones with higher results in the Total Fluency variable, a compound of the primary variables measured at T3, that is after the SA. These high fluency speakers are participants 1, 5, 14, 18 and 24. Further analysis will be performed on this group in section 7.3.
7.2. Contact Variables and Individual Differences

7.2.1. Contact Variables

The results regarding contact with the TL country have been obtained from the questionnaire on SA conditions. Only variables accounting for significant differences are reported. These variables are: accommodation, contact with media and confidence.

For accommodation, participants have been divided into two groups: 1) Lived in a dormitory or flat with NNS of English. 2) Lived with a family or in a flat with NS of English. Since the number of participants in each group is not equally distributed, we have used a non-parametric technique. A Mann-Whitney Test was performed to see whether there were significant differences between the two groups regarding fluency. We obtained a Z value of -2.20 with a significance level of $p = .02$. Participants in group 1, who had lived with NNS of English spoke considerably slower, produced shorter speech and longer pauses than those who lived with NS of English.

The results for the media also distinguish between two groups that behave differently. Group 1 often watched TV, went to the movies and listened to the radio, and group 2 seldom watched TV, went to the movies or listened to the radio. The Mann-Whitney Test report a Z value of -2.24 and a significant level of $p = .02$ between the two groups. Group 1 obtained higher results in the Total Fluency variable than group 2.

The variable confidence after SA distinguishes between group 1, representing people who report not having undergone any changes in confidence while abroad and group 2 claiming to have become more confident during the SA. Significant differences for the two groups were found. In this case, the Z value was -2.04 and the level of significance $p = .04$. Participants in group 2, more confident as a result of SA, obtained better results in fluency than the ones in group 1.
7.2.2. Individual Differences

After revising the contact variables, we checked to see if there was any correlation between the assessments of motivation, attitude and learning styles and the gains in oral fluency during the 15-month period. In order to account for individual differences, the Attitude/Motivation Questionnaire was used. Correlations were performed for each question in relation to the Total Fluency. Only questions referring to Motivation showed significant correlations with Total Fluency. Table 9 shows the correlation between these questions and Total Fluency.

<table>
<thead>
<tr>
<th>ID</th>
<th>Question</th>
<th>Pearson correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6. Main reason for learning English: because I like the language</td>
<td>.38</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>26. Learning English is a high priority for me at this point.</td>
<td>.40</td>
<td>.025</td>
</tr>
<tr>
<td></td>
<td>32. I have a great desire to learn a lot of English.</td>
<td>.36</td>
<td>.048</td>
</tr>
<tr>
<td></td>
<td>38. I feel capable of communicating with native speakers of English</td>
<td>.51</td>
<td>.003</td>
</tr>
</tbody>
</table>

Table 9: Correlation between ID and Total Fluency.

The correlations between these motivation variables and Total fluency are all positive. Higher levels of motivation represent also higher results in fluency.

In order to find out whether this motivational variables are good predictors of high fluency, we performed a Multiple regression analysis. This analysis left us with a model of two questions which are good predictors of high fluency; question 38 and 26. The $R^2=39.94$ and $p=0.001$. 
7.3. Highly Fluent Speakers’ performance and behavior

This section builds on the results from the first section where a subgroup of highly fluent speakers was identified. We now observe the results obtained by these participants focusing first, on oral performance and then, on individual and contact variables.

7.3.1 Oral performance in Temporal Measures

The results of these participants for temporal variables and hesitation phenomena are presented in Table 10 and 11.

<table>
<thead>
<tr>
<th>Speak.</th>
<th>Speech Rate</th>
<th>MLoR</th>
<th>PhonTRat</th>
<th>AR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1</td>
<td>T2</td>
<td>T3</td>
<td>T1</td>
</tr>
<tr>
<td>1</td>
<td>168.74</td>
<td>166.87</td>
<td>227.83</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>173.72</td>
<td>166.67</td>
<td>229.16</td>
<td>7.9</td>
</tr>
<tr>
<td>14</td>
<td>231.9</td>
<td>199.14</td>
<td>229.91</td>
<td>10.31</td>
</tr>
<tr>
<td>18</td>
<td>180.97</td>
<td>185.60</td>
<td>212.69</td>
<td>7.93</td>
</tr>
<tr>
<td>24</td>
<td>214.74</td>
<td>205.16</td>
<td>229.01</td>
<td>11.15</td>
</tr>
</tbody>
</table>

Table 10: Highly fluent speakers' results for temporal variables.

A common pattern seems to emerge for the group when looking at the development of oral fluency for the whole period studied. All temporal measures increase for all participants except for participant 14 who experiences a slight decrease in SR and AR. When compared to the scores of the rest of the group, his are the highest for these two variables. And if contrasted with NS results, at T1 he already showed an almost native like performance.

Gains in fluency for this group during the whole period of time also seem to follow a certain pattern. In general, absolute gains between T1 and T3 are rather slight. Moreover, there is a proportional inversion between higher scores and improvement. The highest the scores at T1, the narrower the gains at T3, and the other way round. For instance, participant 14 and 24 begin with the groups’ highest scores in all
measures at T1, but when absolute gains are calculated, they are the ones who have improved the least at T3. On the contrary, participant 1 obtains the lowest score of the group at T1 in all the measures (but AR, in which she gets the second lowest), however, at T3, she has over scored some of the other participants, who had started with a better score. Her absolute gains are the highest in all measures (but AR, in which again, she got the second highest, after participant 5, who, in this measure, started with the lowest score).

Table 11: *Highly fluent speakers'* results for hesitation phenomena.

<table>
<thead>
<tr>
<th>Speak</th>
<th>DYSR</th>
<th>PauseFreq</th>
<th>IntPauseDurR</th>
<th>PauseDurR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1</td>
<td>T2</td>
<td>T3</td>
<td>T1</td>
</tr>
<tr>
<td>1</td>
<td>11.66</td>
<td>5.73</td>
<td>7.51</td>
<td>10.89</td>
</tr>
<tr>
<td>5</td>
<td>8.88</td>
<td>7.87</td>
<td>8.15</td>
<td>10.57</td>
</tr>
<tr>
<td>14</td>
<td>5</td>
<td>5.72</td>
<td>5.79</td>
<td>10.5</td>
</tr>
<tr>
<td>18</td>
<td>1.06</td>
<td>4.13</td>
<td>1.59</td>
<td>11.14</td>
</tr>
<tr>
<td>24</td>
<td>5.84</td>
<td>7.48</td>
<td>4.29</td>
<td>7</td>
</tr>
</tbody>
</table>

For the hesitation phenomena the results are inverted, though not so clear cut as the temporal ones. All measures decrease as a function of time except a few exceptions in dysfluency ratio and pause frequency. Participant 14 and 18 show a slight increase in number of dysfluencies and participant 24 seems to pause slightly with more frequency at T3. These results are not considered a drawback since these two variables have not demonstrated to correlate significantly with other fluency variables (refer to the first part of this chapter for further details on this). However, it should be noticed that again, these participants show native like behavior for the variables just mentioned. Similarly to the behavior of temporal measures, when looking at gains from T1 to T3, hesitation phenomena also show slight gains for participants with higher scores at T1, and greater gains are observed in participants with lower scores at T1.

To sum up, there seems to be a common pattern in fluency for the *Highly fluent speakers'* group which reflects an increase in temporal variables and a decrease in
hesitation phenomena as a function of time. However, gains appear to be quite narrow since they already start with high fluency levels, almost comparable to those of native speakers (A T-Test between performance at T3 for this group and the NSs’ show non-significant differences).

7.3.2 Individual and contact variables.

We will now refer to the contact variables by observing the individual behavior of the members of this group while abroad. Participants are described taking into account the contact variables of the previous section.

Participant 1 belongs to the group that lived in a dormitory or flat with NNS of English, she spent a lot of time watching TV, going to the movies and listening to the radio and she did not experience any change in confidence during the SA.

Participant 5 also belongs to the group that lived in a dormitory or flat with NNS of English. However, she did not spent a lot of time watching TV, going to the movies or listening to the radio, but she believes she has become more confident after the SA.

Participant 14 belongs to the group that lived in a dormitory or flat with NNS of English. She did not spend a lot of time watching TV, going to the movies or listening to the radio and she did not experience any change in confidence during the SA.

Participant 18 belongs to the group that lived with a family or in a flat with NS of English, she spent a lot of time watching TV, going to the movies and listening to the radio, and she believes she has become more confident after the SA.

Participant 24 belongs to the group that lived with a family or in a flat with NS of English, she spent a lot of time watching TV, going to the movies and listening to the radio, but she did not experience any change in confidence during the SA.
The results here seem to partially support the finding about contact variables presented in section 7.2. Four out of five participants fulfill at least one of the variables reported as facilitating fluency development while abroad, and one even the three of them. Participant 14 does not fulfill any of the conditions, however, as we have seen before, she is the one with higher fluency levels from the very beginning of the study period.

Last, we look at the IDs' results by checking the responses each participant gave to the questions found to correlate with fluency gains. For all the questions, a 7-point Likert scale was used, where 1 represented 'I strongly disagree' and 7 'I strongly agree'.

The results here are very homogeneous among participants. Their motivations toward language learning seem to be very similar. They all are highly motivated to learn the TL. These results are very consistent with the findings in the previous section were positive correlations were found for these variables and fluency measures. It seems that highly fluent speakers are highly motivated to learn the language.

<table>
<thead>
<tr>
<th>Question</th>
<th>#1</th>
<th>#5</th>
<th>#8</th>
<th>#14</th>
<th>#24</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. because I like the language.</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>26. Learning English is a high priority for me at this point.</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>32. I have a great desire to learn a lot of English.</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>38. I feel capable of communicating with native speakers of English</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

In sum, the results obtained through the temporal measures and hesitation phenomena allow us to conclude that participants have improved their fluency over the 15-month period observed. However, when checking the results for each individual, some differences are perceived among them. In order to determine if
there are variables that have affected the profile of the group, we have looked at contact variables and individual differences. We have observed that accommodation, contact with the media, confidence, and motivation may have conditioned our results. By comparing participants' performance to NSs productions we have been able to identify a subgroup of highly fluent speakers. We have then looked at the oral performance and behavior of this subgroup, which suggest that highly fluent speakers’ oral performance is at a very advanced stage of development already from the very beginning of the study. Participants starting up with high fluency scores at T1, similar to those of NSs, are the ones whose gains are narrower at T3. On the other hand, the participants of this subgroup who started with lower scores on fluency at T1, obtain larger gains at T3. When observing the individual’s behavior for the subgroup of highly fluent speakers while abroad, they all fulfill at least one of the three conditions that seem to characterize good language learners. Regarding individual differences, all participants in the subgroup report to be highly motivated to learn and use the TL.
8. Discussion

The chapters in Part I provided the theoretical background for the empirical study by reviewing the relevant literature on SLA research, especially speech production, fluency and SA studies up to the date of the study. The second part started with the research questions and hypotheses, to be followed by the design of the study and presentation of results. This present chapter completes this second part by discussing the results relating them to the hypotheses.

The first hypothesis predicted that **there would be a continuous development in the L2 fluency of advanced EFL university students as a function of time and learning context for a 15-month period**. The findings from the experimental study support this hypothesis in the sense that results show an overall increase in fluency from T1 at the beginning of the study, to T3 after a 15-month period.

The results seem to suggest that during these 15 months there has been a development in students' interlanguage. By observing their oral performance, it can be argued that some changes have taken place in students linguistic processing system. As already mentioned in the literature review on speech production and interlanguage development (refer to section 1.3. for a more detailed description), fluent speech production requires procedural knowledge, mainly due to the constraints of the working memory. The findings in the present study suggest that this proceduralization of knowledge has taken place in the linguistic system of most of the students during the period studied, hence the more fluent productions, approximating those of NSs.

In order to better illustrate this process, we will refer to Levelt's model by looking at how temporal variables can account for changes in the production process and in which part these changes are taking place.

Dealing with speech rate first, Towell et al. (1996) claim that speech rate encompasses the working of the whole model, the conceptualizer, formulator and
Discussion

articulator, but that changes occur primarily in the articulator. Our results clearly identify an increase in speech rate during the 15-month period, suggesting that there has been a restructuring of the whole speech production process, and that proceduralization has actually occurred in the articulator.

According to the same authors, three ingredients are needed to argue for an increased degree of proceduralization in the formulator. These ingredients, which must happen at the same time, are: "an increased MLoR, no increase in the average amount of time per pause, stability or and increase (i.e. no decrease) in PTR." (Towell et al. (1996; 93-94). When looking at these variables in our study, we identify this exact performance in the participants’ productions. For the 15-month period under study, we discern a significant increase in MLoR in students’ productions, accompanied by a decrease (hence, no increase) in both IntPauseDurRatio and PauseDurRatio and an increase in PhonTRatio. It seems fairly safe to claim that the developmental pattern followed by our students encompasses proceduralization in both the formulator and the articulator, hence the increase in oral fluency to a significant level.

The second part of the first hypothesis reads: the development is expected to take place due to an increase in linguistic knowledge, exposure and practice of the TL and hence automatization of knowledge. The design of the study, enabling to observe students behavior longitudinally and under two different learning contexts, provides valuable data to understand the whole process in which development occurs. During the first period under research, corresponding to the FI at home, students attend English lessons, which provide explicit and declarative knowledge with the purpose of increasing their linguistic knowledge. During the FI period, and for some students (especially those who start with a higher language level), some of this knowledge starts being proceduralized, while for some others, it remains in declarative form. This knowledge, either in declarative or procedural form, accompanies students when they go to the SA, where it can be further stretched.

While abroad, students receive large amounts of input in the TL and the opportunity to practice their linguistic abilities. Even though different levels of interaction with
the target culture may occur, in all cases exposure to language and practice are more intensive than at home. This context (SA) seems to offer the ideal opportunity for students to proceduralize the declarative knowledge acquired during the FI, or even automatize some of the knowledge they already proceduralized at home.

Previous studies have dealt with the issue of automatization by looking into reaction time and error rate decline over time (see DeKeyser 2001, 2007 for a more complete description). Lacking this type of data for the present study, we propose an alternative that may also be able to explain the same phenomenon; that is students’ pausing behavior. Results from previous studies on pausing behavior have concluded that students' oral improvement is very much linked to the distribution of pauses (see Towell 2000; Riazantseva 2001). Non-proficient L2 students tend to pause more within clauses while more proficient students pause at clause boundaries, similarly to NSs. When analyzing our students' productions, a significant decrease in number and duration of internal pauses is observed. Students at T3 tend to pause less in general, but an especially significant decrease is observed for internal pauses. We interpret this finding as partial evidence for automatization of knowledge taking place, since shorter and less frequent pauses may indicate that students need less time for planning what they are about to say. Further evidence for automatization is provided by results from a study analyzing accuracy and complexity in the oral production of these same participants (Mora & Valls-Ferrer in preparation). The authors report a decrease in number of errors as a function of time and learning context. So, the second condition for automatization to have taken place seems to be met by those participants. Having said that, it seems plausible to argue for a development of students' fluency during a 15-month period due to a proceduralization and automatization of knowledge.

This discussion leads us to the second hypothesis which anticipates the emergence of different patterns of fluency development among L2 speakers. As already mentioned in the results, four different patterns of development have been observed among participants. The distribution of these patterns is not even; two patterns account for more than two thirds of the population and the other two for less than one third. The pattern with larger numbers, representing the 43% of the population,
illustrates a decrease in fluency after the FI period, followed by an increase after the SA. The same pattern also emerges when looking at the means for each temporal measure. The prediction of the last part of the second hypothesis, stating that during the first period, corresponding to the FI at home, fluency would decrease and during the second period, corresponding to the SA, fluency would increase, has been confirmed by this results.

The slight decrease in fluency during the FI period can be explained by the lack of oral production practice that participants received. As mentioned in the design chapter, during FI participants practiced mainly writing skills, and some oral and written comprehension. A study analyzing lexico-grammatical competence for the same group of participants reports that lexico-grammatical competence was enhanced during the FI period, reaching significant gains (see Juan-Garau, Salazar & Prieto 2007). Pérez-Vidal & Juan-Garau (submitted) also observe a significant increase in linguistic competence when analyzing written productions for the same participants. Gains in those two areas of knowledge for the period of FI may be due to the exposure to explicit instruction and hence declarative knowledge participants receive, and specific practice on those abilities which may enhance the proceduralization of this type of knowledge. Moreover, skill acquisition theory argues that practice is skill specific (see Anderson 1993; DeKeyser 2007). In the SLA field, some studies, such as DeKeyser (1997) and Izumi (2002), report lack of transfer between receptive and productive skills. This could explain that receptive skills and written production practiced during the FI significantly between T1 and T2 and oral production decreases.

Nevertheless, we could argue that this increase in linguistic knowledge during the FI period has aided to the posterior development of oral fluency during the SA. As mentioned in the last part of the second hypothesis, the increase in fluency during the second period, corresponding to the SA, is predicted to take place due to a higher linguistic onset level, and an increase of exposure and practice of the TL. The above mentioned studies (Juan-Garau, Salazar & Prieto, 2007 and Pérez-Vidal & Juan-Garau, submitted) demonstrate that the students’ linguistic knowledge has
developed during the first period, hence this may have helped participants to proceduralize and automatize knowledge during the second period corresponding to the SA. However, the higher linguistic onset level alone cannot account for the significant development in students' fluency. As we have argued at the beginning of this chapter, in order to become fluent, knowledge needs to be proceduralized and automatized, and these stages are only reached through practice.

SA contexts seem to be ideal for the development of oral fluency; the exposure to the TL increases, and students have the opportunity to practice the language with native speakers quite often. The improvement in oral fluency for most of the participants in this study reaches its highest point during the SA. This can be attributed to the amount and type of input students receive during that period. Living in an English speaking country provides significantly more hours of input than attending lessons twice a week at the home university. First, this input may not be comprehensible input for all participants, but through interaction with both natives and non-natives, students receive the kind of input they need. It is through this interaction that students produce output, which helps them to improve their language development (refer to section 1.3.2.2. for a more detailed explanation on the role of output). Output practice is highly important for the automatization of knowledge. Only through practice can learners reach the automatization stage (see Towell et al. 1996; DeKeyser 1991, 2001, 2007).

As it has already been mentioned, the SA context seems ideal for the development of linguistic knowledge, especially for the enhanced amount of practice in a rich variety of situations; at university, at home, in the street, in shops, with friends, with professors, etc. However, as pointed out by DeKeyser 2007 this is not always the case. The decision on the degree of involvement in practicing the language while abroad depends exclusively on each participant. For this particular study, participants followed certain basic standards common to all, for instance attending several lectures a week at the host university, which guaranteed certain amount of practice. Apart from that, no more guidelines were given; it was up to them to decide the rest
(accommodation, friendships, integration into the culture, etc.). Here is where individual differences and contact variables play a role.

The responses students gave in the SA conditions questionnaire allowed us to identify some contact variables which seem to discriminate between different sorts of people in relation to the development of fluency. The variables are accommodation, contact with media (TV, movies and radio) and confidence. Students living with families or in flats with NSs obtain better results in fluency than those living in flats or dormitories with NNSs. Here, both the amount and quality of practice participants receive is quite different. Speaking English at home with NS results in more hours interacting in the TL, and a higher quality of input. The same applies to ‘contact with media’; participants who often watched TV, went to the movies and listened to the radio obtained better results than the ones who hardly practiced any of these activities. Participants who often engage in these activities receive a lot of input on regular basis, which helps for the development of the interlanguage. The last variable to look at was confidence, participants who report having become more confident after the SA get better results than participants reporting no change. Practice may also have a some influence here; the more participants practice the language, the likelier they are to become more proficient. And the more proficient they become, the likelier they get confident in the language use.

The individual differences questionnaire proved to be useful for the questions on motivation. Several questions were identified as being good predictors of fluency scores. Participants who reported being highly motivated towards learning and using the language obtained high scores in the Total fluency variable. The type of motivation participants showed with their responses could be classified into what Gardner (1985) called integrative motivation. Participants with higher levels of motivation show a desire to integrate into the TL culture. However, this should not be narrowly interpreted as the integration into the L2 community, but also the virtual or metaphorical identification with the sociocultural loading of a language proposed by Dörnyei (1990).
The third hypothesis predicts the emergence of a group of highly fluent speakers, identified by certain characteristics in their oral performance. A common pattern of development characterizes this group’s oral performance; they show an increase in all temporal variables and a decrease in the hesitation phenomena. As already mentioned in previous sections, such pattern of behavior in fluency measures has been reported by other researchers to be the ideal combination for the improvement of fluency (Towell et al. 1996; Kormos 2004). This group of highly fluent speakers presents the highest results not only on most of the temporal variables used to measure fluency (and the lower for the hesitation phenomena), but also on the Total Fluency compound. When compared to NSs productions, this group's fluency performance approximates that of NSs in terms of both temporal and pausing behavior, but, they never reach NSs standards. This same phenomenon was also observed in Towell's (2000) study.

A further characteristic of this group is the fairly high levels of fluency they start with at T1. Hence, the gains they obtain at T3 are not as large as those obtained by speakers with lower fluency, especially for speech rate. Towell et al (1996) also found that students who scored highest in SR at T1 were those that obtained less improvement at T3 and conversely. These researchers claim that students may reach a plateau in SR and AR. Our findings corroborate this same reality. However, it seems that even though a plateau is reached in those two measures, development of proceduralization in the formulator is still taking place, as it can be observed by the scores for MLoR and Pausing behavior, being significantly lower than those of NS.

The fourth hypothesis refers to the same group of highly fluent speakers and predicts that individual and contact variables will be constant for high fluency speakers, and significantly different from those in low fluency speakers. This hypothesis cannot be confirmed for contact variables since not all speakers in the group present the exact same contact profile. It has been observed that most of them fulfill at least one of the conditions found to affect fluency while abroad, however the results are not significantly different to those for low fluency speakers. Regarding IDs the first part of the hypothesis is confirmed, since the responses among participants are very
homogeneous. However, no significant differences can be found between this group and the low proficiency speakers’.

To sum up, in this chapter the findings of the experimental study have been discussed in relation to the hypothesis and previous research on the field. The first two hypotheses, covering the development of fluency in learners interlanguage as a function of time and learning contexts have been confirmed by the results of the experimental study. The third hypothesis has also been confirmed since a group of *highly fluent speakers* with specific oral performance features was identified. However, the last hypothesis has only been partially confirmed; only motivation variables have reported to be homogeneous within the group of *highly fluent speakers*. Although no significant differences could be observed when compared to low fluency speakers.
9. Conclusion

Having observed the results of the empirical study and discussed them in relation to the hypotheses formulated in chapter five, we can conclude that **there has been an overall development of students' oral fluency during a period of 15 months favored by the combination of a period of FI at home followed by a 3-months SA.** Different patterns of development have emerged among participants based on the gains obtained during each period measured, corresponding to the two different learning context. **The most common developmental pattern is characterized by a slight decrease in fluency during the FI period at home, followed by a significant increase in fluency during the period abroad.** Levelt's and Anderson's models on speech production have provided a perfect account of how this development has taken places. Special issues such as automatizity, output and practice have also assisted in understanding how fluency is improved.

The comparison of NNSs with NSs' performance has allowed the identification of a group of NNSs whose performance on temporal fluency is almost native-like. It is worth observing how, within a group of such advanced learners, **the ones who start with a lower fluency level, reach similar levels at T3 as the ones who obtained the highest scores at T1.**

The number of contact variables and individual differences which have proven to be significant in our study is not very high, hence, the representativeness is limited and it does not allow us to make any general predictions in regard to the incidence that these variables may have in the development of fluency. However, they prove to be useful for a more qualitative analysis, providing insights into the behavior that *highly fluent speakers* adopt when abroad and into the sort of motivations they have. This aids to better comprehend the reasons why these speakers perform at such high levels.

This study has contributed to existing research on fluency development and SA. With a longitudinal design and a population of 30 participants, the study has provided
positive evidence for some of the findings obtained by previous studies on fluency as a temporal phenomena by further validating SR and MLoR as best predictors of success. Moreover, this study has contributed to the ongoing debate on the adequacy of other variables to predict success by suggesting that IPDR also plays a crucial role in the development of fluency and its relation automatization.

The study has shed light on the understanding of fluency as a temporal phenomena and it provided evidence to demonstrate that the combination of two learning contexts is highly beneficial for the development of fluency in advanced learners. Additionally, it is the first longitudinal study which has aimed to explain L2 learners' fluency developmental patterns by combining two different learning contexts. A more discrete contribution has also been made to research on variables that predict successful language learners by providing evidence for the assumption that high fluency speakers may reach a plateau in SR and AR but that they go on improving in other measures such as MLoR, giving evidence for ongoing proceduralization.

Throughout the study, some limitations have arisen, which may have conditioned the results. In relation to temporal measures, it would have been interesting to add an additional variable called pace. This variable has proven to be as discriminating in the prediction of success as SR and MLoR (see Vanderplank 1993; Kormos 2004). For future research on fluency development this variable should be taken into account.

In order to properly test if the process of automatization has been reached by L2 speakers, a test measuring reaction time should be prepared. In the same fashion, a questionnaire quantifying the exact number of hours learners spend in contact with the TL community and with questions about the type of practice they involve themselves into, would give statistically valid results to test if practice and, if so, which kind of practice, leads to automatization.

Further research is currently conducted with this same population analyzing accuracy and complexity in participants' performance in order to find out whether these
constructs interact with fluency and hence provide a more complete picture of L2 learner's oral production.

Future research should focus on L2 learners' fluency, especially on developmental patterns including different learning contexts and complementing this analysis with a thorough evaluation of IDs. Another domain which could still benefit largely from further research is the area of contact variables. The incidence that these variables may have on learners' production has still not been successfully answered. This would provide a better understanding of the process involved in learner's performance.
References


Appendixes
Should you be interested in any of the appendixes, please contact the author at margalida.valls@upf.edu