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Patterns of Listening Comprehension Strategies Used by Upper Secondary School Students

A Thesis Dissertation

By

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Abstract

This work investigated the listening comprehension patterns of memory, cognitive, compensation, metacognitive, and social affective strategies used by a group of upper secondary school students of English in a coeducational confessional private school from Córdoba, Argentina. The range and the types of strategies used by the participants were examined, and differences in strategy use between males and females were compared according to the task that they performed.

This descriptive correlational study used a mixed methods design which combined qualitative and quantitative methods, and allowed triangulation to interpret data from multiple perspectives. To establish validity in this research, two types of triangulation were examined: methodological, and investigator triangulation.

In this work, a pilot study and a main study were carried out with different samples in non-consecutive years. The former was implemented in order to test research tools and methods for data collection such as verbal protocols, transcription, segmentation, and codification of protocols. In the main study two questionnaires were administered: first, an adaptation of an established Background Questionnaire, and second, a strategy use questionnaire (SILL) based on a well-known taxonomy.

The next step was to train students to verbalize their thoughts so that they could become acquainted with the procedure, and the task they had to perform. After the data collection phase, protocols were transcribed verbatim, segmented and encoded by a priori encoded categories. The coding of the protocols was left to the researcher and to two independent coders who were trained in the use of the coding scheme and in the procedure. To examine the correspondence between codes assigned by different coders, interrater reliability was quantified. Researcher triangulation showed that the correspondence of raters' agreement was strong; therefore, the protocol analysis carried out in this study, gave clear evidence of its measure of reliability.

A quantitative and a qualitative analysis of the pilot and the main study uncover patterns of cognitive, compensation and metacognitive strategies in male and female participants although memory and social affective strategies appear to be missing. In the pilot study

as well as in the main study, compensation strategies are the most frequent strategy group, followed by cognitive and metacognitive strategies In conclusion, it was found that gender differences are more noticeable within some strategy groups.

Dedication

This thesis is dedicated to the loving memory of my parents Eder Lilia Iscaro and Juan Luis Pistorio, whom I still miss every day.

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I would like to thank my husband Giorgio, who has supported me throughout the entire process, both by keeping me harmonious and helping me putting pieces together. I will be grateful forever for your assistance, your unconditional guidance and time. Thank you for your love and encouragement.

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1   Introduction

This chapter highlights the status of second and foreign language listening, and the role it plays in language teaching and learning. It also establishes the background, the statement of the problem, the hypotheses, and the objectives of the study. The chapter ends with the organization of the thesis.

1.1   The Importance of Listening in EFL and ESL

Listening has always been a neglected skill in second and foreign language learning (ESL and EFL); however, since it is an important component of communicative competence, it should not be taken for granted. Instead, it deserves to be treated equally as reading, writing and speaking. Current globalization, international trade, travel, education, and the use of internet have given English the status of a world language. The need to understand all the varieties of English, not just British or American English, increasingly demands instruction in listening (Flowerdew & Miller, 2005). Therefore, today the importance of listening in second and foreign language learning cannot be underestimated. According to Morley (2001) listening in a second language has become the most used language skill in life. Wolvin (2009) states that listening is *"the most important communication skill in personal, academic and professional settings alike"* (p.1). Although listening was considered a secondary skill rather than an end in itself, nowadays it has a central role in language teaching (Morley, 2001).

Listening is a very important skill for ESL and EFL because it not only helps internalize language rules but also contributes to the emergence of other skills (Vandergrift, 2011). Rost (1994) believes that listening provides input for learners, but unless learners understand input at the right level, learning cannot occur. Furthermore, Rost (1994) strongly emphasizes the significance of listening for the development of spoken language. As foreign language learners usually have a large reading vocabulary, but are often less proficient at listening, Nation (2011) proposes an extensive listening programme that includes familiar vocabulary to bridge the gap between reading proficiency and listening proficiency.

Listening is essential for the acquisition of ESL and EFL, and becomes a stepping stone to literacy (Pistorio, 2006). Listening and reading skills have a strong relationship, since

both use similar comprehension processes, and involve a simultaneous use of skills in phonology, syntax, semantics, and knowledge of text structure which appear to be controlled by the same processes. Language educators can take advantage of the benefits of listening when students are not responsive to reading instruction by encouraging these learners to listen to texts and read them at the same time (Pistorio, 2006).

Although listening was considered a passive unconscious skill in the past, it is now regarded a non-passive conscious skill which involves complex (linguistic, pragmatic, and psycholinguistic) processes to understand spoken language (Rost, 2002). Martinez-Flor & Usó-Juan (2006) state that the complexity of listening comprehension processes is an indication of why listening is the most difficult skill to learn. Research studies have given evidence on how listening was learned in the past, why it was regarded as a passive skill, and how it has increasingly raised its status in language teaching and learning (Martinez-Flor & Usó-Juan, 2006; Morley, 2001; Vandergrift, 2004).

1.2 Background of the study

At present, listening has a primary and central role (Morley, 2001) in second language acquisition (SLA); therefore, it is crucial not to consider it an isolated skill, but a skill applied in each communicative event. Listening is based on the development of specific strategies that students apply in different listening situations. Research gives evidence of the fundamental role of both, listening comprehension (Vandergrift, 2011) and language learning strategies (Oxford, 1990) in the development of communicative competence in a second or foreign language.

The main goal of language learning strategies is to foster the development of communicative competence, a construct that involves four components: grammatical, discourse, sociocultural and strategic competences (Savignon, 2001), neither of which can be developed on its own. When one of them improves, this component associates with others, which results in an overall increase of the communicative competence. These components are related to the dimensions of the listening competence (Scarcella & Oxford 1992; Pistorio, 2011).

The first component of communicative competence related to the listening skill is the grammatical competence, which includes the ability to understand all aspects of vocabulary, mechanics, morphology and syntax. Therefore, a competent EFL listener

needs to understand and apply the rules of morphology and syntax, recognize the words heard, and understand language mechanics. In grammatical competence, the word "mechanics" is linked to the basic sounds of letters and syllables, the pronunciation of words, and intonation and stress in listening.

The second component of communicative competence related to listening competence is discourse competence, which involves the ability to communicate above sentence level. Thus, an EFL listener having discourse competence will apply the rules of coherence and cohesion so that he can understand the main idea of what is being spoken, or to predict what will be said next.

Sociocultural competence allows listeners to comprehend the purpose of oral communication, and to adjust the social and cultural norms of a speaker so that he is able to understand the speaker's purpose, to know the right time to comment, to ask questions, and to give appropriate non-verbal answers.

The strategic component of communicative competence related to the listening skill allows listeners to enhance communication as a result of limiting factors, or insufficient competence in one or more components of communicative competence. Strategic competence is very important for listening because learners are able not only to guess the meaning of unknown words but also to test, to adjust and to confirm hypotheses (Scarcella & Oxford 1992; Pistorio, 2011). Listening comprehension strategies are directed towards the development and growth of the listening competence. As the listening competence is developed, listening strategies can support any of its dimensions (Pistorio & López, 2003; Pistorio, 2011).

Vandergrift (2011) believes that regular practice in strategy use can sharpen students' inference skills, and help them to monitor their listening comprehension. Vandergrift (2011) further states that L2 listening competence is a skill that needs to be consciously developed so that students reflect and evaluate their strategy use for the successful completion of listening tasks.

1.3   Statement of the Problem

Pistorio (2011) points out that nowadays, the Argentine secondary school does not implement a listening comprehension model which involves listening strategy patterns

when students listen to an oral text. The present work proposes a model based on the identification of the most effective patterns used by male and female students during the comprehension processes of perception, parsing and utilization. The application of this model would increase efficiency in the teaching and learning of the listening skills. At present, the Argentine National Law of Education 26,026 and the Provincial Law 9,870 for the province of Córdoba establish that secondary school students will have to develop not only linguistic competence but also comprehension in a foreign language. In agreement with the National and the Provincial Laws, this study focuses on listening and listening comprehension strategies for their significant role in communication as well as in the acquisition of a foreign language (Celce-Murcia, 2001).

A literature review shows an increasing body of research studies on listening comprehension strategies (Goh, 2000; Vandergrift, 2002; Goh & Taib, 2006; Graham et al., 2008; Goh, 2008). In contrast to the former studies, only O'Malley et al. (1989), Vandergrift (2003), and Hu et al. (2009) focus on listening strategy patterns. The present work will attempt to enlarge the knowledge about the listening comprehension strategies used by upper secondary school students with a pre-intermediate level of English.

The next section includes the hypotheses that this research intends to demonstrate.

1.4 Hypotheses

1. During the listening comprehension processes of perception, parsing and utilization, there are patterns of memory, cognitive, compensation, metacognitive and social affective strategies in upper secondary school students of English of both sexes.

2. During the listening comprehension processes of perception, parsing and utilization the patterns of memory, cognitive, compensation, metacognitive and social affective strategies will be different in male and female upper secondary school students of English.

3. During the listening comprehension processes of perception, parsing and utilization there are patterns of memory, cognitive, compensation, metacognitive and social affective strategies in upper secondary school students of English according to the task that the students perform.

4. During the listening comprehension processes of perception, parsing and utilization there are more efficient patterns of memory, cognitive, compensation, metacognitive and social affective strategies than others in upper secondary school students of English.

1.5 Objectives

In this section the general research aim and the specific research objectives are presented.

1.5.1 General Objective

To explore the listening comprehension patterns of memory, cognitive, compensation, metacognitive, and social affective strategies used by a group of upper secondary school students of English from Córdoba.

1.5.2 Specific Objectives

1. To classify the listening comprehension patterns applied by upper secondary school students of English in a private school in Córdoba.
2. To examine whether there are gender differences between the listening strategy patterns applied by upper secondary students of English in a private school in Córdoba.
3. To analyse the relationship between a task and patterns of memory, cognitive, compensation, metacognitive, and social affective strategies applied by male and female upper secondary school students of English in a private school in Córdoba.
4. To delineate the most effective listening strategy patterns for each gender.

1.6 Organization of the Thesis

This work is divided into six chapters. As seen before, Chapter 1 presents an introduction of the topic, and mentions the importance of listening for EFL and ESL. In addition, Chapter 1 includes the background of the study, the hypotheses, the objectives, and the statement of the problem. In Chapter 2 the literature on listening comprehension strategies and language learning strategies is reviewed, and major studies conducted in these fields are introduced. Chapter 3 presents the methodology, the participants, the instruments, the materials and the procedures of this study. Chapter 4 describes the results obtained, and Chapter 5 discusses the interpretation of these results. Finally, Chapter 6 includes the conclusions and the implications of this work.

2   State of the Art and Theoretical Framework

This chapter begins with a review of the evolution of listening comprehension in second and foreign language pedagogy and research. After discussing listening comprehension models, this chapter focuses on definitions of language learning strategies by different authors and on the review of listening strategy research. Next, significant findings of research into language learning strategies and taxonomies are provided. To conclude the chapter, the taxonomies of listening comprehension strategies selected for the main study and the pilot study are presented.

2.1   Evolution of Listening Comprehension

The teaching and learning of listening in English as a second language (ESL) and English as a foreign language (EFL) underwent profound changes in the last decades of the 20th century. Today, the integration of the listening competence in the communicative competence framework allows the development of the listening skill, and the increase in students' communicative competence (Martínez-Flor & Usó-Juan; 2006). It becomes interesting to explore how listening evolved in the environmentalist, the innatist and the interactionist language approaches before it was regarded a communicative ability (Martínez-Flor & Usó-Juan, 2006).

In the 60s the environmentalist principles of listening constituted the Audio-lingual Method, which included the following characteristics: materials presented in dialogues, repetition of drills, focus on pronunciation, production of error-free utterances, and emphasis on language rather than on content, among others (Martínez-Flor & Usó-Juan, 2006; Brown, 2007; Flowerdew & Miller, 2005). The Audio-lingual age prioritized structured oral drills to acquire hearing habits rather than the cognitive processes involved in listening comprehension (Brown, 2007), which became the goal of the innatist approach.

In the late 60's, Chomsky proposed an innatist view of language, and hypothesized that infants must have an innate ability to learn a language. This view gave more importance to cognitive processes; therefore, comprehension became the first step in language learning, and listening was established as *the primary channel for language input and acquisition* (Peterson, 2001). In contrast to the Audio-lingual Method, Comprehension approaches put forward the significance of listening, the storage of information as well

as the acquisition of listening competence (Peterson, 2001). Listening comprehension no longer consisted of repetition, mimicry and memorization of linguistic input; instead, it involved the understanding of language (Martínez-Flor & Usó-Juan, 2006).

Later, listeners' roles changed from understanding sounds to taking part in the comprehension processes through mental strategies. Instructional practices also changed, and Asher's TPR (Total Physical Response) became a teaching method with which learners developed their listening comprehension by means of motor activities without using L2 as they only responded with a physical action or using L1. Asher's view that listening skills should precede speaking skills places him as an advocate of the Comprehension Approach, which emphasizes that comprehension should precede production. The same principles were also present in the Natural Approach developed by Krashen and Terrell in the 80's (Brown, 2007). Despite the relevance of listening, some issues like the interactive nature of this skill, contextual factors, listening for meaning and the purpose of listening comprehension, were not considered. These factors became relevant in the years to come (Martínez-Flor & Usó-Juan, 2006).

In the 80's and 90's social and cultural aspects increased their importance in listening comprehension. The relevance of sociolinguistics contributed to emphasize the potential effect of social factors and context during a listening act. Vandergrift (2004) explains the sociolinguistic dimensions of listening instruction, which include teaching strategies to negotiate meaning, understanding of non-verbal elements within a cultural context, selecting a social or situational variety of language used as a linguistic model of instruction, and introducing other varieties at different learning stages.

In the interactionist view of listening, the tendency is to adopt a Task-Based Approach or an Interactive Model of listening (Morley, 2001; Flowerdew & Miller, 2005). In both methodologies students become active listeners, and focus on meaning rather than on form when performing a listening task. In the Task-Based Approach learners listen to authentic material and, immediately after, they are required to carry out real-life tasks, they draw a diagram, fill in a table, or draw a picture. In the Task-Based Approach, the process to accomplish a successful outcome is more relevant than to understand a whole oral text (Flowerdew & Miller, 2005). In the Interactive Approach, first, listeners decode

information and react to it; second, they process it critically, and finally they produce a response by interacting with others.

The interactionist view of listening implies that listening comprehension has changed its secondary status to one of primary importance. Listening is a complex interactive process of meaning creation. Being the most used skill in life, its focus should be on interactive listening tasks as well as on communicative outcomes (Morley, 2001). Since listening is regarded a communicative act, learners should acquire communicative competences to allow them to face communicative situations appropriately (Martínez-Flor & Usó-Juan, 2006), which is the view adopted in this work.

2.2 Listening Comprehension Models

Listening and reading are considered receptive skills, while writing and speaking are said to be productive; nevertheless, learners do not listen passively. On the contrary, they need to be mentally active in order to achieve comprehension. Scholars have argued that listening is not a passive but an active and conscious process of constructing meaning. In fact, O'Malley, Chamot and Kupper (1989) agree with this view, and provide a definition of listening comprehension based on cognitive theory: "Listening comprehension is an active and conscious process in which the listener constructs meaning by using cues from contextual information and from existing knowledge, while relying upon multiple strategic resources to fulfil the task requirements" (p. 434).

This definition suggests that although listening was considered a passive receptive skill in the past, it is an active process that requires a great deal of effort on the part of the listener, and involves complex cognitive processes. Anderson's (2010) Language Comprehension Model distinguishes three stages: perception, parsing and utilization. In the perception stage, listeners focus on sounds of the language and store them in echoic memory. As the echoic memory is extremely limited, listeners immediately begin to process the sounds for meaning. The second stage is termed parsing stage, during which words and phrases from a message are transformed into a mental representation of the meaning of the words. Parsing a sentence involves the combination of meanings of individual words to attain the meaning of a whole sentence. Listeners decompose the information into a meaningful unit that can be stored in the short-term memory. During the parsing process, words are decoded by matching words in the short-term memory with

words in the long-term memory. Thus, the meaning of words is understood and lexical access is provided. The size of the chunk that listeners retain depends on several factors including knowledge of language, knowledge of topic, and quality of the signal. To understand sentences, listeners can rely either on syntactic or on semantic patterns or they may combine both types of information. During utilization, the central process of comprehension, the representation of the text meaning is associated with knowledge in long-term memory. In the utilization phase, listeners look into long-term memory to connect what they hear with what they know. Stored information is in the form of schemata and script, or interrelated concepts. The three stages of comprehension - perception, parsing and utilization - are sequentially ordered; nevertheless, they can overlap. Listeners can make inferences from the beginning of a sentence while they are processing a more advanced part.
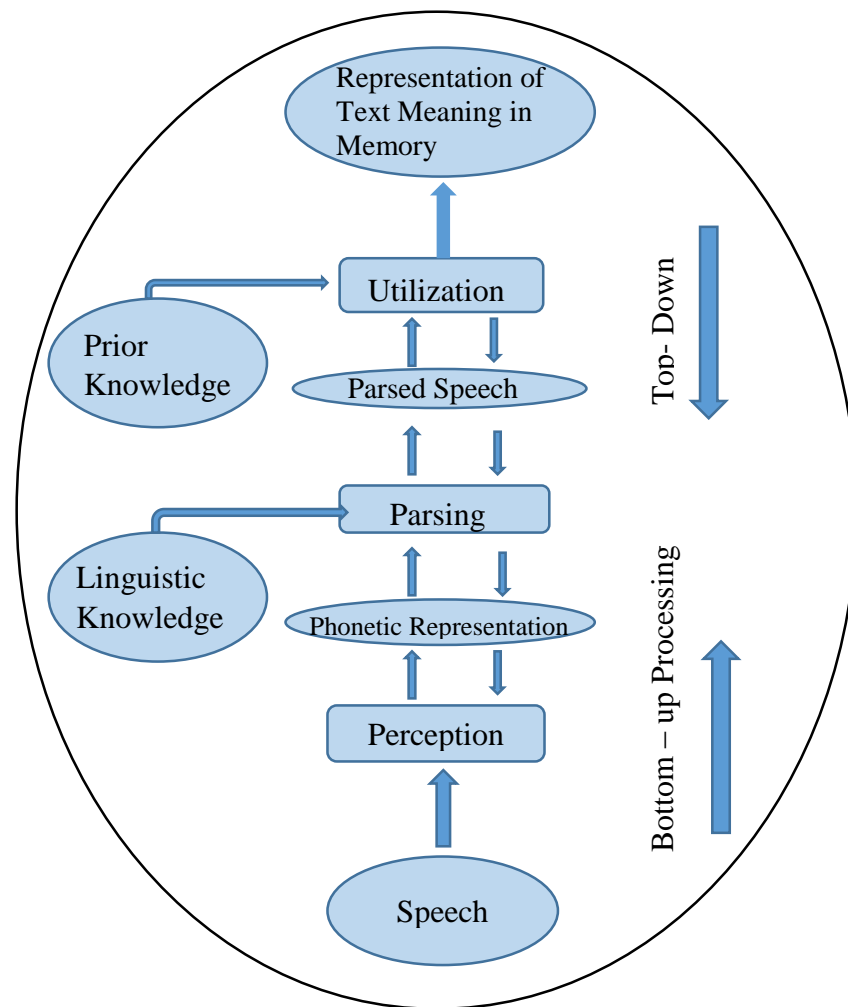
Figure 2-1. Comprehension model. Adapted from "Teaching and Learning Second Language Listening: Metacognition in Action" by Vandergrift, L. & Goh, C., 2012, New York: Routledge, p.17.

The definition of listening by O'Malley et al. (1989) on page 9 means that listeners follow complex cognitive processes, and use strategies to understand oral messages. Nowadays, it is considered that listening is an interactive process which can be approached bottom-up and top-down. To achieve understanding, these processes do not take place separately; on the contrary, they are simultaneous and mutually dependent (Hedge, 2000). On the one hand, the bottom-up process involves the construction of meaning from the smallest unit of language to the largest. The listener starts building up the meaning of an oral text by decoding sounds, words, phrases, and sentences using linguistic, lexical and syntactic knowledge to understand. While bottom-up processes of identifying sounds and structures, inferring meaning and anticipating outcomes are going on, the role of memory becomes essential.

Hedge (2000) acknowledges three types of memory: echoic memory, short-term memory and long-term memory (p.231). Echoic memory is very limited, and only enables listeners to hold information for just a few seconds, and to concentrate on key words, pauses, or other significant features for initial analysis. Short-term memory allows individuals to hold several parts of a message in mind while meaning is being inferred. Sometimes, if a second flow of information comes into the short-term memory before the previous chunk has been processed, the listener is unable to process the new information; therefore, he/she fails to gain understanding, which could occur when a message contains too many unknown words. Long-term memory stores the gist of the spoken message rather than the exact words. It means that we are able to recall some information in a particular situation or in a particular context on the basis of both cultural and background knowledge.

A top-down process, on the other hand, refers to the interpretation of meaning by means of schemata, the units or structures of knowledge packaged in the listener's mind. The top-down process works with the knowledge which a listener brings to the conversation. It emphasizes prior knowledge rather than relying on individual sounds and words. According to Hedge (2000), a top-down model *"infers meaning from contextual clues and from making links between the spoken message and various types of prior knowledge which listeners hold inside their heads."* (p.232). Prior knowledge is also called schematic knowledge, and consists of the mental frameworks we keep in our memory for various topics. If people's schematic knowledge differs as a result of cultural differences, it can cause misunderstanding even between speakers of the same language.

Activating a schema, a package of prior knowledge, allows listeners to go through essential processes for listening comprehension: hypothesis formation, predicting, and inferencing (Mendelsohn, 1994). Teachers' understanding of the concept of schema and how knowledge is stored in the brain, is an important aspect of teaching how to listen. In fact, the activation of schemata in the listeners' minds, and drawing on listeners' prior knowledge during pre-listening stages facilitate their predictions and inferences (Mendelsohn, 1994).

Content and formal schemata are two categories of knowledge that listeners use to achieve successful comprehension. The former refer to the background knowledge of the content area of a text, or to the familiarity of the subject matter. In addition, content schemata involve understanding of the cultural specific constituents of a text, which are required to interpret it. The latter relate to rhetorical structures, various genres and text types, text organization, vocabulary, sentence structure and formality. Both content and formal schemata are essential to attain listening comprehension successfully (Hedge, 2000).

Scripts are a special type of schema which refer to specific knowledge of routine events, goals and participants. Scripts involve sequences of actions. For instance, the script of dining at a restaurant has the following components: entering, ordering, eating and exiting (Anderson, 2010). Knowledge stored in scripts is believed to help listeners' inference of meaning. In addition, scripts can be used by individuals to negotiate future events, and predict what is likely to happen. Similarly, knowledge of previous oral texts also helps to negotiate subsequent oral texts (Flowerdew & Miller, 2005). Finally, knowledge of the sequences of actions in scripts enables top-down processing, and correction of errors in information (Anderson, 2010).

2.3   Language Learning Strategies and Listening Comprehension Strategies

The strategies that learners use to perform a language task in the target language have long been a significant field of research in second language acquisition (Field, 2008). Strategies present semantic problems regarding their terminology, and in addition, listening strategies are not clearly defined in taxonomies that have taken into account productive rather than receptive skills (Macaro, 2006).

Oxford (1990) defined learning strategies as *"specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations"* (p.8). According to Scarcella and Oxford (1992), *"language learning strategies are specific actions, behaviours, or steps that students use to improve their progress in developing L2 skill"* (p.262). These definitions suggest the authors' beliefs in how appropriate language learning strategies could help learners gain self-confidence and improve proficiency.

In a more recent definition Oxford (2011) defines learning strategies as *"self-regulated, deliberate, goal oriented attempts to manage and control efforts to learn the L2"* (p. 12). According to Oxford (2011) self-regulated strategies are consciously used. First, they facilitate learning making it *"easier, faster, more enjoyable and more effective"*. Second, they become evident through tactics in different environments and for different reasons. Third, they describe the whole learner, not only his/her, cognitive and metacognitive characteristics. Finally, they are combined in clusters and applied in a particular situation although transferability to another situation is also possible.

Chamot (2004) states that *"learning strategies are the conscious thoughts that learners take in order to achieve a learning goal"* (p.14). Strategies are defined as actions that facilitate learning. They are goal-focused and, since they are learned, they must be conscious. Chamot's definition implies that learners have metacognitive knowledge about learning, understand the requirements of a task, and orchestrate strategies to meet task demands and their learning capacity.

The strategy definitions mentioned above clearly show that at present there is a strong emphasis on learners and learning rather than on teachers and teaching. A significant aspect concerning this change is the focus on strategies in foreign language learning and teaching. However, Macaro (2006) points out the need to improve theoretical rigour as well as the lack of consensus on strategy definitions. In addition, this author summarizes other issues that still need to be resolved regarding learner strategy research. Apparently, researchers have not come to an agreement upon the following problems: a) there is no clarity about whether strategies are located in the brain or outside the brain, b) it is still doubtful if strategies represent knowledge, action or intention, or all of them at the same time, c) researchers need to agree on strategies and sub strategies, and whether they can

be placed in a framework or hierarchy, d) there has not been agreement on the use of strategies in different learning situations, tasks and contexts, e) it is still unclear if strategies are always effective and facilitate learning, f) it must be clarified if strategies are related to skills and processes, g) researchers need to agree on how strategies lead to long-term learning.

Macaro (2006) proposes a new framework in which a strategy has a single location in working memory, and involves a goal, a situation, and a mental action. Strategies are used by all learners, are available in clusters, and are related to tasks. Learners' success in learning is not the result of the frequency of strategy use, but of the orchestration of strategies. These theoretical constructs must be tested empirically to dissipate ambiguities, and to allow researchers the replication and validation of results.

As to listening comprehension strategies, a review of the literature shows a growing body of research on this field, and a number of researchers who have become interested in this area (Goh, 2000; Vandergrift, 2002; Vandergrift, 2003; Goh & Taib, 2006; Graham et al., 2008; Goh, 2008). It is worth mentioning that two traditions have unfolded. The first tradition uses data from a questionnaire to elicit listening strategies (Vandergrift et al., 2006). The second tradition involves the use of retrospective verbal protocols after students listen to an oral text, and then report on how they obtain their answers. Neither the first nor the second methodology allow researchers to make generalizations, particularly because listening requires a response, which may not be right. Therefore, a strategy is always dependent on the context and the situation. Graham, Santos and Vanderplank (2008) address some problems outlined in Macaro (2006), and use verbal protocols to describe and compare the strategies of a successful listener with those of a less successful one.

The studies by O'Malley et al. (1989), Vandergrift (2003) and Hu et al. (2009) are related to listening strategy patterns. Although the three studies described below were carried out in different contexts, the participants in O'Malley et al. (1989) and Vandergrift (2003) consisted of high school students enrolled in ESL classes. In contrast, the sample in Hu et al. (2009) was made up of primary school students who studied English as a second language. The listening strategy patterns of these studies will be compared with the findings of the present study in Chapter 5.

O'Malley et al. (1989) propose a model of listening based on the identification of the most effective strategy patterns used by students of both genders during the comprehension processes of perception, parsing and utilization (Anderson, 2010). Using Anderson's model, O'Malley et al. (1989) described listening strategies of 11 effective and ineffective native Spanish-speaking ESL high school students at intermediate level. The students attended classes in two suburban high schools in the north eastern United States. Data came from think aloud reports, and statistical analyses disclosed significant differences between effective and ineffective listeners on self-monitoring, elaboration and inferencing. A qualitative analysis indicated that strategies used by students could be individualized during the phases of comprehension. During perceptual processing, students used Selective attention to concentrate on the task. Data showed that effective listeners were less easily distracted than ineffective listeners, and were more aware of maintaining their attention. Long and difficult oral texts prevented students from paying attention to the task. It should be noticed that elaborations often hindered understanding, unless students concurrently monitored their attention (O'Malley et al., 1989). During the parsing phase, students chunked segments of the oral text according to their proficiency level, and to the effectiveness or ineffectiveness of their listening (O'Malley et al., 1989). Effective listeners used top-down processing, and relied on bottom-up processing as they needed. Contrastively, less effective listeners used bottom-up processing. During the utilization process listeners used prior knowledge to facilitate comprehension and retrieval. Effective students mostly made use of self-monitoring, elaboration and inferencing as follows: using world knowledge, personal experiences, and self-questioning. Familiarity with the topic clearly had an effect on students' use of prior knowledge. O'Malley et al. (1989) considered that the fact that effective listeners were more successful than less effective listeners indicated that less effective listeners needed support to become more strategic learners. O'Malley et al. (1989) thoroughly examined learners' verbal protocols, and evaluated how systematic their strategy patterns were.

Vandergrift's (2003) also became an important source for the present work since the author identified and compared the reported listening strategies used by more skilled and less skilled listeners while listening to authentic texts in French. The participants of this study were junior high school students in Grade 7, who were about 12 to 13 years old, and who had been exposed to French for about 3 to 6 years. They were chosen from intact

classes in two different Canadian schools situated in a city where French is a second language. Regarding the instruments of this study, a listening comprehension test determined whether students belonged to the more skilled or the less skilled group. This study also used other instruments such as think-aloud procedures, which consisted of a training phase and a data collection phase. Vandergrift's (2003) analysed data quantitatively as well as qualitatively, and studied how more skilled and less skilled listeners utilized a variety of strategies.

A quantitative analysis using ANOVA tested the significant difference between the means of the more skilled and the less skilled listeners. Both groups of listeners seemed to use mainly cognitive strategies, followed by metacognitive strategies and minimal use of socio-affective strategies. The latter are not discussed in this study because think-aloud procedures did not allow the elicitation of the use of these strategies. Although both groups used an equal range of metacognitive and cognitive strategies, the more skilled listeners used more metacognitive strategies than their counterparts. The quantitative perspective was complemented with a qualitative analysis, which rendered information about variations in strategy use that could not be accessed through numerical representations.

A qualitative analysis examined the strategy use of two French L2 learners, Rose and Nina, who epitomize the more skilled and the less skilled listeners. When confronted with the task of listening to an announcement about how to win a ski weekend in a drawing, both listeners engaged in translation from their L1; however, Rose, the less skilled listener, chose to use word for word translation of a listening segment, paying little attention to connecting ideas from one segment to another. Thus, Vandergrift (2003) concludes that less skilled listeners engaged almost exclusively in bottom-up processing and rarely applied top-down processing actively. Vandergrift further indicates that employing bottom-up processing may have prevented less skilled listeners from developing conceptual frameworks and meanings efficiently. Contrastively, Nina, the more skilled listener, tended to approach the listening task using bottom-up and top-down interactively. Therefore, Nina's efficient use of top-down processing allowed her to use her world and text knowledge to interpret what she heard and, unlike Rose, she developed a frame of reference for the interpretation of new input.

Vandergrift's (2003) makes an important contribution to listening research, an area that deserves a more thorough investigation. The method section of this article provides a clear explanation of instruments and procedures, thus facilitating the replication of the study to other researchers in the field. The internal validity of this work was carefully ensured since protocols were coded individually by the researcher and an assistant, and later subjected to reliability checks performed during regular meetings; therefore, disagreements between the researcher and his assistant could be solved through overt discussions. In addition, the internal validity of this work was strengthened even further through the combination of a quantitative and a qualitative analysis of think-aloud protocols, which were thoroughly examined to detect differences in strategy use. It should be emphasized that these differences could not have been captured through figures alone. Vandergrift's most significant contribution is the model of the skilled listener who is able to orchestrate cycles of cognitive and metacognitive strategies that lead to successful listening performance.

Hu et al. (2009) summarize the outcomes of the three-phased project English Language Learning Strategies in Singapore Primary School. Although this project involves the strategy patterns related to reading, writing and listening skills, the present study focuses only on the listening strategy patterns of Singaporean learners because of their relevance for this research. The purpose of the first phase was to identify the learning strategies (writing, reading and listening strategies) used by primary school students to develop linguistic competence in English. Using a mixed methods research design, think-aloud protocols were collected and analysed while students sampled from four schools performed some language tasks. The second phase consisted in mapping out the writing, reading and listening strategy patterns, and in explaining how they led to success in learning English. The objectives of the second phase could be achieved by means of validated questionnaires, which were completed by more than 3,000 students in five schools. During the third phase, researchers put into practice a quasi-experimental design in three schools, and implemented a writing and a reading intervention in order to improve students' competence in English. A listening intervention was not carried out in the third phase.

During the first phase, researchers performed t-tests to compare the preliminary listening strategy patterns of high and low proficiency students, which were obtained by means of

think-aloud protocols. Statistics show some similarities and differences between both groups of learners. On the one hand, it is observed that high and low proficient students monitored their task, used world knowledge and linguistic knowledge to guess and make inferences, made predictions, reconstructed a story, and asked for help when confronted to a problem. Nevertheless, there is a significant difference between high and low proficiency learners. The former group used more planning, understood better how to perform a task successfully, made more inferences, associated the content to personal experiences, made more predictions, and often valued the oral texts more (Hu et al., 2009). Unlike high proficiency learners, the low proficiency group faced difficulties when they had to identify a problem, and they could not ignore information that they failed to comprehend. They listened again if they did not understand, they repeated a word, or a phrase verbatim. They used a lot more bottom- up processing and guessing, and could not make predictions when a situation required them. In summary, the high proficient learners went beyond literal understanding, and engaged in the interpretation of oral texts. They summarized, made inferences and predictions based on linguistic and on world knowledge. On the other hand, the low proficiency learners were almost exclusively engaged in decoding and re-listening. Although they made guesses using their linguistic and world knowledge, they were unable to relate their guessing to the context (Hu et al., 2009).

During the second phase, a questionnaire was devised with the strategies identified in phase 1, which were categorized in three groups: cognitive, metacognitive and social affective. The questionnaire was grounded on the strategy schemes used in O'Malley, Chamot & Kupper (1989), Goh (2002) and Vandergrift (2003). The participants were about 3,200 students from grades 4, 5 and 6. Results of the general patterns of listening strategy use show that the least used strategy of upper primary school pupils is predicting. The most used strategies were monitoring and evaluating, self-initiation, and perceptual processing strategies. The latter was found to be predominant probably because learners from this group had not yet overcome decoding problems at their stage of language development. ANOVA results for the five schools involved reveal that inferencing was the most important strategy which clearly differentiated high and low proficiency students. Since inferencing became the second least used strategy, researchers conclude that teachers should train learners to make inferences. Regarding utilization/ elaboration,

this was the second important type of strategies that distinguished learners from different proficiency levels. Finally, social affective strategies and planning strategies were the least significant strategies to distinguish different proficiency levels (Hu et al., 2009).

The following studies, which are related to the national context, focus on listening comprehension strategies of lower and upper secondary school students of English in Córdoba, Argentina. Pistorio (2011) is part of the present study.

Pistorio & López (2003) used a quasi-experimental design, to present a methodological model for the integrated explicit and implicit instruction in memory, cognitive, compensation, metacognitive and social affective strategies used in listening comprehension. The model was directed to lower secondary school students in Argentina with an elementary level of English. A questionnaire diagnosed the students' needs and a training program provided instruction in the use of the strategies mentioned above. A pre-test and a post-test compared the students' achievement in listening comprehension before and after the training period. A second questionnaire renders information about strategy use at the end of the training period. It was found that either explicit or implicit strategy-based instruction improved the students' listening competence. The study revealed the importance of implicit strategy training although it was concluded that an integrated approach was preferred to secure the transfer of strategies.

Pistorio & López (2005) also presented a model for the explicit instruction in direct and indirect listening comprehension strategies. The participants of this study were lower secondary school students in Argentina with an elementary level of English. Results showed that explicit instruction increased the students' listening competence. In addition, the study revealed the great power of autonomy and motivation in the teaching of English. In fact, when the students became motivated, the researchers noticed their eagerness to learn, and their urge to listen attentively to succeed in the comprehension of oral texts.

Finally, Pistorio (2011) carried out a pilot study with a group of upper secondary school students. A qualitative and quantitative analysis of verbal protocols gave evidence of their inefficient listening strategy use, and the need to implement a more communicative syllabus according to the principles of Communicative Language Teaching (CLT). Pistorio (2011) pilot tested the instruments and procedures for the identification of

listening strategy patterns. The methodological framework as well as the results of this study are presented in the next chapters.

The next section explores the critical role of metacognition in listening comprehension, and focuses on the state of the art in metacognitive and cognitive strategy instruction as well as on the characteristics of the self-regulation approach.

2.4 Metacognition

Metacognition consists of two fundamental elements: metacognitive knowledge and self-regulation. The former concept is the knowledge about cognition whereas the latter involves awareness of the regulation and control of cognition (Waters & Schneider, 2010). Metacognitive knowledge includes three kinds of knowledge (declarative, procedural and conditional) which influence success on academic development and performance. Declarative knowledge includes the knowledge, skills and strategies to carry out a task. Examples of declarative knowledge involve understanding the purpose of listening, the topic, the genre, linguistic structures, processes such as planning or revising, attitudes, levels of self-efficacy and motivation among others (Waters & Schneider, 2010). Procedural knowledge involves knowing how to successfully apply strategies that comprise declarative knowledge, and select the one which is the most suitable to attain a goal. Some examples of procedural knowledge include understanding strategies of planning, or creating an environment conducive to listening. Finally, conditional knowledge allows the listener to determine the appropriate conditions to apply procedural and declarative knowledge. This type of knowledge allows the listener to identify what skills and strategies will lead to achievement, and determine when and why to modify environmental conditions (Waters & Schneider, 2010).

The second most important element of metacognition is self-regulation, which involves planning, monitoring, and evaluating cognitive activities. The goals of Self-Regulated Strategy Development (SRSD) can be conceptualized as fourfold: (1) help students learn and independently apply powerful strategies that allow for the accomplishment of specific tasks; (2) ensure students acquire the procedural, declarative, and conditional knowledge needed to effectively use the strategies; (3) support students' development of self-regulation procedures that help manage the strategies and the task; (4) enhance specific

aspects of motivation, including attitude, self-efficacy, and effort (Waters & Schneider, 2010).

Flavell (1979) cited in Goh (2008) divides metacognitive knowledge into three categories: person knowledge, task knowledge or strategy knowledge. An examination of these categories leads to a better understanding of metacognition in language teaching and learning. First, person knowledge, or knowledge of person variables, consists of an individual's understanding of how people learn and process information. It also applies to a person's awareness of his or her thinking and learning processes. Second, task knowledge refers to how an individual can best manage a task, and his probability of succeeding in it. Moreover, a person recognizes how complex a task is. Therefore, this variable is the knowledge learners have about the information needed to carry out a task, and the amount of effort and difficulty involved to perform it. Third, strategic knowledge or knowledge about strategy variables, applies to the awareness and application of metacognitive strategies while paying attention to a task. An individual knows the usefulness of some strategies, and selects the most appropriate ones to complete a task successfully. Then, strategic knowledge includes knowledge of cognitive and metacognitive strategies as well as conditional knowledge about when and where strategies are used more appropriately.

Oxford (2011) introduces a model of strategic self-regulated (S2R) language learning that categorizes different strategies into three dimensions of cognitive, affective and socio-cultural interactive strategies. Within each dimension she distinguishes meta-strategies from strategies. All strategies are based on meta-knowledge related to person (individual), group or culture (community), task (short- term) whole process (long-term), and strategy (metastrategies and strategy). These types of knowledge influence conditional knowledge that explains the circumstances that lead to the use of a given strategy. Oxford (2011) emphasizes the strengths of the S2R model in contrast to other models, and suggests that its most significant aspect is that cognitive, affective and socio-cultural dimensions are treated similarly. Self-regulation is often considered a synonym of autonomy, or discovery-based learning that occurs through exploration, but Oxford (2011) clarifies the concept by arguing that a learner has control over learning, as he manages to cope without the teacher's aid. Self-regulation comprises self-adjustment; therefore, if something needs to be improved, the learner may manage on his own.

2.5   Research related to metacognitive instruction and self-regulation

The studies mentioned below involve metacognitive instruction defined by Vandergrift and Goh (2012) as "pedagogical procedures that enable learners to increase awareness of the listening process by developing richer metacognitive knowledge about Themselves as listeners, the nature and demands of listening, and strategies for listening" (p. 97) . Goh (2002) presents the results of the TELL questionnaire study applied to a sample of 118 tertiary learners in China who identify learning strategies and listening comprehension strategies. Goh (2002) focused on gender and strategy use, and examined the strategies and the tactics used by a group of students. The strategies belonged to the following categories: cognitive, metacognitive and social affective strategies. Goh (2002) makes a difference between comprehension and learning strategies. In contrast to comprehension strategies which facilitate understanding, learning strategies contribute to develop listening skill. A group of strategies had a moderately high to high frequency use: inference, directed attention, elaboration, contextualization, and self- encouragement. This work compares male and female learners using a t-test and the Mann-Whitney U test; however, these differences are not statistically significant. Findings indicate that male and female learners reported a high level use of tactics.

Both, Goh and Taib (2006), and Goh (2008) focus on metacognitive instruction, which is based on metacognitive knowledge and metacognitive strategies. Similarly, in both studies listening activities are conducive to the understanding of listening processes, and to the promotion of self-reflection.

Goh & Taib (2006) conducted a small scale exploratory study on metacognitive instruction in Singapore with a group of primary school students who were preparing for a listening examination. Despite the fact that English was not the students' dominant language, they attended a school in which English was the language of instruction. Goh and Taib found that metacognitive instruction can benefit young learners as much as older students, and that primary school learners can articulate the task they have to perform and their metacognitive knowledge. Nevertheless, it should be noted that as young learners' knowledge is limited, they need to undergo explicit strategy instruction. Nonetheless, young students can adopt new comprehension strategies. Finally, Goh & Taib came to the conclusion that while students are learning new ways to learn, metacognitive

instruction contributes to reduce language anxiety, and builds confidence on listening tasks.

Like the former study, Goh (2008) states the need to focus on a process-based approach to teach listening comprehension, which she refers to as metacognitive instruction. Goh argues that this concept develops learners' knowledge of learning to listen, and leads them to use efficient strategies. According to Goh, metacognitive instruction has the following advantages: first, it improves learners' affect, and helps them to become more motivated and self-confident, second, it improves learners' performance, and third, weak listeners receive the greatest benefits from this type of instruction. Goh (2008) proposes two kinds of activities for metacognitive instruction: integrated experiential listening tasks and guided reflections on listening. The former consist of activities from the course books or materials prepared by the teacher. Integrating listening activities with metacognitive materials can benefit learners in helping them to become aware of listening processes. The objective of the second type of activities is to make learners engage in reflections about their listening experiences, which will make learners think back about their experiences, and then plan future events. These activities promote self-appraisal and self-regulation of listening comprehension as well as the process involved. To be most effective, metacognitive instruction should be part of the listening curriculum. Finally, Goh summarizes research directions, and foresees significant developments for the future.

Vandergrift's (2002) study involved 420 beginning level students of French from 17 classes who responded to three different listening tasks that engaged them in the use of metacognitive strategies (planning, monitoring and evaluation). After performing the tasks, they completed a reflective exercise and a questionnaire on the quality of the activities and the instruments employed. It is noteworthy that planning allowed students to accomplish a successful task, monitoring taught them how to evaluate their comprehension, and finally, evaluation led them to assess how effective their strategies were, which encouraged self-reflection. The reflective activities and the questionnaire gave evidence of a high degree of metacognitive knowledge regarding the listening process as well as strategic knowledge. However, both instruments represented a lesser degree of person knowledge. It was found that when students become more metacognitively aware, they increase their likelihood of performing tasks more successfully.

Vandergrift et al. (2006) developed the Metacognitive Awareness Listening Questionnaire (MALQ), which has been used successfully in different contexts to raise metacognitive awareness of the listening process, to influence students' approach to listening tasks, and to increase self-regulation of listening strategies comprehension. This 21 item questionnaire is related to five metacognitive factors: Problem solving, Planning and Evaluation, Directed attention, Personal knowledge and Mental translation. Regarding validity and reliability of MALQ, Vandergrift et al. (2006) used rigorous statistical procedures to validate the items of this instrument. MALQ is a self-assessment tool for second language learners to regulate and reflect on their strategy use. Vandergrift et al. (2006) pointed out that metacognition is self-reflection and self-direction; moreover, they emphasized that there is strong evidence that metacognition can influence both the process and outcome of second language learning.

Vandergrift (2008) provides an introduction of metacognitive strategies used in L2 listening, and also focuses on word segmentation skills, and the development of metacognitive awareness. Lastly, he presents an approach to teach listening strategies so that learners become aware of listening comprehension processes, and gradually acquire skills to take control of their listening and understanding. The author explains the importance of metacognitive strategies as they orchestrate the use of specific cognitive strategies. However, the power of metacognitive strategies to direct and regulate listening comprehension cannot be noticed without cognitive strategies. Therefore, successful comprehension depends on an orchestration of both categories. Vandergrift points out the importance of learning to regulate the metacognitive processes involved in listening comprehension, which agrees with Flowerdew and Miller (2005).

Listening is a multidimensional process since a listener uses information from outside and inside the oral text to interpret it (Vandergrift, 2008). Taking control of listening comprehension is associated with the acquisition of perception skills; nevertheless, the development of word segmentation is extremely difficult for L2 learners as this is a skill acquired at an early age. Therefore, when learners tend to apply the same system to a language that is not rhythmically the same as L1, they are unsuccessful in their comprehension because of the underdevelopment of their perception and word segmentation skills. Vandergrift (2008) proposes a pedagogical cycle for the development of metacognitive awareness, perception and word recognition skills of L2 learners. This

metacognitive cycle, which includes three stages (Planning, Monitoring and Evaluation) has theoretical and empirical support. According to Vandergrift, this pedagogical model of learning to listen has shown greater gains in weaker listeners, and it is applicable to both beginning, and advanced-level learners.

Vandergrift & Tafaghodtari (2010) carried out research with a sample of about 100 students distributed in an experimental and a control groups. The researchers followed rigorous procedures to apply a pedagogical cycle including a cluster of cognitive and metacognitive listening strategies to higher skilled and lower skilled listeners of the experimental group over a period of six months. After strategy training, the experimental group outperformed the control group, and in addition, lower skilled listeners of the experimental group showed greater increase of listening comprehension than their high skilled counterparts in the same group. On the other hand, the lower skilled listeners of the experimental group showed greater increase of listening comprehension achievement than higher skilled and lower skilled listeners of the control group. Although the study does not show significant statistical differences between the experimental and the control groups regarding listening performance, there is strong evidence of the low learners' metacognitive awareness, which becomes highly pedagogically valuable even though this study was not carried out in an EFL setting. It is worth mentioning that the methodological procedures present serious statistical tests and measures to validate research findings. In sum, Vandergrift & Tafaghodtari's (2010) study has a sound empirical base.

2.6 Self-Efficacy

Studies related to self-efficacy and language learning strategy use have shown that learners' self-efficacy correlates with the language learning strategies that they utilize in their progression towards learning (Graham & Macaro, 2008) as learners can influence a task outcome by altering the amount of effort that they bring to the task or the strategies that they apply when they are doing the listening task (Graham, 2011).

Self-efficacy and listening performance can be developed by means of listening strategy instruction, which increases learners' sense of control. Learners can select their own strategies according to the task, thus enhancing their sense of control.

In Graham & Macaro (2008), learners who were instructed in the use of strategies performed better than students who were not trained, and also increased their metacognitive awareness as well as their sense of self-control.

The study carried out by Graham & Macaro (2008) includes the following components: a) a strategy instruction program based on students' needs; b) strategy instruction including important metacognitive components (diaries, student's self-evaluation, teacher's feedback); c) strategy instruction that allows learners to see the connection between strategies and outcomes in order to identify what strategies or clusters of strategies lead to achievement, and to focus on top-down strategies and text- based strategies; d) a program linked to self-efficacy; e) the inclusion of a delayed post-test; f) listening test types applied at different times during the intervention, which were not similar to tasks given for instruction.

The difficulties learners faced, and the strategies they used were identified by means of think-alouds. As a result of a pre-intervention phase, Graham & Macaro (2008) identified a cluster of strategies that could most benefit students: *effective prediction formation, confirming the evidence of prediction (a component of monitoring), identifying key words, inferring the meaning of unknown words, strategies for recognizing word boundaries, and familiar words* (p.758). These strategies were checked through feedback and self-evaluation.

The design of this study was quasi experimental with two intervention groups (HSG, LSG) and a comparison group (CG). During treatment, HSG received high scaffolding and LSG low scaffolding. The participants of this study were students of French as foreign language in England. The initial sample had 151 students, but was reduced to 107 because of the optional nature of the course.

Results indicate that there was a significant difference between the students who underwent strategy instruction from those who did not. The authors focus on clusters of cognitive and metacognitive strategies, and point out that the former cannot be instructed in isolation, which constitutes one of the theoretical underpinnings of this work. Another important underpinning was that in Graham and Macaro (2008), strategy instruction was implemented after finding out learners' needs, and although this factor does not make this work generalizable to other populations, they offer a different perspective of listening no

longer based on the model of the "*successful listener*", but on learners' linguistic knowledge.

It is interesting to note that in relation to scaffolding, HSG and LSG made greater gains than CG soon after the end of treatment, but was reversed six months later. The same tendency was found with respect to self-efficacy, comparing the intervention groups with the comparison group. Some reasons are given to explain the mixed results obtained, and the different levels of scaffolding. The two main reasons identified are attrition and the amount of scaffolding given to HSG and LSG. Apparently, the feedback provided for the former group was limited, and in addition, the LSG group had more chances to reflect on the strategies used and on the outcomes of listening tasks. Therefore, it is suggested that longer instruction and feedback is needed to obtain long-term results.

Graham (2011) refers to the concept of self-efficacy in listening as the capacity people have to carry out tasks, and clearly explains how this concept influences persistence, achievement and effort. Self-efficacy beliefs are also related to learners' attributions (how well they have performed an activity). The control of these attributions is of primary importance to determine if they are positive or negative with respect to motivation and persistence. Attributions related to effort to use strategies in a task are related to positive self-efficacy because learners can change the outcome of a task by varying their effort or strategies used. When learners realize that their task performance and the outcomes are closely connected, their motivation will increase (Graham & Macaro, 2008).

Self-efficacy is particularly relevant in EAP regarding listening performance. Since it is very difficult to prepare second language students to understand a lecture or to participate in exchanges in a seminar, it becomes essential to prevent them from experiencing listening anxiety (Graham 2011). Although it is thought that strategy instruction is classroom-oriented, it should be implemented to help learners boost their self-efficacy, and to prepare them for real life listening. In addition, in Graham's view, strategy instruction is not enough since it becomes essential for learners to increase control of their comprehension. Therefore, after raising consciousness of strategies, other steps follow: modelling, practicing, evaluating outcomes/effectiveness and planning. To identify which strategies can be used in future tasks, can lead to attributions which are closely related to

self-efficacy. Given the significance of this concept, Graham (2011) suggests that this process-based approach to listening should be applied in academic and general listening.

Graham et al. (2011) report on a study carried out in England with 15 lower- intermediate students of French at age 17 to investigate the development of their listening proficiency as well as their strategy use. The researchers decided whether listeners remained in the same listening proficiency groups, or whether change in strategy behaviour implied moving or not moving between these groups. The authors also investigated if the students' strategy use was a reflection of the teachers' listening pedagogy. Data were collected at two time points from participants' recall protocols after listening to short oral texts, and from protocols verbalized while participants were doing a multiple choice listening task. Interviews allowed teachers to gather information about how listening had been approached in the classrooms. Researchers observed slight movement between listening proficiency groups between the two time points. Furthermore, Graham et al. observed that although there were some changes in the participants' frequency of strategy use, stability of use was also detected for some of the learners. Differences in strategy use became noticeable when comparing groups rather than when comparing strategy use at two different times. Regarding teachers' approaches to listening, it is suggested that listening does not receive much attention within language teacher education programmes. Graham et al. (2011) agrees with Graham (2011) since they emphasize that effective listening is not developed by osmosis; instead, it needs to be fostered through efficient listening strategy instruction; however, effective listening is the result of learners' self-efficacy for listening.

2.7   Criticism of listening strategy instruction

Being strong opponents of strategy- based instruction, Renandya and Farrell (2010) explain the reasons why they believe that extensive listening in ELT provides more learning benefits for lower proficient students than listening strategy approaches. They point out the comprehension problems that learners can face when confronted to a listening text. Among the features that make listening input difficult, Renandya & Farrell (2010) mention the following: "*speaking rate, distraction, inability to recognize known words, new vocabulary, missing subsequent input, nervousness, sentence complexity, background knowledge, anxiety and frustration, and unfamiliar pronunciation*" (p.54).

The problems mentioned above can be overcome by instructing students in learning how to listen (Mendelsohn, 1994; Vandergrift, 2008; Vandergrift & Tafaghodtari, 2010), and applying cognitive, metacognitive and socio-affective strategies.

Renandya & Farrell (2010) fail to notice researchers' suggestions about how perception and word recognition problems can improve when students are trained in the use of clusters of cognitive and metacognitive strategies in a pedagogical cycle, which involves listening to an aural text three times as well as individual, peer and whole verification of listening difficulties (Vandergrift, 2008;Vandergrift & Tafaghodtari, 2010). Graham et al. (2008) also favour a new listening pedagogy, research on strategy-based instruction, development of bottom-up skill, and the relationship between linguistic knowledge and strategy use.

Renandya & Farrell (2010) argue that strategy instruction places a burden on ELT teachers who seem to lack the knowledge of its theoretical principles to implement listening strategies. In addition, Renandya and Farrell think that teachers are not trained to raise awareness, practice, evaluate and monitor students' strategies nor are they acquainted with strategy integration in the curriculum. Most probably, teachers lack this knowledge, but they should receive pre and in service training to be prepared for this important aspect of language teaching. Moreover, to avoid the burden on EFL teachers, they could opt for implicit strategy training, which facilitates instruction with the use of listening material where strategies are embedded.

Renandya & Farrell (2010) emphasize the significance of extensive reading to develop bottom-up skills (word recognition), reading comprehension and language proficiency, and imply that extensive listening can have similar effects on listening comprehension. Like reading, Renandya & Farrell (2010) believe that dictation and teachers' reading aloud can be part of the motivating listening activities of an extensive listening syllabus. In contrast, it is thought that even more benefits can be obtained with an innovative pedagogy such as Vandergrift's (2008) listening model, which helps learners to become aware of their listening processes, and to develop cognitive and metacognitive strategies that will ultimately allow them to self-regulate their comprehension.

2.8 Strategy Use and Gender

Wallentin (2009), Burman et al. (2008), Lan & Oxford (2003), Maubach & Morgan (2001), Green and Oxford (1995) introduce gender differences in verbal abilities, learning strategies and language abilities.

An online version of an article titled "*Who says a woman can't be Einstein?*" from Time Magazine, February 2005,

http://content.time.com/time/magazine/article/0,9171,1032332-4,00.html

makes a rhetorical question*: "As for girls and women, how do we explain why they tend to have better verbal skills and social sensitivities?"* The same article quotes Leonard Sax, a physician and a psychologist who wrote a book, Why Gender Matters where he asserts: "The most surprising differences may be outside the brain. If you have a man and a woman looking at the same landscape, they see totally different things. They hear things men cannot hear, and they smell things men cannot smell" (p. 4).

The general public is captivated by sex differences, so textbooks and mass media often approach cognitive scientists, physicians and psychologists with issues related to this topic. Unfortunately, textbooks or research papers do not provide substantial support to their claims.

In his critical review of sex differences in verbal abilities, Wallentin (2009) points out that although sex differences on language processing have been investigated in many fields, and some rudimentary agreement has been made, some controversies still remained unanswered. Large studies have been conducted on sex differences in verbal abilities within normal population, but a careful interpretation of the results suggests that differences in language proficiency are non-existent. Apparently, girls seem to acquire language earlier than boys although this difference gradually disappears. The debate continued, but a neurobiological study by Burman et al. (2008) showed significant sex differences when they used functional magnetic resonance image (fMRI) to measure brain activity in thirty one boys and in thirty one girls aged 9-15 as they performed spelling and writing language tasks. Using a complex statistical model, the researchers accounted for differences associated with age, gender, type of linguistic judgment, performance accuracy, and the method (visual or oral) in which words were presented. Burman et al., (2008) found that girls showed significantly greater activation in language

areas of the brain than boys. Furthermore, this study was the first to demonstrate a main effect of sex on the magnitude of activation.

In the field of Applied Linguistics, Lan & Oxford's (2003) study focuses on the learning strategy profiles of school students learning English in elementary schools in Taiwan. Lan & Oxford report strong relationships between proficiency, gender and strategy use among these learners. The researchers observed significant gender differences in the use of 11 strategies, which represented 37% of the total number. These differences were always in favour of female learners. In fact, boys did not use strategies more often than girls. Females had a higher frequency use of the following strategies: "repeat new expressions", "read English books" or "use English Computer programs", "find similarities between English and Chinese", "ask for help when not understanding", "organize time to study", "look for chances to practice English", "analyse mistakes to avoid making them again", "ask speakers to slow down", "repeat and clarify, and practice with classmates" (pp.371-372).

In comparison to boys, girls were more aware of the following cognitive, metacognitive and social strategies: "organizing their scheduling", "analyzing and avoiding mistakes", "seeking opportunities to practice", "practicing with classmates", "asking for help", and "asking speakers to slow down or clarify". Moreover, girls used "repetition of expressions and sounds", "use more tapes or CDs". Girls clearly tried to be in control of their learning. It was also noticed that there were no gender differences in the use of some strategies like "learn about American culture", "look for opportunities to speak English", "figure out grammar rules", "take risks in speaking" or "avoid translation". On the whole, means of strategy use were higher for girls despite the fact that strategy differences were not large enough to become statistically significant. Lan and Oxford (2003) conclude that the reason why it was surprising for them to find that gender had greater influence than proficiency on strategy use, was that they never predicted gender differences at an early age.

A small scale study carried out by Maubach & Morgan (2001) with 72 A level modern languages students describes how gender and learning styles are connected. Although the generalizability of the study is limited, it presents some important characteristics associated to gender differences in language learning. It was found that males were more

willing to take risks, and to speak in the foreign language, since they had greater confidence than females. Whereas males were more confident about asking questions in class and asking for clarification in order to understand, females were interested in reading and presenting their written work well organized. The authors state that this study cannot fully support the issues concerning the gender divide regarding language learning; therefore, it is suggested that effective teaching should help students overcome their weaknesses to develop their language skills successfully.

Using SILL and relating strategy use to L2 proficiency and gender, Green and Oxford (1995) reported on a study involving 374 students at the University of Puerto Rico. They found that more successful learners had a greater use of learning strategies, and women gave evidence of higher level of strategy use than men; nevertheless, with both proficiency and gender, only some items of SILL showed significant variation. Green and Oxford (1995) point out that gender differences in strategy use do not mean that one gender is more successful at language learning than the other gender. Green and Oxford state that "*Concrete information on gender effects on both strategy use and proficiency must be gained through multiple studies in various cultures*" (pp. 290-291). Green and Oxford conclude by suggesting two implications of the study for the classroom teacher. First, strategies involving active use of the target language play a decisive role in second language learning. Second, teachers need to distinguish which strategies are more suitable for learners.

2.9   Taxonomies of Language Learning Strategies

Researchers identified and described the learning strategies that language learners employed in the process of learning a second language. O'Malley et al. (1985), Rubin (1987), Oxford (1990), Stern (1992), Chamot and O'Malley (1994), and Macaro (2001) produced different taxonomies or classifications of language learning strategies, and although their categorizations are quite similar, this effort allowed not only to link strategies to a variety of cognitive processes while learning, but also to create instructional frameworks.

The existence of numerous classification systems has created some difficulties to categorize learning strategies. In contrast to some taxonomies which tend to emphasize only particular types of strategies, others are more expansive. For example, the taxonomy

by O'Malley et al. (1985) mostly describes cognitive and metacognitive strategies, but the taxonomy by Oxford (1990) also includes memory, compensation, social and affective strategies as well. These classification systems have received significant attention in the field of language learning strategies.

Table 2-1. O'Malley et al. (1985) Taxonomy

Categories	Strategies
	Repetition
	Resourcing
	Directed Physical Response
	Translation
	Grouping
	Note-taking
Cognitive Strategies	Deduction
	Recombination
	Imagery
	Auditory Representation
	Key Word
	Contextualization
	Elaboration
	Transfer
	Inferencing
	Advance Organizers
	Directed Attention
	Selective Attention
	Self-management
Metacognitive	Advance Preparation
	Self-monitoring
	Delayed Production
	Self-evaluation
Socio-affective Strategies	Cooperation
	Questioning for Clarification

Note: Adapted from "Learning strategies used by beginning and intermediate ESL students" by J. M., O'Malley, A. U. Chamot, G. Stewener Manzanares, , L. J. Kupper & R. P. Russo,1985, *Language Learning*, 35(1), 21-46.

O'Malley et al. (1985) was among the first classification systems that made a clear distinction between cognitive and metacognitive strategies (Rubin, 1987). O'Malley et al. (1985) divided language learning strategies into three main categories: cognitive, metacognitive and socio-affective strategies. Cognitive strategies involve *"manipulating the material to be learned mentally (as in making images or elaborating) or physically (as in grouping items to be learned or taking notes)"* (Chamot and O'Malley, 1994, p. 61). Metacognitive strategies involve planning for learning, thinking about the learning process as it is taking place, observing one's production or comprehension, correcting one's own mistakes, and evaluating learning after an activity is completed. Socio-affective strategies have a close relationship with social-mediating activity and interacting with others. The main socio-affective strategies include *cooperation and questioning for clarification.*

Table 2-2. Chamot & O'Malley's (1994) Taxonomy

	Planning	Monitoring	Evaluating
Metacognitive Strategies	Advance Organization	Monitoring Comprehension	Self-assessment
	Organizational Planning Selective Attention Self-management	Monitoring Production	
Cognitive Strategies	Resourcing Grouping Note-taking Elaboration of prior knowledge Summarization Deduction/Induction Imagery Auditory Representation Making Inferences		
Socio/Affective Strategies	Questioning for Clarification Cooperation Self-Talk		

Note: Adapted from "The CALLA handbook: Implementing the Cognitive Academic Language Learning Approach" by A. U. Chamot & J. M. O'Malley, 1994, White Plains, NY: Addison .Wesley Longman.

Chamot and O'Malley (1994) developed the Cognitive Academic Language Learning Approach (CALLA) which comprises academic content language skills and learning strategies. The language learning strategies used in this framework include: a) metacognitive strategies (planning, monitoring one's progress, and evaluating success. b) cognitive strategies (using reference materials, grouping, elaborating and others, and c) social/affective strategies (interacting with others/managing one's emotional response).

O'Malley et al. (1985) categorization thoroughly explains the concepts of cognitive and metacognitive strategies; nevertheless, it does not emphasize social and affective strategies. The system developed in 1985 included only one social strategy (cooperation) although they removed *questioning for clarification* from a cognitive to a social strategy (Chamot, 1987), and also added *self-talk* to their system (Chamot & O'Malley, 1994). On the other hand, Oxford's taxonomy places much more attention to social and affective strategies as they are considered an important part of the learning process (Oxford, 1990). Although some categories overlap in Oxford's system, this taxonomy is considered not only the most comprehensive of all but also the richest and the most detailed system of categorization. This is the reason why research studies have widely adopted it as their basis.

In contrast to the strategies inventories mentioned in this section, Macaro (2001) categorized strategies on a continuum with cognitive strategies at one end, and metacognitive and social affective strategies on the other. Using the same pattern, he placed along with cognitive strategies the following strategy types: subconscious, direct, automatized, difficult to articulate, non-evaluative, primary and natural. Along with metacognitive/social affective strategies, Macaro (2001) included these strategy types: conscious, indirect, controlled, easier to articulate, evaluative, support and taught (p.24). Those placed at the cognitive side are closely related to the task at hand while those placed more at the metacognitive / social / affective side are more related to the learner's planning to complete the task. It is worth mentioning that since this classification is placed on a continuum, a great number of strategies fall somewhere between the ends of each group. For example, *Inferring* can be found at the most direct and subconscious extreme of the continuum, *Answering questions in your head* is a strategy placed in the middle of the continuum, and *Asking the teacher for clarification* is at the more indirect extreme (Macaro 2001, p.25).

The present work is based on Oxford's (1990) taxonomy of strategies, and in particular the strategies connected with listening skills. This taxonomy has been chosen because it links the communicative approach to language learning and, like the cognitive classification by Chamot and O'Malley (1994), it considers the "whole learner" in the process of language acquisition, and adds numerous social/affective strategies. Moreover, Oxford's taxonomy seems the most effective and practical to use because of its completeness, specificity, and inclusion of the strategies related to all language skills. Oxford's Strategy Inventory for Language Learning (SILL) became an important source for this work, as it provides guidance to detect the listening strategies used by the participants of this study.

2.10 Taxonomies of Listening Comprehension Strategies

Vandergrift (1997), and Goh (2002) present specific classifications of listening strategies and skills. Vandergrift (1997) built on O'Malley and Chamot (1990) taxonomy, and produced a typology of strategies which includes cognitive and metacognitive strategies. In Vandergrift's framework socio-affective strategies were seldom reported during think aloud procedures, which do not seem to be conducive to the elicitation of these strategies. This classification scheme was also used in the present study because it is comprehensive and conclusive.

Goh (2002) identified the listening strategies and tactics used by a group of ESL learners by means of immediate and delayed retrospective verbalization. As a result, she produced an inventory of cognitive and metacognitive strategies and tactics. Go (2002) defines strategies as "*mental mechanisms to achieve comprehension."* (p. 186), and distinguishes them from tactics. The latter are defined as "*the techniques according to which a strategy is operationalized*" (Goh, 2002, p. 187). Data showed forty four listening tactics (twenty two cognitive and twenty metacognitive). This inventory can be used to make learners find out about listening processes.

Oxford's (1990) taxonomy of language learning strategies (See Appendix 7) and Vandergrift's (1997) taxonomy of listening comprehension strategies (See Appendix 6) were selected for this work. The latter was employed in the pilot study while the former was used both in the main study, and in the reanalysis of the pilot study.

2.11 Oxford's (1990) Taxonomy

2.11.1 Definitions of Direct and Indirect Listening Comprehension Strategies

In the literature of language learning strategies, the most inclusive taxonomy is provided by Oxford, who divides strategies into two categories direct and indirect. According to Oxford (1990), direct strategies are those that "*directly involve the target language*" (p.37) while indirect strategies "*support and manage language learning without directly involving the target language*" (p. 151).

Direct strategies are subdivided into three categories: Memory, Cognitive, and Compensation strategies. Indirect strategies are subcategorized into Metacognitive, Affective and Social strategies. These strategies are presented in Appendix 7.

2.11.2 Direct Strategies

1) Memory strategies entail the processes for the storage and retrieval of information that is heard. From this group, the following strategies were selected:

Creating Mental Linkages

a) Grouping: To classify information into groups.

b) Associating / Elaborating: To relate new language information to familiar concepts.

Applying Images and Sounds

a) Using Imagery: To relate new language information to concepts either by the creation of a visual image or by drawing. This strategy involves encoding information as images, then decoding the images to recall information. Using Imagery can be very interesting when compared to repetitive learning by rote.

b) Using Semantic Mapping: To concepts and relationships on paper to create a diagram in which the key concepts are linked with related concepts by means of arrows or lines.

c) Representing Sounds in Memory: To remember new language information by associating it with its sound.

d) Using key Words: To recall new language information by making use of auditory or visual links. First, learners identify a known word in their own language which sounds

like the new word (auditory link). Second, learners create a visual image that relates the known word to the new word which becomes the visual link.

Reviewing Well

a) Reviewing: To go back to new language information at regular intervals in a structured way. Reviewing can be implemented ten minutes after learning has been initiated, then twenty minutes after, one hour later, two hours later until learning becomes automatic. This is also called spiralling.

Employing Action

a) Using Physical Response / Sensation: To out a new expression or linking the new expression to a physical feeling or sensation. Physical movement can help learners to practice new expressions with gestures, and then to store them successfully.

2) Cognitive strategies are those used for the *"manipulation or transformation of the target language by the learner"* (Oxford, 1990, p.43). These strategies entail conscious ways of handling the target language. The following strategies were included from the cognitive group:

Practicing

a) Repeating: To listen to something several times. Repetition plays an important role in listening comprehension since repeated exposure to information can help students to understand better.

b) Recognizing and Using Formulas and Patterns: To be aware of formulas and patterns while listening to an oral text.

c) Practicing Naturalistically: To listen to authentic and nearly authentic material such as weather reports, interviews, films or any real-life situation.

Receiving and Sending Messages

a) Skimming: To understand general ideas from a listening text.

b) Scanning: To understand specific details of oral communication.

c) Using Resources for Receiving and Sending Messages: To use print or non-print material to comprehend / produce an oral message.

<u>**Analyzing and Reasoning**</u>

a) Reasoning Deductively: To make by using rules already known, and applying them to new situations.

b) Analyzing Expressions: To break down a word or a sentence into its component parts, and to use the meaning of several parts to understand the whole word or sentence.

c) Analyzing Contrastively: To compare elements of the target language with elements of the learner's own language to establish similarities and differences.

d) Translating: To convert a target language oral communication into the native language, or conversely to translate a native language oral communication into the target language.

e) Transferring: To apply linguistic knowledge from one language to another in order to understand a listening text.

<u>**Creating Structure for Input and Output**</u>

a) Taking Notes: To understand an oral text and write specific information.

b) Summarizing: To condense important information into their own words during and after listening.

c) Highlighting: To emphasize the most important information to remember from a listening text by using underlining, circling or colour -coding.

3) Compensation Strategies help learners to understand/produce messages in the target language despite limitations of knowledge.

<u>**Guessing Intelligently**</u>

a) Guessing Intelligently Using Linguistic Clues: To guess the meaning of words when knowledge of grammar, vocabulary and other linguistic elements is missing.

b) Guessing Intelligently Using Other Clues: To guess the meaning of heard information using non-linguistic knowledge from different sources: context, structure, relationships or world knowledge (Oxford 1990, p.49).

2.11.3 Indirect Strategies

4) Metacognitive Strategies involve planning, thinking about the learning process while it is taking place, monitoring and evaluating one's progress.

Centering your learning

a) Overviewing and Linking with Already Known Material: To preview concepts or materials to prepare for an activity, and linking them with what is known (Oxford 1990, p.138).

b) Paying Attention - Directed Attention: To decide to focus on a listening task globally, and avoiding distractors.

c) Paying Attention - Selective Attention: To concentrate on specific aspects of the input.

Arranging and Planning your Learning

a) Finding out about Language Learning: To Become aware of effective ways to listen on the basis of learners' own interest.

b) Organizing: To organize learners' conditions for effective listening not only in the classroom but also at home.

c) Identifying the Purpose of a Language Task: To establish the aim of a listening task.

d) Planning for a Language Task: To plan for all the necessary requirements for a listening task in advance.

e) Seeking Practice Opportunities: To search for ways to improve the listening skill outside the classroom. This strategy includes listening to music and trying to understand the lyrics, watching satellite TV, watching English films, among others. This strategy is closely related to Practicing Naturalistically.

Evaluating your Learning

a) **Self-Monitoring:** To check, verify or correct errors in one's comprehension during the performance of a listening task.

b) **Self-Evaluating:** To check the results of one's own listening performance against an internal measure of completeness and accuracy.

5) Social Strategies are indirect strategies that people use when they interact with others in order to communicate.

Asking Questions

a) **Asking for Clarification:** To ask the speaker how to use a word or expression, repeat or paraphrase to confirm understanding.

Cooperating with Others

a) **Cooperating with Peers:** To work with other students to help each other in their listening activities.

Empathizing with Others

a) **Developing Cultural Understanding:** To empathize with a person and making an effort to understand that person regarding his/her culture.

6) Affective Strategies are those used by learners to help them regulate their emotions, and attitudes, which can influence their learning.

Lowering your Anxiety

a) **Lowering your Anxiety:** To use techniques such as relaxation, deep breathing or meditation.

b) **Taking your Emotional Temperature:** To identify how anxiety and stress may be playing against one's life, and learning how to counteract them. Increasing learners' awareness of emotions is very important because learners often think that anxiety and stress are normal.

c) Encouraging Yourself: To overcome negative language self-esteem by acting positively. Learners either say or write positive statements about themselves to arouse confidence.

Finally, some conclusions emerge from the literature reviewed in this chapter:

1) Effective listeners mostly rely on top-down processing, while ineffective listeners use bottom-up processing exclusively.

2) Cognitive strategies are used by most listeners.

3) Metacognitive strategies are very important at all levels of learning.

4) Socio-affective strategies are seldom reported.

5) Modest gender differences are observed regarding strategy use.

6) Strategies are often used in combination or in clusters.

7) Raising metacognitive awareness, and implementing efficient metacognitive instruction can lead to self-efficacy.

3   Methodological Framework

In this study we have taken advantage of the power of verbal data to throw light on the participants' listening strategy patterns during the comprehension processes of perception, parsing and utilization. Ericsson and Simon (1993) express their support for think-aloud protocols:

> "We have assembled all of the experimental evidence we could find that bears on this issue. With great consistency, this evidence demonstrates that verbal data are not epiphenomenal but instead are highly pertinent to and informative to subjects' cognitive processes and memory structures. Human subjects are not schizophrenic creatures who produce a stream of words, parallel but irrelevant to the cognitive task they are performing. On the contrary, their thinking aloud protocols and retrospective reports can reveal in remarkable detail what information they are attending to while performing their tasks, and by revealing this information, can provide an orderly picture of the exact way in which the tasks are being performed: the strategies employed, the inferences drawn from information, the assessing of memory by recognition" (p. 220).

This chapter thoroughly describes the following sections of this investigation, which includes a pilot study and a main study: 1) the rationale for the methods chosen; 2) the participants, the setting, and the instruments (Background Questionnaire and Strategy Use Questionnaire); 3) the training of coders; 4) the data collection procedures (collection of protocols verbalization, individual interviews, transcription, segmentation and codification of protocols).

According to Sampieri's et al. (2003) typology, this is a descriptive correlational study. The methodology used for this work is a mixed method design which combines qualitative and quantitative methods (Dornyei, 2007). The wide acceptance of mixed methods is based on the following arguments: first, when researchers use both methods, they can make an efficient combination using the strengths of one method to overcome the weaknesses of another; second, researchers claim that it is possible to achieve a better understanding of intricate aspects of knowledge or of a particular phenomenon from two different directions: quantitative and qualitative data; third, the outcomes of mixed methods can appeal to a larger audience than those of a single method, and can offer something to people of different paradigmatic orientations; lastly, mixed methods contribute to improve validity. In fact, since the concept of triangulation was introduced, external validity or generalizability has increased (Dornyei, 2007). Triangulation, one of the main objectives of mixed methods (Dornyei, 2007), allowed the researcher to interpret data from multiple perspectives. To establish validity in this research, two types of

triangulation were examined: methodological triangulation, and investigator triangulation (Brown & Rodgers, 2002).

The methodological triangulation was carried out by means of the following instruments: a questionnaire and verbal protocols. In order to know the listening comprehension strategies that students already used, a questionnaire with closed questions was constructed in Spanish. On the other hand, using verbal protocols the information obtained in the questionnaire was corroborated and triangulated. Protocols were independently coded by the researcher, an expert coder, and a trained assistant. Thus, researcher triangulation increased the internal validity of this work.

The general and specific objectives of this research (see chapter 1) were achieved by measuring the independent variables (gender and tasks) as well as the dependent variables (memory, cognitive, metacognitive, compensation and social affective strategies).

The procedures, instruments, participants and setting of both the pilot study and the main study are described in detail.

3.1 Pilot Study

A pilot study was carried out at the beginning of November 2010 in order to test research tools and methods for data collection, to check the feasibility of the study design, to collect preliminary results, and to increase the reliability of the research project. Data were analysed at the beginning of 2011, and at the end of the main study. The participants of this pilot study were 5th Year students from a private school in Córdoba City. These pre-intermediate secondary school learners belonged to a group of students with the highest language proficiency among 5th Year students Classes A, B and C. The group consisted of 30 students (9 males and 21 females) who were randomized. Thus, the final sample consisted of 6 students (3 males and 3 females).

Two instruments were used to collect data: the school files, and a listening text. The former provided information about the participants' age, their academic performance as well as their social economic background. The school files gave evidence that the students were socially, culturally, economically and academically equivalent. A listening text was selected from the syllabus so that the material used was related to the participants' knowledge and experience. A thriller was chosen from *New Headway Pre-Intermediate*

(Soars & Soars, 2000) in order to raise students' interest. After listening to a radio drama, which lasted four minutes, the participants were required to discover a murder case. See the listening script in Appendix 1.

Before data collection sessions took place, the participants of the study were trained to verbalize their thoughts by means of anagrams, riddles and problem solving activities. Data collection sessions were organized individually in a language laboratory in November 2010. During the sessions, the participants verbalized their thoughts in Spanish after performing a listening task (See Appendix 2) by means of immediate retrospection. The students' reports were subsequent to their tasks, but as time between mental operations and report is so critical, the researcher minimized it as much as possible. In addition to audio-recordings of the sessions, video-recordings allowed the researcher to complete, confirm, or discard information obtained from the audio-recordings alone.

The protocols were transcribed verbatim, segmented and coded to identify listening strategies using Vandergrift's (1997) taxonomy, which includes cognitive, metacognitive and socio-affective strategies as explained in Chapter 2. Vandergrift's taxonomy was selected because it specifically focuses on listening strategies while Oxford's (1990) taxonomy, involves strategies related to the four macro-skills.

Listening strategy patterns used by the participants as well as differences between male and female listeners were uncovered by means of a quantitative and a qualitative analysis. A quantitative analysis was based on finding out strategy frequencies using a computer to tabulate, and to plot the results. A qualitative analysis consisted of attributing different strategies to the segmented protocols, and interpreting valuable comments from the participants' protocols in order to identify strategy patterns. As mentioned before, the pilot study was reanalysed using Oxford's (1990) taxonomy when the main study was completed and, although protocols had already been transcribed, the researcher listened to the recordings of the think alouds again, and attributed strategies to them according to Oxford's classification. The pilot study increased the efficiency and quality of the procedures in the main study, and led to some changes in protocols coding and analysis.

3.2 Main Study

3.2.1 Setting and Participants

Both the pilot study and the main study took place in the same private institution. Similarly, the participants of both studies belonged to a group of 5th Year Level 3 students (classes A, B and C), with the highest language proficiency. It should be noticed that the sample of each study belonged to two different cohorts. Like in the preliminary study, the participants of the main study were randomly assigned, and included 16 secondary school students (8 males and 8 females). The sample was finally selected in October 2012. In the pilot study and in the main study, evidence from the school files ensured that these students belonged to the middle class, and were socially, culturally and economically equivalent.

Ethical principles were followed since the beginning of the preliminary study and the main study. First, consent from the school authorities was obtained, and soon after the participants of the study were notified. As this project includes human participants, the researcher carefully informed them about the purpose of the research, the time it would take, an offer to withdraw for any reason, potential benefits to the researcher and to the community, and assurance that their participation would be anonymous. Furthermore, it was made clear that their performance would not influence their marks in English.

3.2.2 Instruments

It should be noticed that the listening text and the task piloted in the preliminary study were also employed in the main study (See Appendixes 1 and 2).

3.3 Data Collection

3.3.1 Background Questionnaire

A Background Questionnaire (See Appendix 3) was implemented to elicit students' personal information about years of prior English learning, studying English in an academy, self-rating their English proficiency as well as their ability to understand and communicate in the foreign language, need for learning English, liking of English, and favourite English learning experience. Answers from questions 1 to 17 were tabulated and simple statistics was carried out to find the percentage of positive and negative

responses of male and female participants. Questions 18 and 19 were analysed qualitatively.

The Background Questionnaire for this study was devised following Oxford's (1990) model; however, some questions regarding English comprehension and communication were added to Oxford's (1990) original version. Additionally, the Background Questionnaire was translated into Spanish to facilitate students' understanding. This instrument took about fifteen minutes to be completed, and was administered a week before an adaptation of the Strategy Inventory for Language Learning (SILL).

3.3.2   Strategy Questionnaire (SILL)

The SILL administered in the present study is an adaptation of Oxford's (1990) version of SILL for speakers of other languages. As in the Background Questionnaire, SILL was also administered in Spanish. A revised version was completed and piloted with a group of 4th Year students attending the same school. This preliminary version of SILL did not include affective and social strategies because the analysis of the participants' verbal protocols elicited in the pilot study had not given evidence of these strategy categories. Nevertheless, their inclusion in the revised version of SILL was considered important to compare students' strategies obtained with two kinds of instruments.

The final version of SILL in this study includes 40 questions, which can be answered using a 5. Likert scale (Nunca o casi nunca; Generalmente no; A veces; Generalmente; Siempre o casi siempre). The strategies embedded in the questions include direct and indirect strategies. The former group involves memory, cognitive and compensation strategies whereas the latter group involves metacognitive, affective and social strategies. The participants were given about 25 minutes to complete the SILL although some students took about 20 minutes.

It should be stressed that it was important to try the questionnaire out with another group of learners to obtain information about the clarity and relevance of the questions, the suitability of the format, and the time required to administer this instrument. This piloting procedure improved both the quality of data, and the psychometric quality of the study (Dornyei, 2007).

To increase the reliability of this adapted version of SILL, a reliability test was run with SPSS to perform cross correlations between the different answers of the questionnaire. It was found that reliability was strong with Cronbach alpha in the range of 0.885 (See Appendix 5).

3.3.3 Training and collection of protocols verbalization

The next step of the data collection phase was to train students to verbalize their thoughts. Following Vandergrift (2003), and Ericsson & Simon (1993), two 80 minute classes were devoted to the participants' training by means of anagrams, riddles and problem solving activities. After the researcher demonstrated how to think aloud, students verbalized their thoughts in pairs while solving the activities mentioned above. Second, they wrote down their partners' verbal reports verbatim, and finally they disclosed each other's reports orally. It should be noted that most students used Spanish during their verbalization process. According to Ericsson and Simon (1993), a strategy used in anagrams tasks consists in retrieving frequent letter combinations in English from long term memory (LTM), and use them to produce different words that include these combinations. This is the first step to attempt possible solutions. These protocols depend on recognition processes as well as on evocation from LTM. Although participants used common processes, they solved anagrams in different ways.

3.3.4 Individual interviews

To prepare the students to think aloud some principles were taken into consideration (Brown & Rodgers, 2002). Needless to say, the listening tasks chosen for protocol verbalizations were within the participants' linguistic and cognitive means. Following Brown & Rodgers (2002), a clear recording of data was obtained to transcribe protocols accurately, and to check additional notes written by the researcher during the participants' verbalizations. Secondly, participants were stimulated to report their mental processes rather than to converse, or to socialize. Thirdly, participants were acquainted with the procedure, the task they had to perform, and the frequency of their response although the researcher took great care to avoid influencing their thinking.

Individual sessions were organized in a language lab to conduct the participants' think aloud protocols using a laptop computer with high quality headphones. Before conducting the protocols, the smooth functioning of the equipment was verified. The listening text

selected was copied to the laptop computer so that the participants could listen to the oral text directly from it, without using any other audio equipment. All the individual sessions were audio and video recorded with the laptop computer.

During the individual 50 minute sessions, the participants listened to an oral text twice, and immediately after, they carried out a listening task which consisted of three parts: 1) summarizing the oral text, 2) deciding whether some sentences were true or false, and 3) answering some questions. Activity 1 was only performed orally, whereas activities 2 and 3 were written and clarified orally. As soon as the participants completed the written activities, they expanded and justified their answers while verbalizing their thoughts retrospectively in Spanish.

3.4　Data Analysis

3.4.1　Transcription, Segmentation and Coding of Verbal Protocols

Following Ericsson and Simon (1993), the first step after data collection was to transcribe the verbal protocols verbatim, which was accomplished by listening and viewing the audio and video recordings while typing out what was said during each session. Interruptions, off side remarks, pauses, and silences, stammering and humming were typed out in order to be as faithful as possible to what the participants said. Transcribing was hard work and took a long time. The first version of the transcription was revised by the researcher and a trained assistant so as to make sure that relevant information had not been left out.

The next steps of protocol analysis were to segment the protocols, and to encode them by using a priori determined coding categories (Ericsson and Simon, 1993). Verbal protocols were segmented following natural pauses, and often consisted of a clause, a sentence or a phrase although segments were often combined into larger linguistic units called episodes (Someren et al, 1994). The categories included in the coding scheme were directly derived from theory. They consisted of the cognitive, metacognitive, compensation, and social/affective strategies from Oxford's (1990) taxonomy. Since some segments could not fit the coding scheme, other categories were added to complement it. A table was designed to include the following information about each participant's protocol of the listening tasks that were performed: number of segment, category and comment. See Appendix 9 for a section of this table.

The coding of the protocols was left to the researcher and to two independent coders: an expert and a novice. Since a coding scheme is usually attached to a research hypothesis, it is essential to do the coding with an open mind. Therefore, two colleagues, who were not involved in the project, and had no interest in the results of the protocol analysis, were asked to participate as coders. Both of them were provided with minimal information about the objectives of the study in order to avoid bias. In addition, they were independently trained in the use of the coding scheme, and instructed to be as accurate as possible. This personalized and independent training consisted of three sixty minute sessions that were scheduled whenever the coders were available. During the first session, the researcher briefly explained the purpose of the study, and presented the theoretical background of the coding scheme. The second session was used to train the coders in assigning codes to protocols as accurately as they could. Some protocols from the pilot study were given to the novice coder so that he/she could practice to do the real coding on his/her own. The third session was planned to give feedback to the novice coder about the coding of the protocols assigned in the previous session. As the novice coder needed more scaffolding, two short sessions were arranged to clarify his/her doubts. Once the training came to an end, and the coders felt confident about the procedure they had to follow, they were given the real protocols to encode, a copy of the coding scheme, the audio and video recording, and the task the students had performed. Some additional codes were unanimously agreed by the three coders in order to complete the coding of all protocols. Correspondence between codes assigned by different coders had to be found, so this correspondence, interrater reliability, was quantified. Interrater reliability examines consistency from rater to rater.

This chapter described the methods used to investigate the hypotheses examined in this study. Methodological issues were addressed, the participants, the setting and the instruments were defined, and the data collection procedures of the pilot study and the main study were outlined.

4   Results

This chapter describes the results obtained in the pilot study and in the main study. As mentioned in Section 3.1, the former paved the way for optimizing the procedures later used in the main study. The latter included a background questionnaire, a strategy use questionnaire, the codification of protocols by three coders, and the application of an interraters' reliability test. Finally, a thorough protocol analysis, and a reanalysis of the pilot study are performed. The latter was carried out to compare two groups of participants.

4.1   Pilot Study

 A quantitative and a qualitative analysis were carried out to uncover the listening strategy patterns used by upper secondary school students, and the differences in listening strategy patterns between male and female students. Figures 4-1 and 4-2 present the frequency of strategies used by all students according to Vandergrift's (1997) Taxonomy.
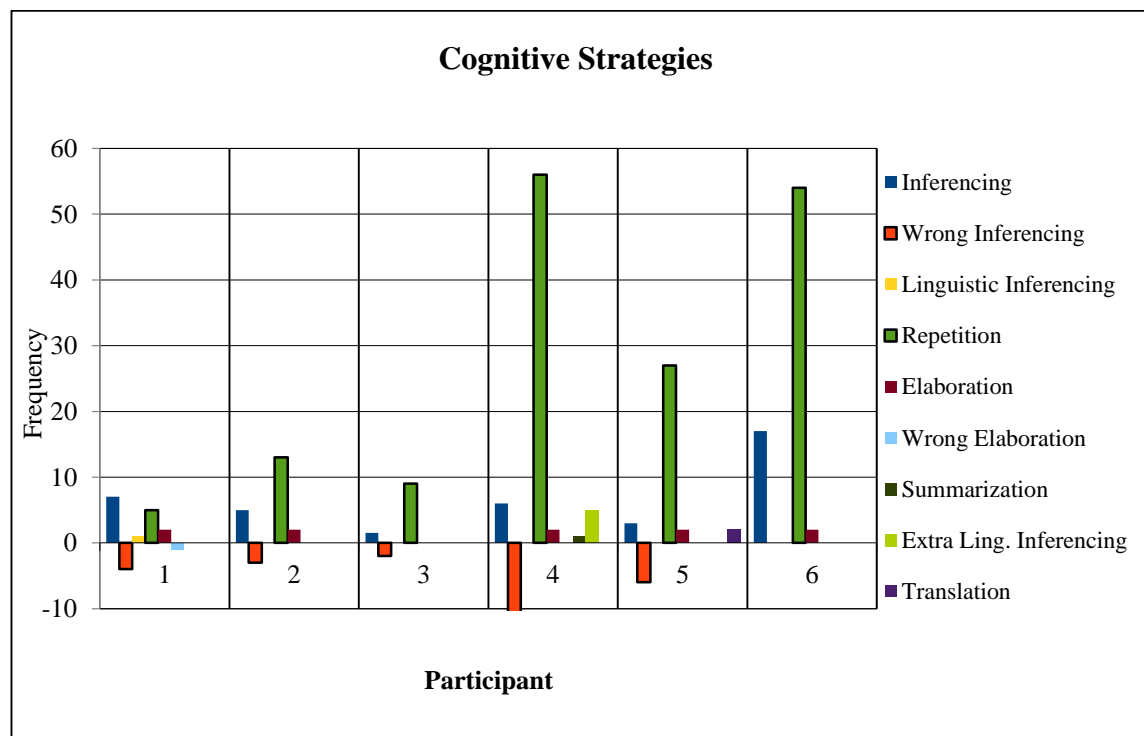

Figure 4-1. Cognitive strategy use of individual participants of both genders.
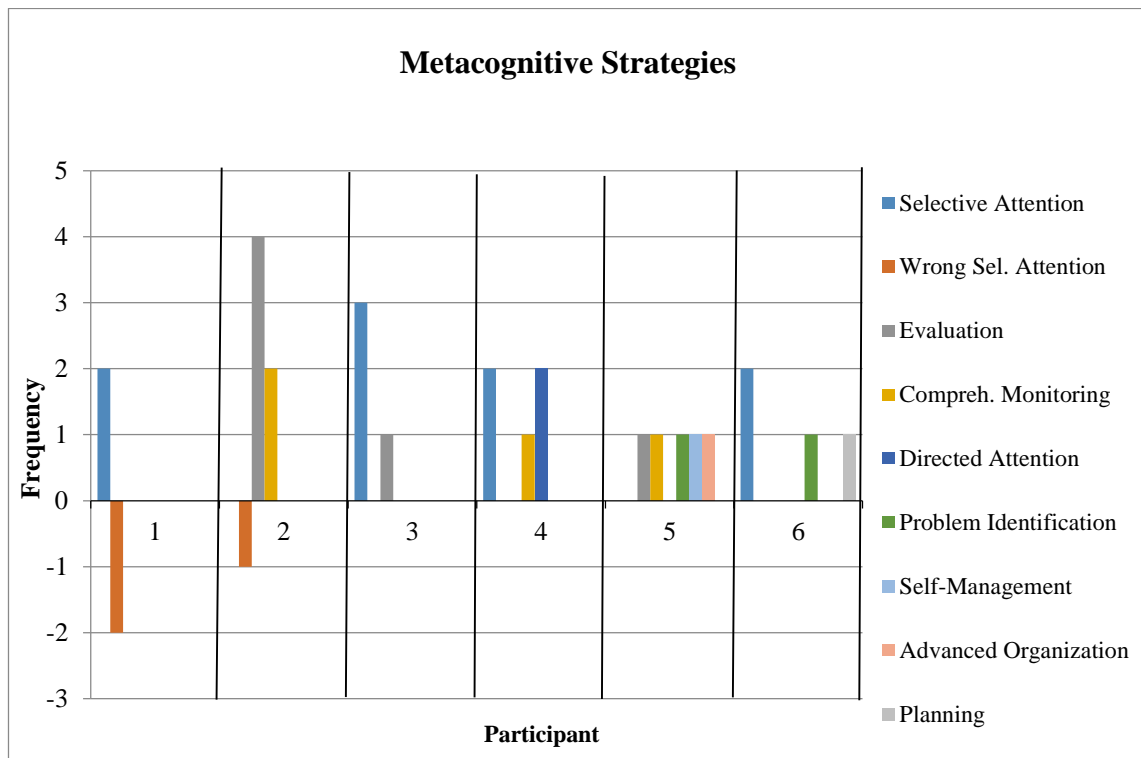
Figure 4-2. Metacognitive strategy use of individual participants of both genders.

Participants 1, 2 and 4 are females while participants 3, 5 and 6 are males. Note that negative value bars denote wrong use of any given strategy. From a quantitative perspective, with regard to the listening strategies reported by male and female participants, cognitive strategies were far more frequent than metacognitive strategies for both genders.

A quantitative analysis shows significant differences in strategy patterns in male and female learners. Although participant 1 appeared to be the most skilled female listener with a moderate range of cognitive strategies (inferencing, linguistic inferencing, elaboration, repetition) and a limited range of metacognitive strategies (selective attention), she could not achieve complete understanding of the listening test. In fact, a qualitative analysis of her verbal protocols suggests that she failed to grasp specific information about a murder weapon; moreover, she did not understand the circumstances under which one of the characters was murdered in the radio drama that the participants listened to during the data collection sessions. It is interesting to note that the frequency

of wrong inferencing and wrong elaboration account for her inability to fully comprehend the listening text.

On the other hand, participant 6 not only became the most skilled male listener, but also outperformed the most skilled girl, whose listening profile is discussed above, thus emerging as the most effective listener of the sample. Participant 6 reported an orchestration of cognitive strategies (inferencing, repetition, elaboration) and metacognitive strategies (planning, selective attention, problem identification). A qualitative analysis indicates that in contrast to Participant 1, Participant 6 never made wrong inferences, and in addition, he identified his use of deduction, a strategy categorized as inferencing in Vandergrift's taxonomy. It is also worth mentioning that participant 6 achieved complete understanding of the listening text since he came to the right conclusions about the murder case.

In agreement with Vandergrift (2003), the less skilled listeners appeared to be engaged in bottom up processing as suggested by participant 5 who reported translation while listening. His strategic behaviour did not allow him to direct his attentional resources to elaborate, to make correct inferences, or to use world knowledge efficiently. Although less skilled listeners in the present study reported inferencing and elaboration, their strategies were not as qualitatively good as those strategies reported by more skilled listeners, which was similarly found in Vandergrift (2003). Contrastively, the most skilled listener (participant 6) used bottom-up and top-down processes interactively, and approached the listening activity by means of good quality inferencing. The most significant difference between participant 6 and the rest of the participants was in the accuracy and flexibility that the former participant showed in his use of world knowledge.

4.2 Main Study

4.2.1 Background Questionnaire

Using simple statistics the background questionnaire (Appendix 3) disclosed important information about the participants. Since most of the answers in the background questionnaire involved a process in the students' level of English, a flow chart for male and female participants is used to present the results more clearly.
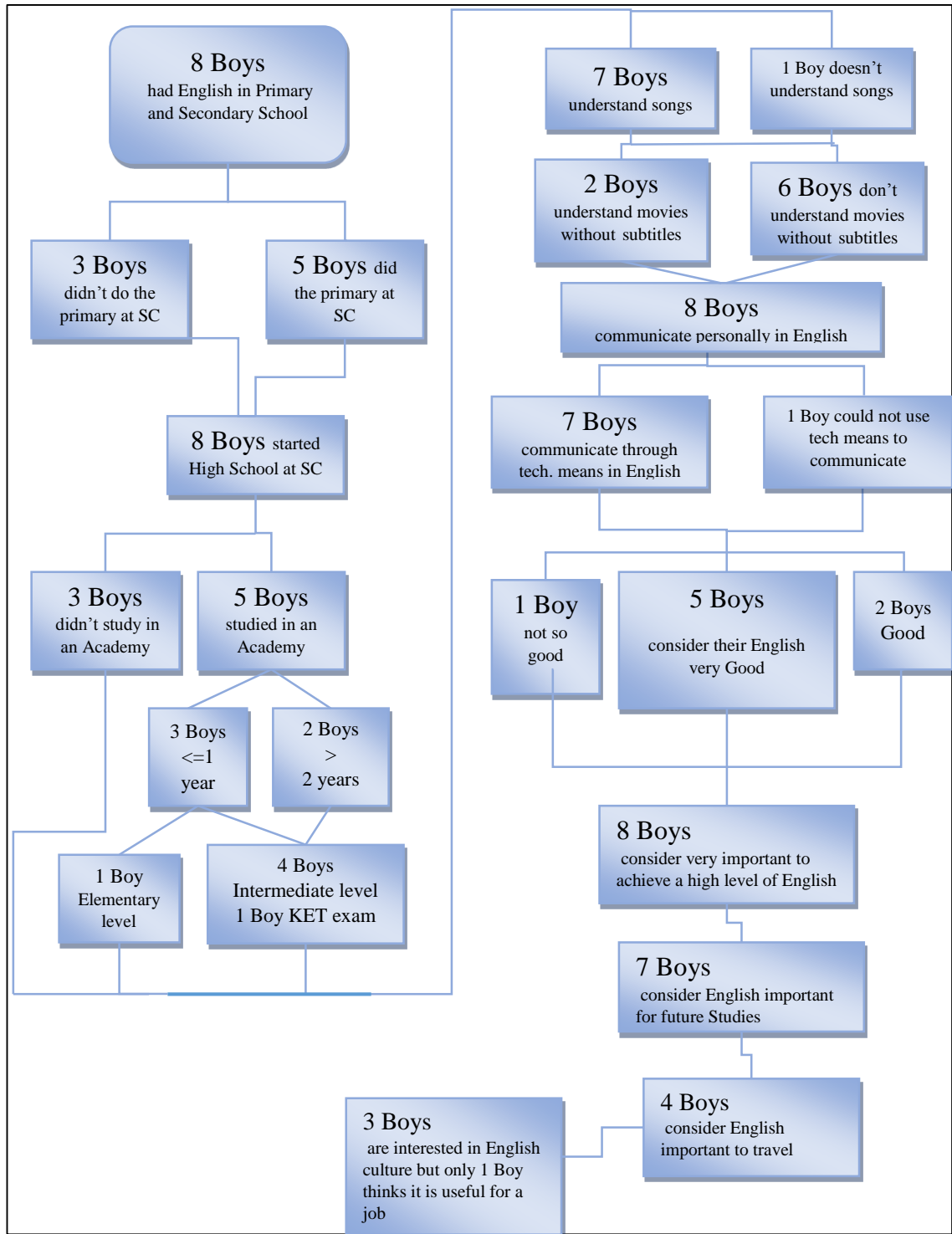
Figure 4-3. Answers by the male participants to questions 1 to 17 of the background questionnaire arranged in flow chart mode. Some boxes with DA (didn't answer) where omitted for clarity. SC means Sagrado Corazón.
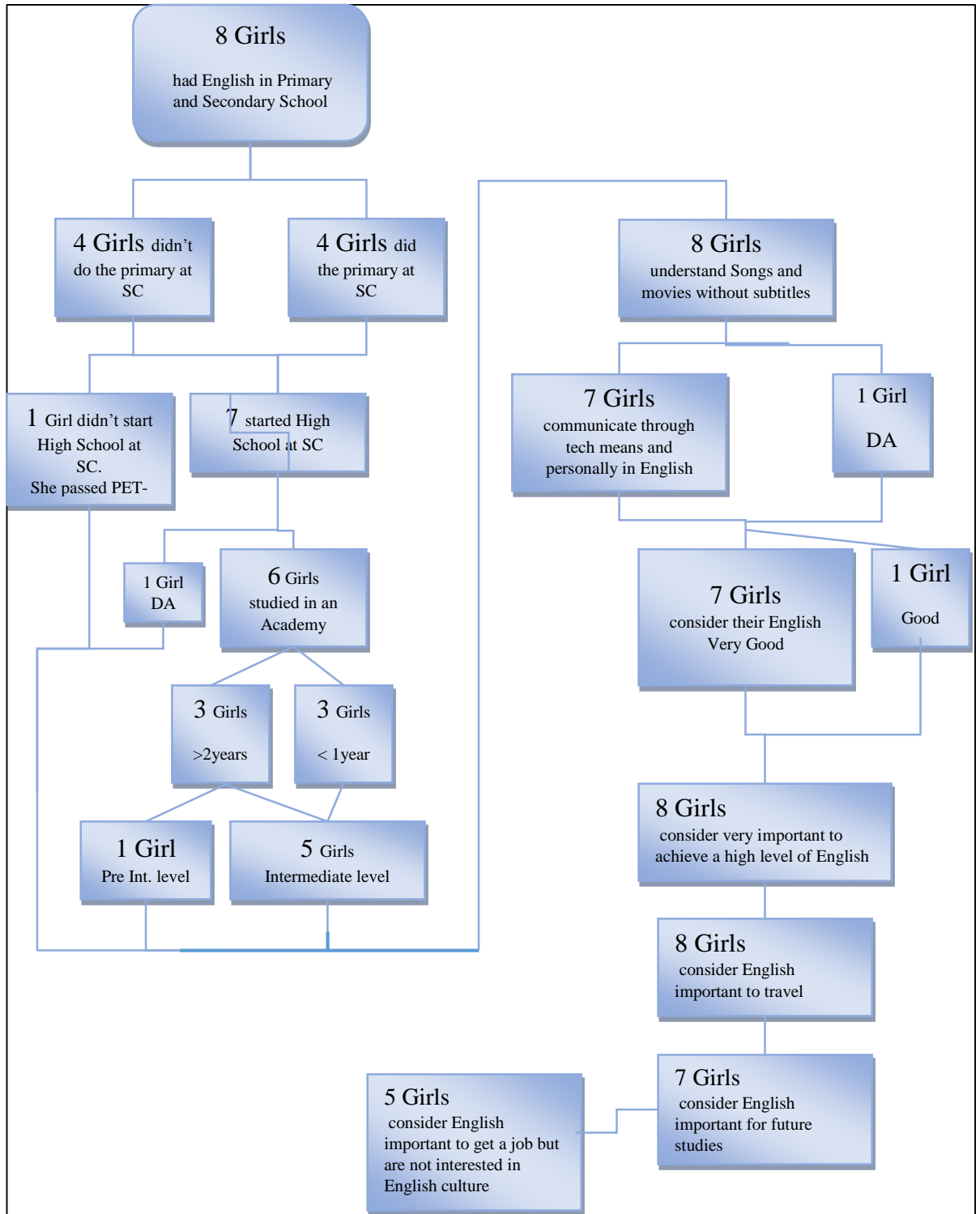
Figure 4-4. Answers by the female participants to questions 1 to 17 of the background questionnaire arranged in flow chart mode. Some boxes with DA (didn't answer) were omitted for clarity. SC means Sagrado Corazón.

The Background Questionnaire confirmed that male and female participants had similar background and proficiency in English, since most of them had studied this subject in primary and secondary school. It should be noted that 11 students had also learned English in an academy in addition to attending English classes as part of the curriculum at the school where this study was carried out.

As mentioned in Chapter 3, Questions 18 ad 19 were analysed qualitatively. First, question 18 showed that half of the girls enjoyed learning English through listening to songs, while 2 girls learned through listening to conversations. Regarding films, 2 students reported their preference for learning through them. Participants 5 and 8 expressed how much they enjoyed reading in English; however, although participant 13 did not prioritize reading, she also stated her liking for this activity and, in addition, she was the only participant of the sample who reported to enjoy writing.

> **Participant 5** "Disfruto mucho al leer textos y sobre todo le dedico tiempo y esfuerzo."

> **Participant 8** "….me gusta leer en otro idioma como el inglés…"

It was reported that two participants enjoy learning interactively either with native speakers or with friends and family. Whereas two female participants show that they enjoy learning new things, attending classes, and improving their English, only participant 2 denotes her preference for translating to practice and for evaluating her learning. Only 1 participant referred to the language as being "nice" and "interesting".

Second, an analysis of Question 18 for male participants showed short and concise answers. It was found that learning English through songs, games and films brought enjoyment to 3, 2 and 1 participants respectively. Two participants enjoyed interacting with friends or classmates while one enjoyed communicating through technological means. Only individual participants answered the following answer categories: noticing an increase in their English achievement, attending English Orientation classes, learning new cultures, and listening.

Reading was the most striking difference between males and females. While three out of 8 girls enjoyed reading in English, boys did not report this activity. Surprisingly, only 1 male or female participant reported all the following sources of enjoyment when learning: writing, getting acquainted with English culture, translating and self-evaluating one's own work.

Since answers to question 19 for male and female students were too diverse, we did not analyse them in detail because they would not be statistically significant. Answers included listening to songs, watching films, talking to native speakers, understanding drama, writing compositions, attending an academy, attending an English Orientation Class, speaking English and travelling.

4.2.2 Strategy Use Questionnaire

After the background questionnaire, a strategy use questionnaire (SILL) was administered to the 16 participants (Appendix 4) in order to assess their perception of how frequently they use specific strategies. To facilitate the analysis of the questionnaire, questions were grouped in larger strategy categories involved in this instrument as seen in Table 4-1.

Table 4-1. Grouping questions according to strategy categories

Direct Strategies

Memory Strategies	*Creating Mental Linkages* Q1 - Q2	*Applying Images and Sounds* Q3 – Q4 – Q5 – Q6	*Reviewing Well* Q7	*Employing Physical Response to Sensation* Q8
Cognitive Strategies	*Practicing* Q9 – Q10 – Q11	*Receiving and Sending Messages* Q12 – Q13 – Q14	*Analysing and Reasoning* Q15 – Q16 – Q17 – Q18 – Q19	*Creating Structure for Input and Output* Q20 – Q21 Q22
Compensation Strategies	*Guessing Intelligently* Q23 - Q24			

Indirect Strategies

Metacognitive Strategies	*Centering your Learning* Q25	*Paying Attention* Q26 –Q27	*Arranging and Planning your Learning* Q28 – Q29 – Q30 - Q31 – Q32	*Evaluating your Learning* Q33 Q34
Affective Strategies	*Lowering your Anxiety* **Q35**	*Taking your Emotional Temperature* Q36	*Encouraging Yourself* Q37	
Social Strategies	*Asking Questions* Q38	*Cooperating with Others* Q39	*Developing Cultural Understanding* Q40	

All the answers were entered in an Excel sheet to carry out the necessary statistics. After grouping according to table 3, and separating by gender, histograms of the frequency of strategy use are shown in Figures 4-5 to 4-10.
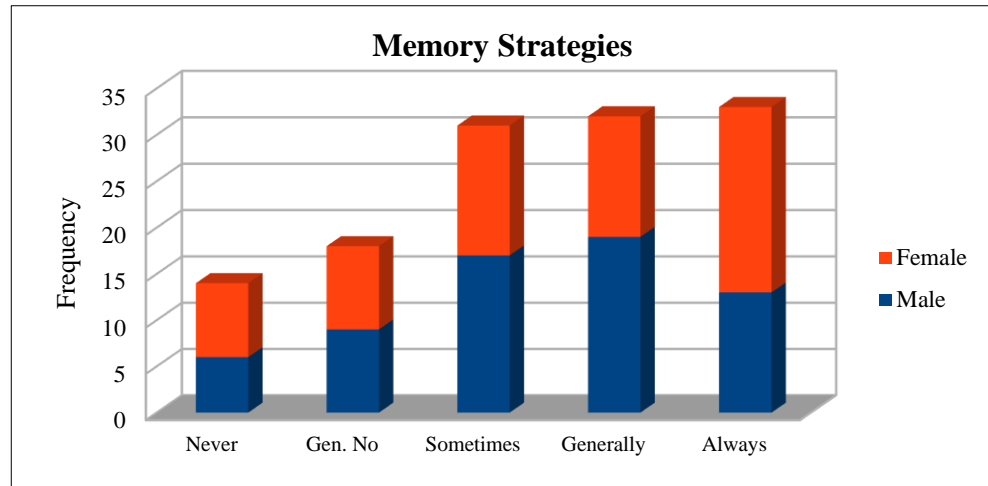

Figure 4-5. Both genders frequency of the questionnaire answers related to memory strategies.

It is interesting to note that all participants report a high use of memory strategies. However, girls' perception of their use of memory strategies appears to be more emphatic than that of boys. In fact, in Figure 4-5 the frequencies of "never" and "always" are higher for girls.
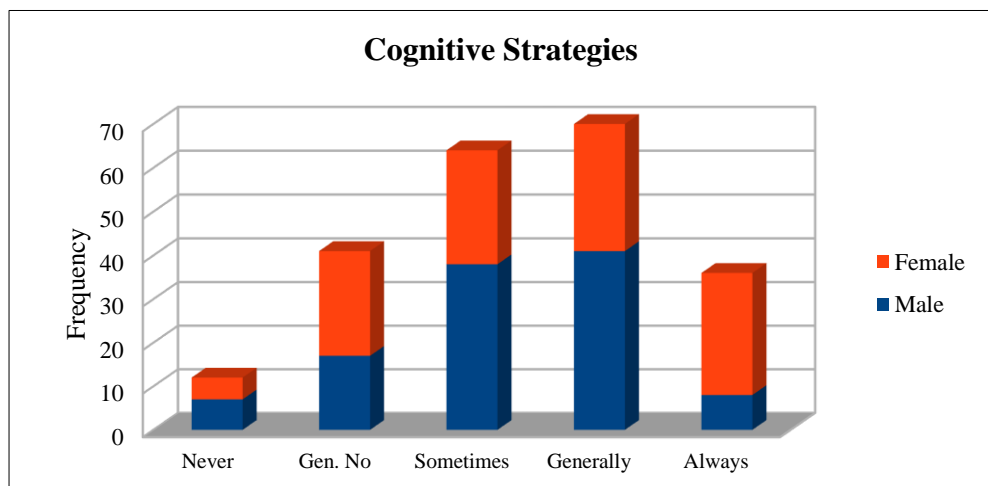

Figure 4-6. Both genders frequency of the questionnaire answers related to cognitive strategies.

Figure 4-6 shows that in comparison to boys, girls' perception of cognitive strategies is more evenly spread across the scale while the frequencies for boys are larger in the middle of the scale. A detailed study of the frequencies shows that apparently, girls denote a higher perception to identify known information, to understand TV programs, films and songs, to understand main and secondary ideas, to analyse and reason, and to summarize. Contrastively, boys have a higher perception regarding chunking words, phrases and sentences to understand, translating, and using a dictionary and their knowledge of Spanish more often than female participants. Neither boys nor girls seem to perceive the need to take down notes while listening.
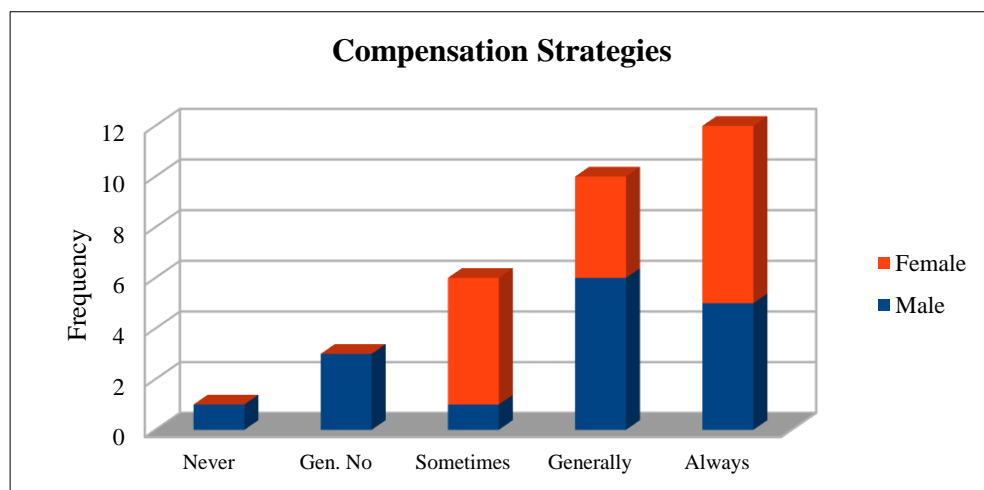

Figure 4-7. Both genders frequency of the questionnaire answers related to compensation strategies

The participants perceive that they use compensation strategies (Guessing) very often; nevertheless, some differences are noticed. In contrast to boys, girls appear to be more determined while boys seem to be more ambiguous.
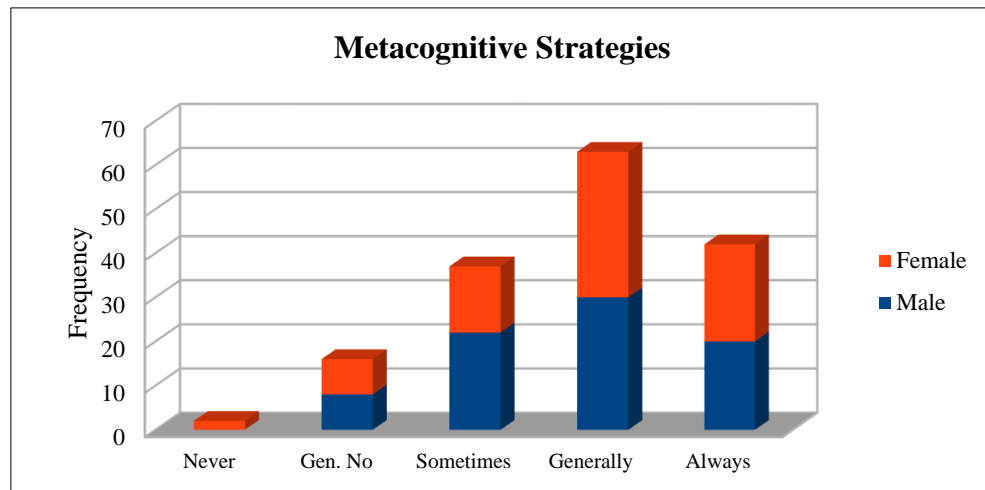
Figure 4-8. Both genders frequency of the questionnaire answers related to metacognitive strategies

Interestingly, as seen in Figure 4-8, the perception of metacognitive strategies is similar for boys and girls, and shows a peak at "generally". The figure suggests that the participants believe they can plan, monitor and evaluate their listening processes.
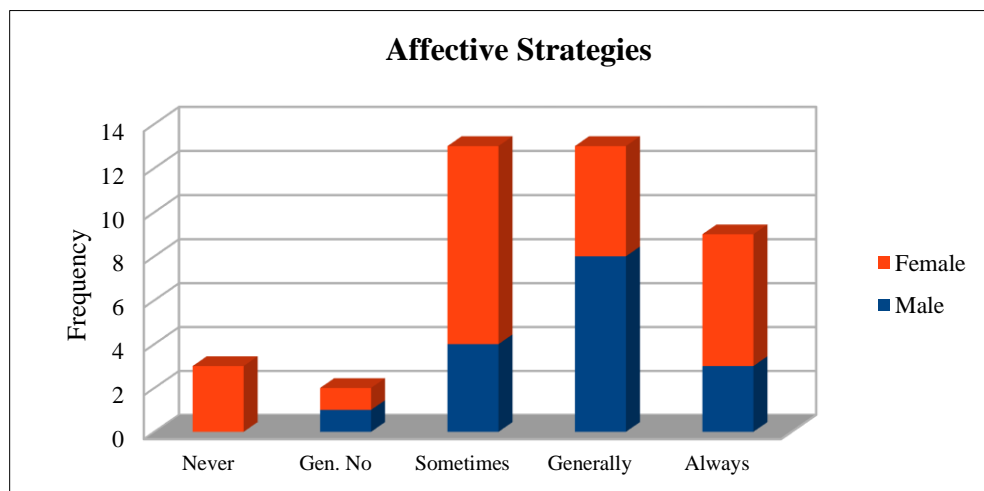

Figure 4-9. Both genders frequency of the questionnaire answers related to affective strategies

In Figure 4-9 the frequencies of the participants' answers suggest that girls may believe they need to encourage themselves or lower their anxiety less than boys when performing a listening task. This behaviour is best viewed in Figures 4-12 and 4-13.
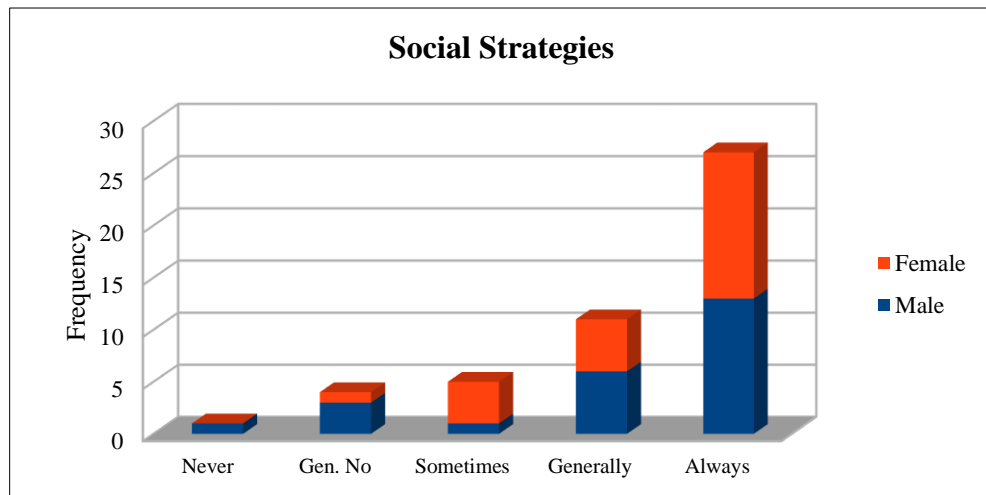
Figure 4-10. Both genders frequency of the questionnaire answers related to social strategies

In Figure 4-10 male and female perception of social strategies shows that participants believe that they ask questions, help each other to listen, and learn culture when they are engaged in listening comprehension activities.

In order to uncover relative proportions, the next three graphs (Figures 4-11, 4-12 and 4-13) show the same data in percentages.
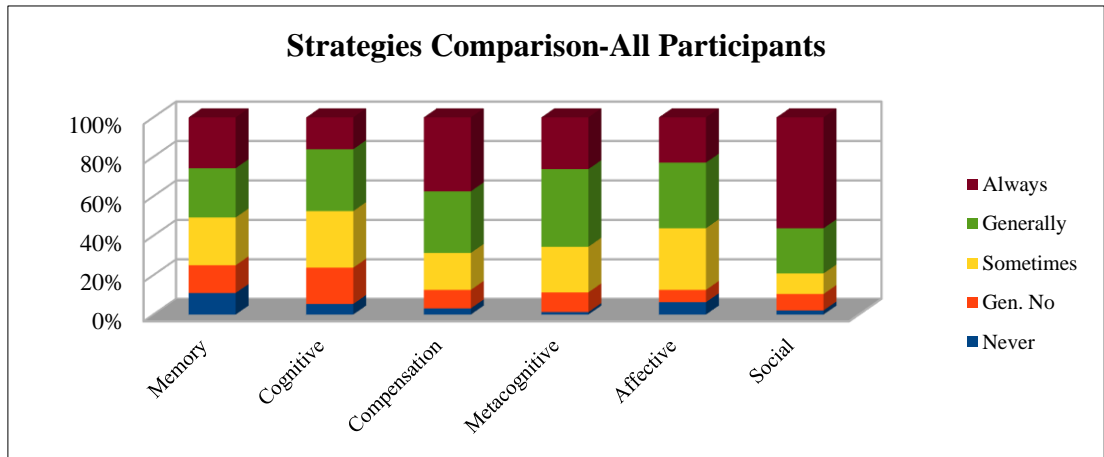
Figure 4-11. Comparison of all strategies frequencies percentages in the questionnaire for all participants.
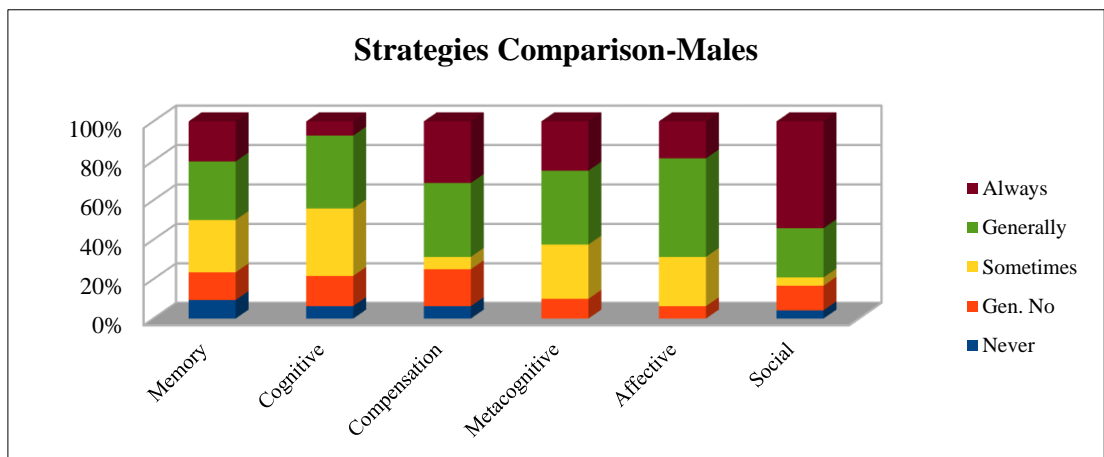

Figure 4-12. Comparison of all strategies frequencies percentages in the questionnaire for male participants.
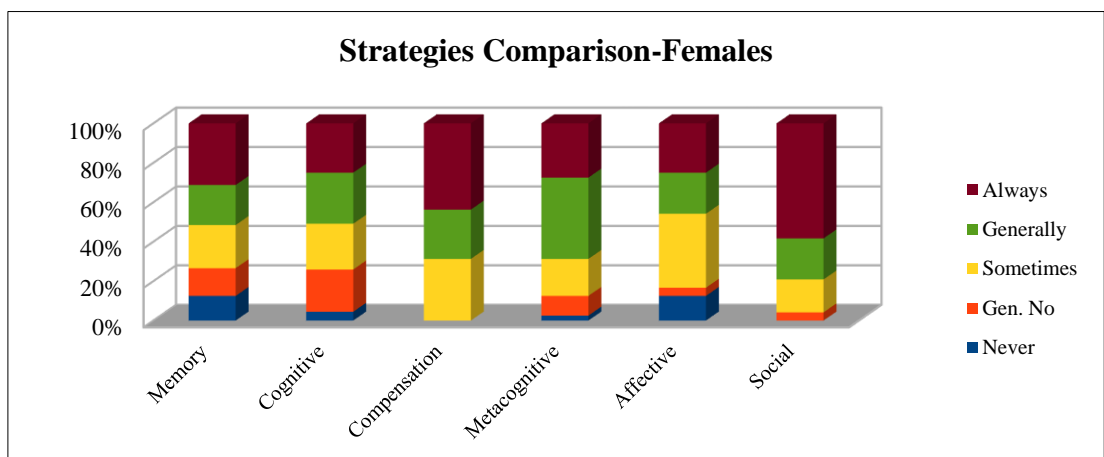

Figure 4-13. Comparison of all strategies frequencies percentages in the questionnaire for female participants.

It becomes important to notice that statistical tests such as Mann and Whitney test applied to a reduced sample size are unable to show gender differences quantitatively. However, this questionnaire provides abundant qualitative evidence of differences in perceptions between sexes for several strategy groups.

4.2.3   Codification of protocols and Interraters' Reliability

As explained in the previous chapter, after the transcription of the participants' protocols, they were segmented into meaningful units which consisted of words, phrases, sentences and episodes. The researcher segmented the transcriptions into 350 protocols which were handed over to the raters in order to assign strategies to the protocols and, since many protocols included several strategies, the total number of strategies rose to 596. The table in Appendix 7 was used for the assignment of strategies, but the raters were given the table without numerical codes.

The raters agreed on two additional strategies: *Guessing Using General Knowledge* and *Code Switching*, which are not categorized in Oxford's (1990) taxonomy. *Guessing Using General Knowledge* was defined as a strategy used to infer meaning, or to hypothesize by means of cultural knowledge that listeners bring to the text. In contrast to *Guessing Intelligently Using Other Clues* (Oxford, 1990), the new strategy only involved the use of world knowledge to guess. *Code Switching* was defined as a strategy that allowed learners to spontaneously move back and forth between Spanish and English while verbalizing their thoughts without having the tasks items in mind (true/false sentences and questions). *Code Switching* was added to the coding scheme to avoid ambiguities with *Translating* (Oxford, 1990). The latter strategy was mostly applied by the participants when they turned the texts included in the tasks (true/false sentences and questions) from English into Spanish during protocol verbalization.

In addition, raters also agreed on a Likert scale to measure the quality of the strategies that the participants reported: *Right, Bad Quality* and *Wrong.* After the raters returned the protocols with the assigned strategies, each strategy was coded numerically using the table in Appendix 7, which was important to allow the use of numerical analysis programs such as Excel.

Before analysing the protocols, it was necessary to check the consistency of the raters' codes. The analysis was carried out by strategy groups rather than by individual strategies

to disclose the participants' inner thoughts. Individual strategies will be studied later in this chapter. The participants' strategies were grouped according to major categories and subcategories included in the table in Appendix 7. Strategies 1 to 8 constitute the Memory group, strategies from 9 to 23 the Cognitive group, strategies 24 to 26 the Compensation group, strategies 27 to 36 the Metacognitive group, 36 to 39 the Affective group and 40 to 42 the Social group. Once the grouping was made, histograms of the coded strategies were performed for each rater.
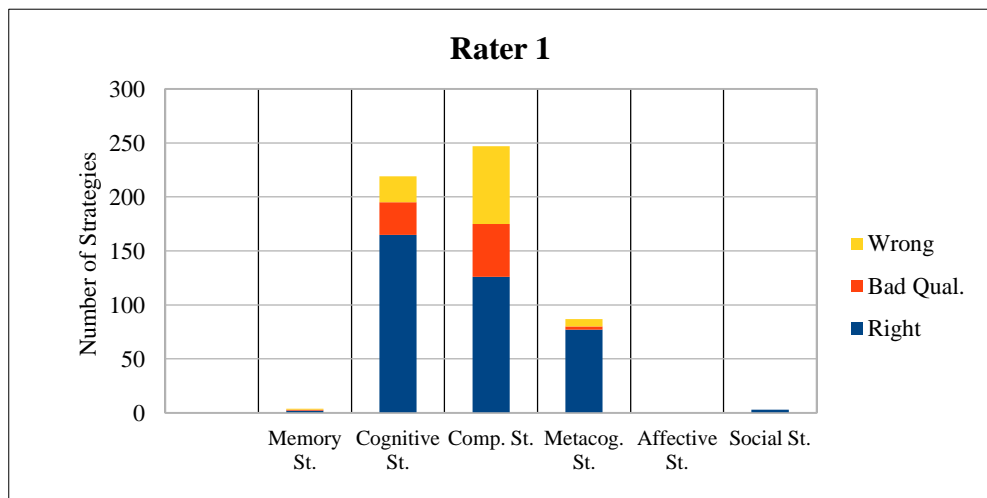
Figure 4-14. Histogram of the number of strategies coded by Rater 1 corresponding to all strategy categories.
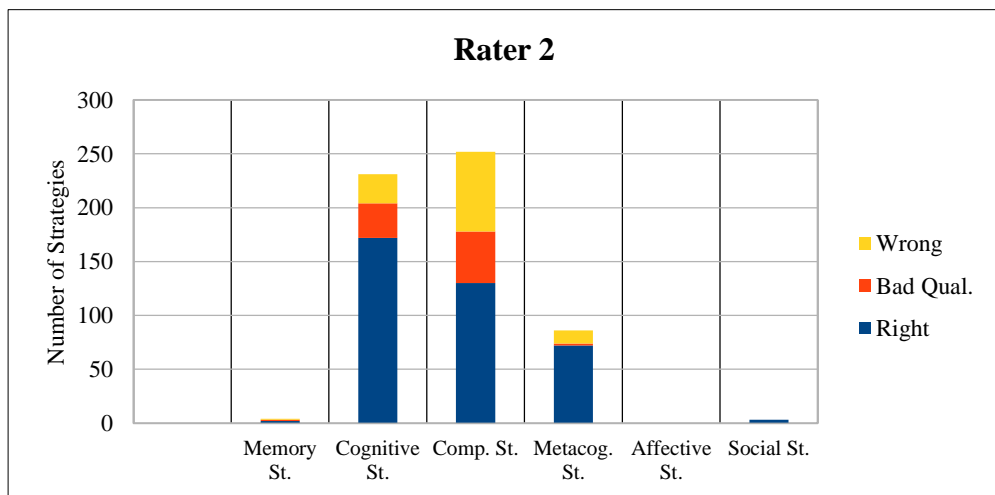
Figure 4-15. Histogram of the number of strategies coded by Rater 2 corresponding to all strategy categories.
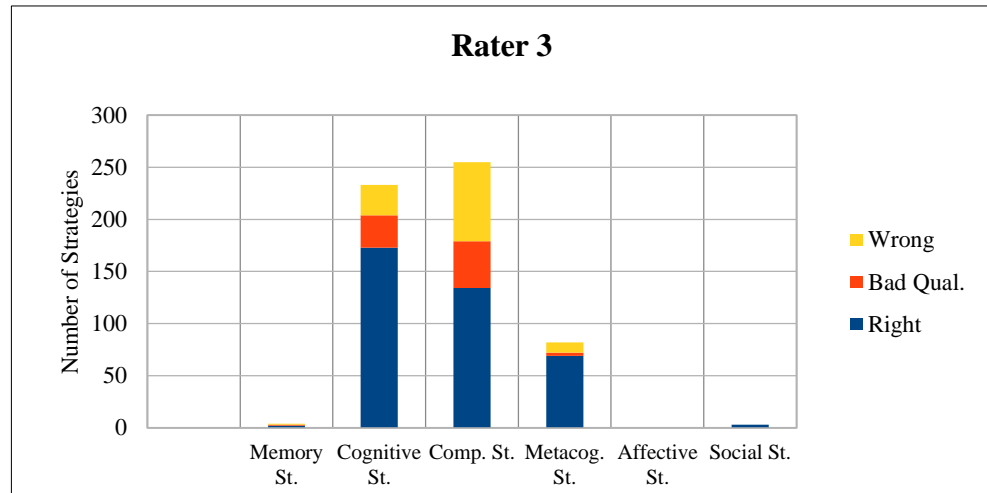
Figure 4-16. Histogram of the number of strategies coded by Rater 3 corresponding to all strategy categories.

Figures 4-14 to 4-16 show that the evaluations are very similar, so it becomes necessary to give a measure of the finer differences. Since the possible answers are not coded on a Likert scale, some of the usual tests for reliability are not directly applicable. The differences between pairs of raters are then calculated and presented as percentages of absolute values because there is not relevant information in the sign of the subtraction.
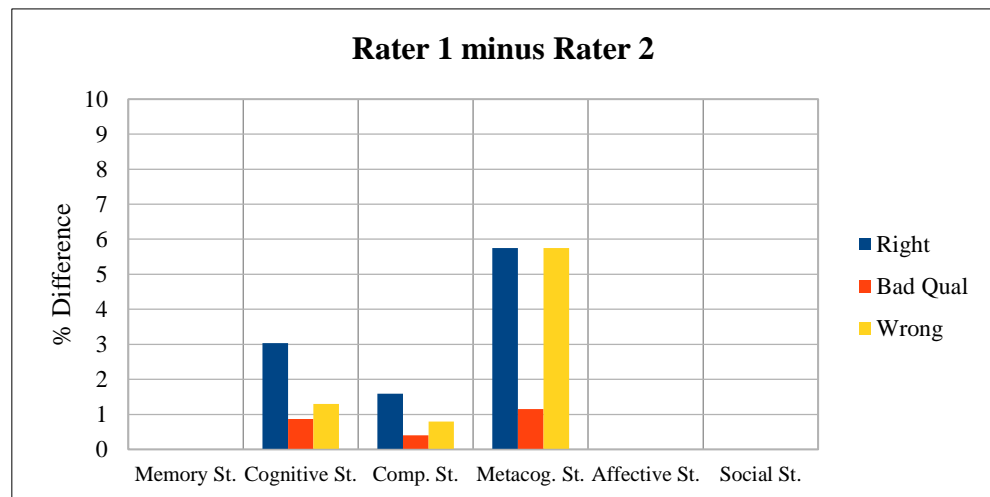
Figure 4-17. Percentage differences of coded strategies between raters 1 and 2.
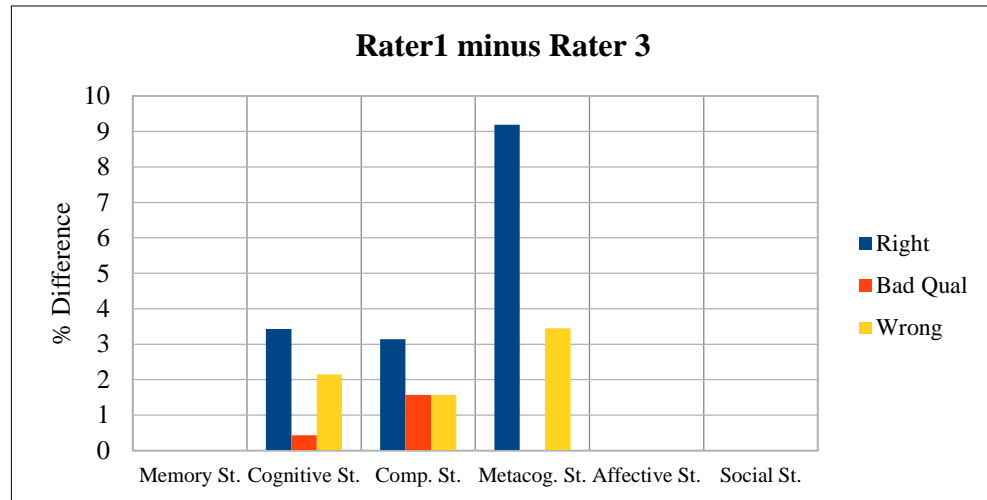
Figure 4-18. Percentage differences of coded strategies between raters 1 and 3.
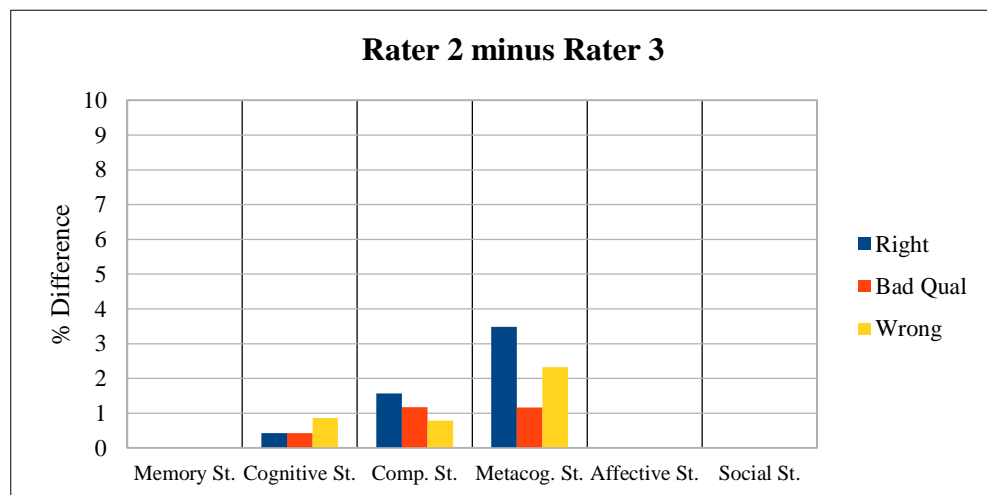
Figure 4-19. Percentage differences of coded strategies between raters 2 and 3.

These small percentage differences can be further characterized by using a specific statistical test of interrater agreement. There are several tests for this purpose: Cohen's Kappa (Cohen, 1960) and Fleiss' Kappa (Fleiss, 1971; Fleiss et al. 2003) among others. The problem addressed by these tests is that even if the coders rate at random there would be some agreement among them. Therefore, it is important to subtract the agreement by chance from the actual agreement. Appendix 8 shows the procedure for Cohen's and Fleiss' Kappa. The Kappa coefficient by Cohen is defined as follows:

$$\kappa = \frac{P_a - P_e}{1 - P_e},$$

where P_a is the agreement observed between two examiners in relative form i.e. the quotient between the number of agreed strategies over the total strategies evaluated and P_e is the fraction of agreement by chance to be calculated following the algorithm shown in Appendix 7. The results for Cohen's Kappa were 0.7934±0.02357, 0.79016±0.023757 and 0.78651±0.02417 for the three pairs of raters while for Fleiss was 0.80351±0.01924. Altman's (1991) table (See Appendix 8) shows that these values are borderline between Good and Very Good agreement. As mentioned before in Chapter 3, applying researchers' triangulation, it was found that the correspondence of raters' agreement was strong; therefore, the protocol analysis carried out in this study, gave clear evidence of its measure of reliability.

4.2.4 Protocol Analysis

Since raters' differences were not significant, Rater 2 was chosen to analyse the participants' protocols during this stage of the present work. Figure 4-20 shows the percentage of strategies used in each grand category.
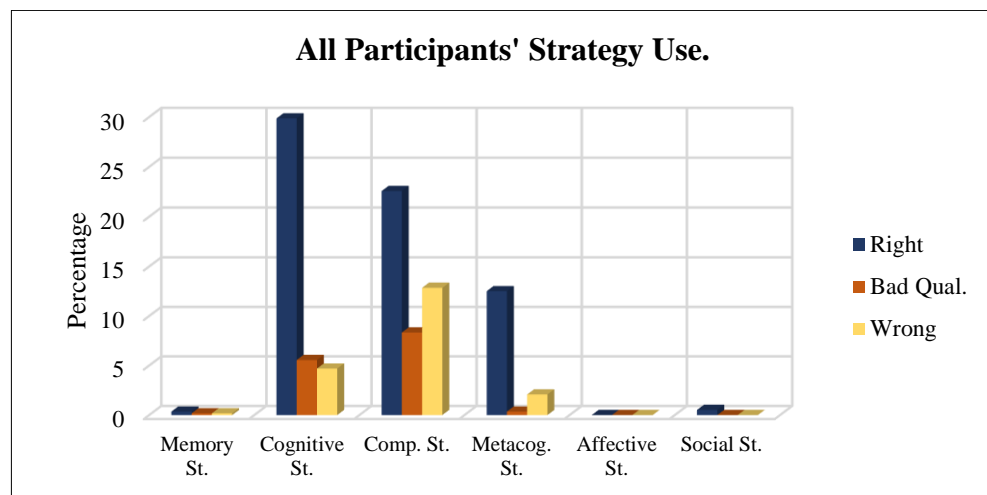
Figure 4-20. Percentage of all participants' strategy use calculated over the total number of strategies.

A sharp difference is noticed between what was reported in the main questionnaire and in the think – aloud protocols. The following figure shows questionnaire data.
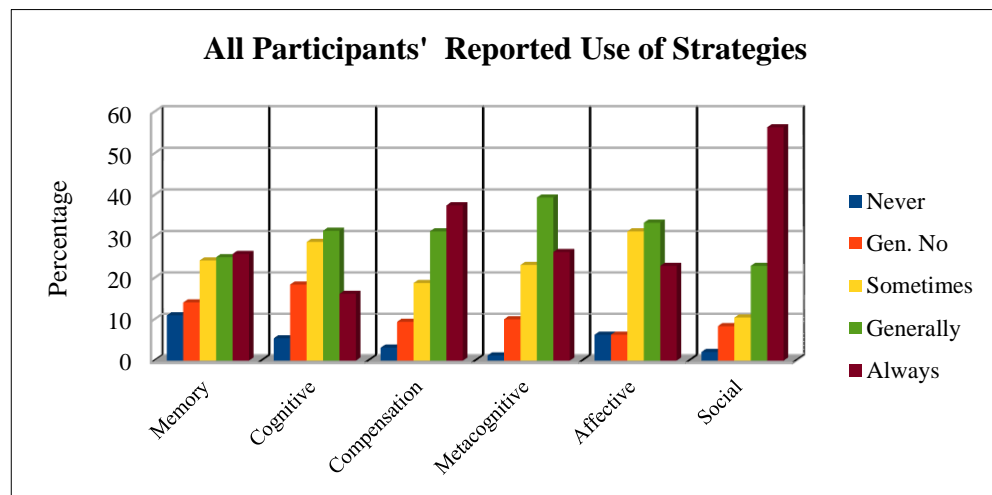
Figure 4-21. Percentage of participants' reported use of strategies in the questionnaire, calculated over the total number of strategies.

For example, in the questionnaire Memory strategies, which were reported being used 50% of the time (sum of "always" and "generally"), are completely absent in the think – aloud protocols. Similarly, the affective and specially the social strategies (79% in the questionnaire) show a mismatch between the reported perception of the participants and the actual use of these strategies.

Since in the questionnaire the participants reported their perception on how often they use specific strategies rather than their successful use, a new parameter was defined: *attempted use*. A strategy is counted irrespective of the right or wrong outcome of its use. Figure 4-22 shows the attempted strategies in percentage form respect to the total attempted strategies.

All Participants Attempted Strategy Use
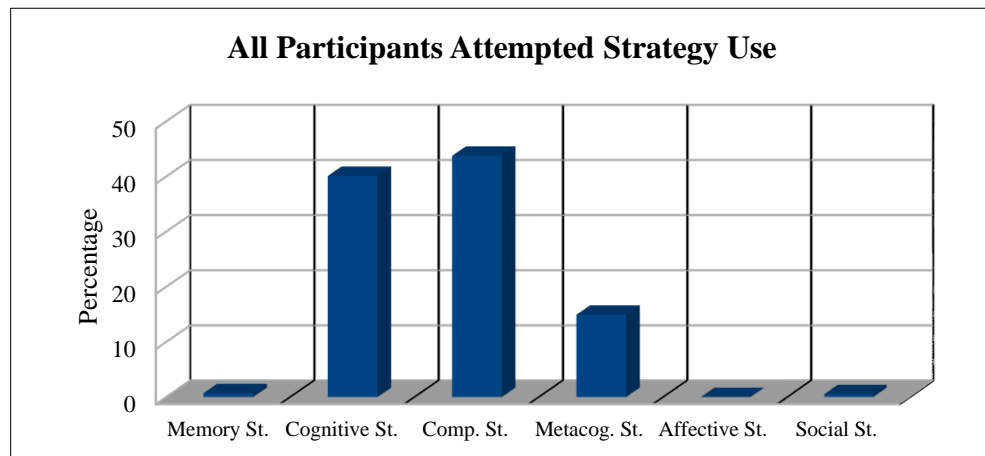
Figure 4-22. The attempted strategies calculated by adding up the Right, Bad Quality and Wrong used strategies

Regarding the use of compensation strategies which were reported in the questionnaire as one of the most frequently used (about 70% "always" and "generally"), there is agreement with 43.7% in the think aloud protocols. The second most frequently used strategy group in the think alouds was the cognitive one with 40% while in the questionnaire the perception was slightly larger, 47%. Metacognitive strategies follow with an important difference between actual use (15%) and perception (66%).

Next, the attempted use by gender is compared. Figure 4-23 gives the percentage of each group of strategies with respect to the total (male plus female).

Male and Female Total Attempted Use
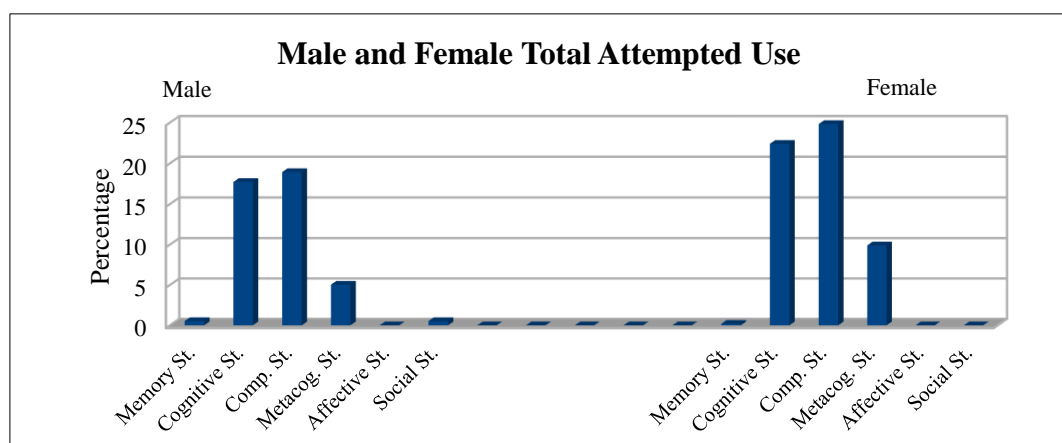
Figure 4-23. Attempted strategy use separated by gender.

Although both histograms look similar, it is important to notice some differences. Girls attempt to use different strategies in their analysis, and they verbalize more often than boys. In fact, 57% of all protocols belong to the girls and 43% to the boys. In Figure 4-23, it is also noticeable that the ratio between the metacognitive over the cognitive attempted strategies is larger for the girls (0.44) than for the boys (0.28). This could be an indication of different approaches to the solution of the puzzle.

As regards individual strategies, the next plot shows a histogram of all the participants' use of cognitive strategies.
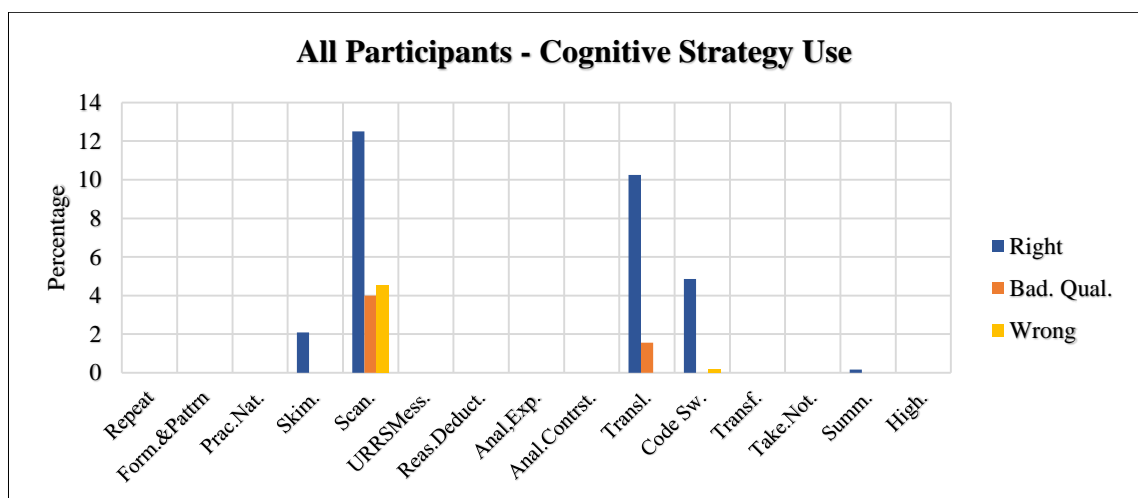
Figure 4-24. Cognitive strategy use of all participants.

A first observation is the use of only a fraction of the available strategies. *Scanning* and *Translating* are noticeable with *Code Switching* and *Skimming* in order of importance. It should be noticed that only four strategies out of fifteen are used in this category. Figures 4-25 and 4-26 show gender behaviour.
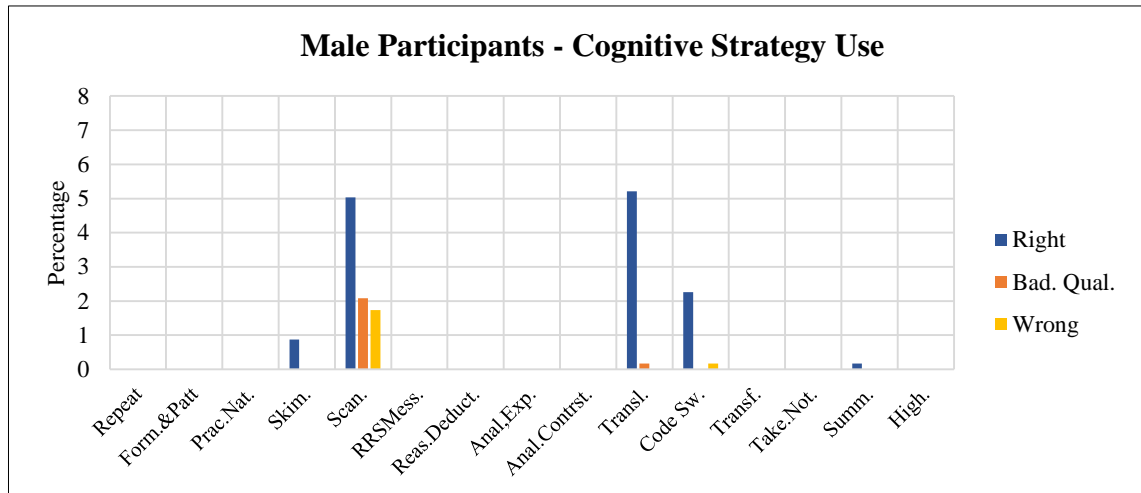
Figure 4-25. Cognitive strategy use of male participants. Percentage over total number of strategies
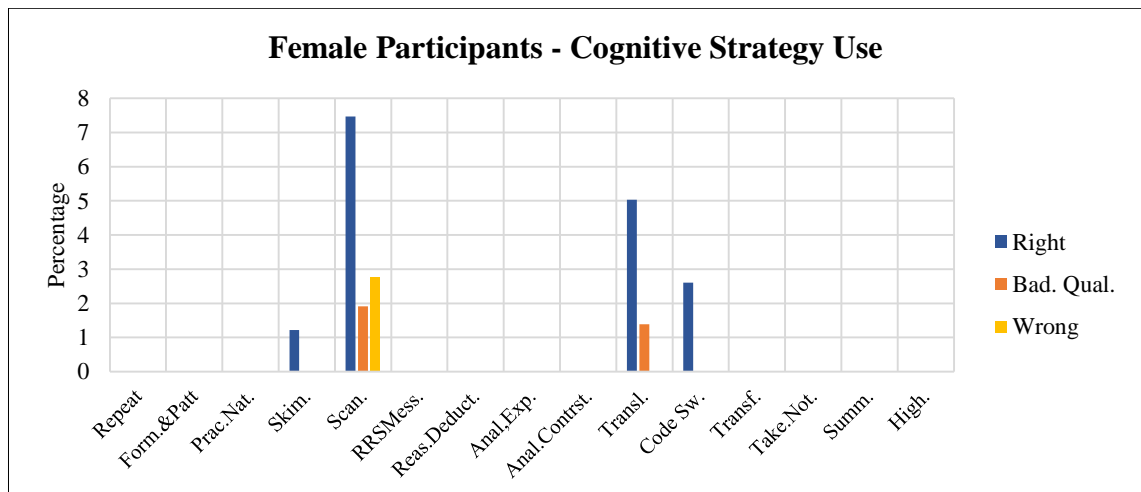
Figure 4-26. Cognitive strategy use of female participants. Percentage over total number of strategies

In general, girls use more strategies, which shows in the percentages. Figures 4-27 and 4-28 show compensation strategies.
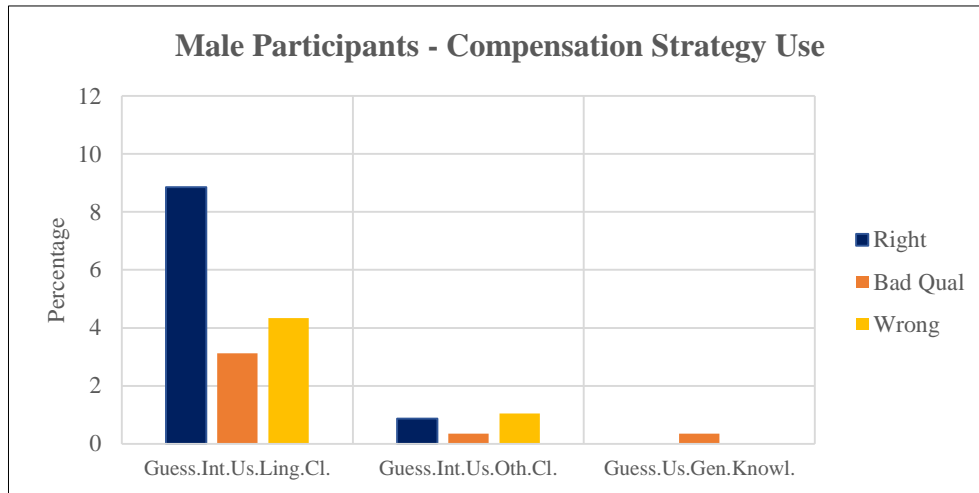
Figure 4-27. Compensation strategy use of female participants. Percentage over total number of strategies.
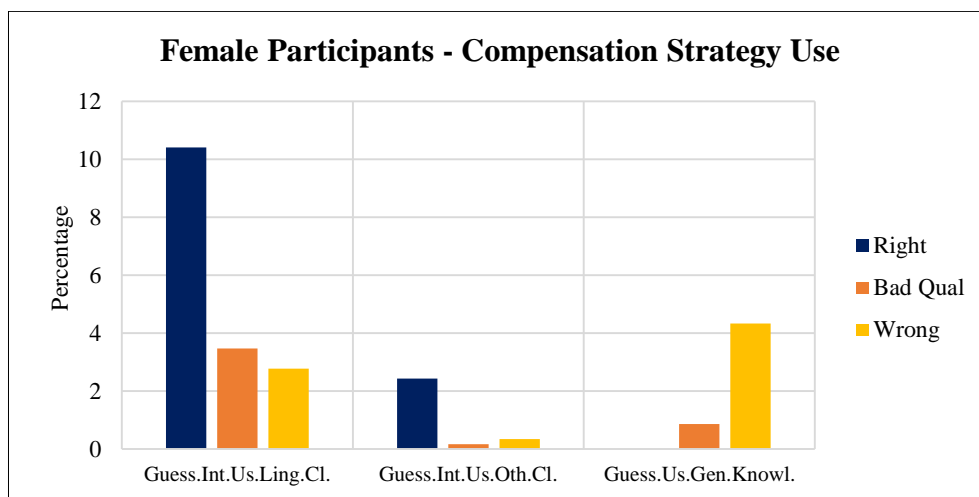
Figure 4-28. Compensation strategy use of female participants. Percentage over total number of strategies.

Participants resort to the whole set of compensation strategies although female participants use them more often; however, they tend to be wrong when applying *Guessing Using General Knowledge*.

Girls' tendencies to use more protocols and strategies than boys is also noticed in the metacognitive strategies as seen in Figures 4-29 and 4-30 below.
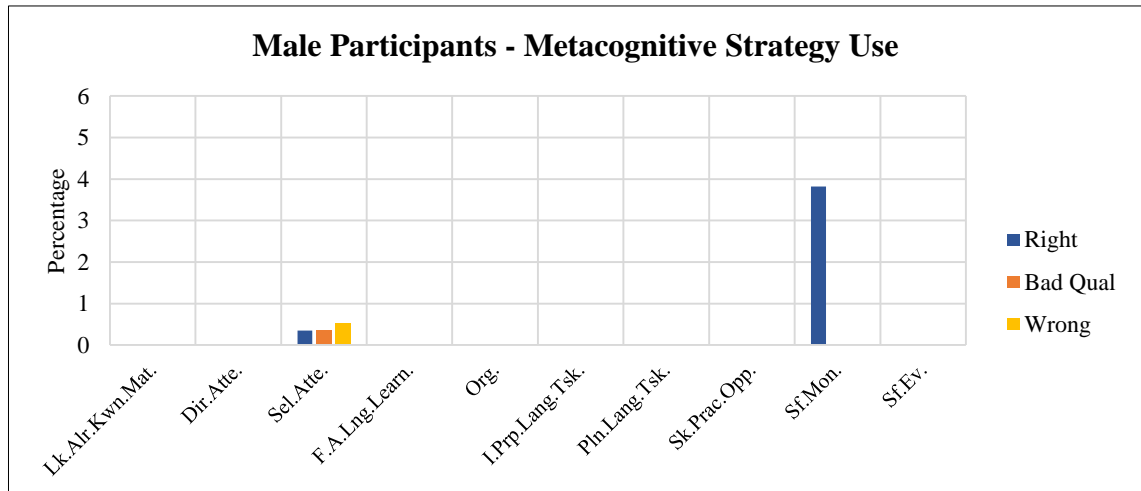
Figure 4-29. Metacognitive strategy use of male participants. Percentage over total number of strategies.
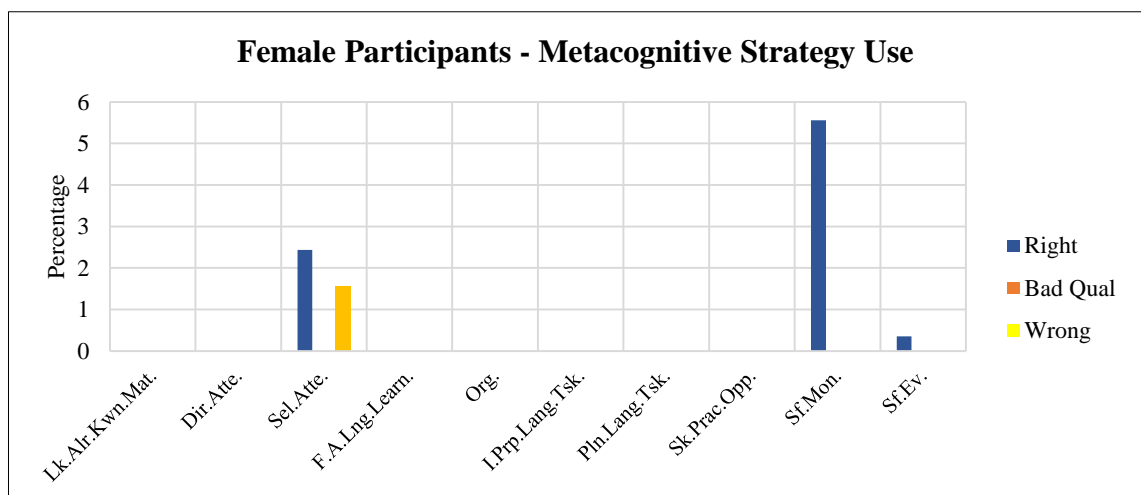
Figure 4-30. Metacognitive strategy use of female participants. Percentage over total number of strategies.

Clearly, the metacognitive strategy span used is very small for boys (two strategies) and girls (three strategies) over ten available strategies respectively. *Selective Attention* and *Self-Monitoring* are the only metacognitive strategies used. Girls are more attentive and monitor themselves more often than boys.

4.2.5   Participant 14

It is interesting to compare the results with the only person who solved the listening puzzle (murder case), participant number 14. Since this participant is a girl, it was found more meaningful to compare her results with those of her fellow female participants. This time

the percentages of strategies used by the rest of the female participants were calculated with respect to the total number of female strategies (330) rather than with respect to the total number of male and female strategies (576).
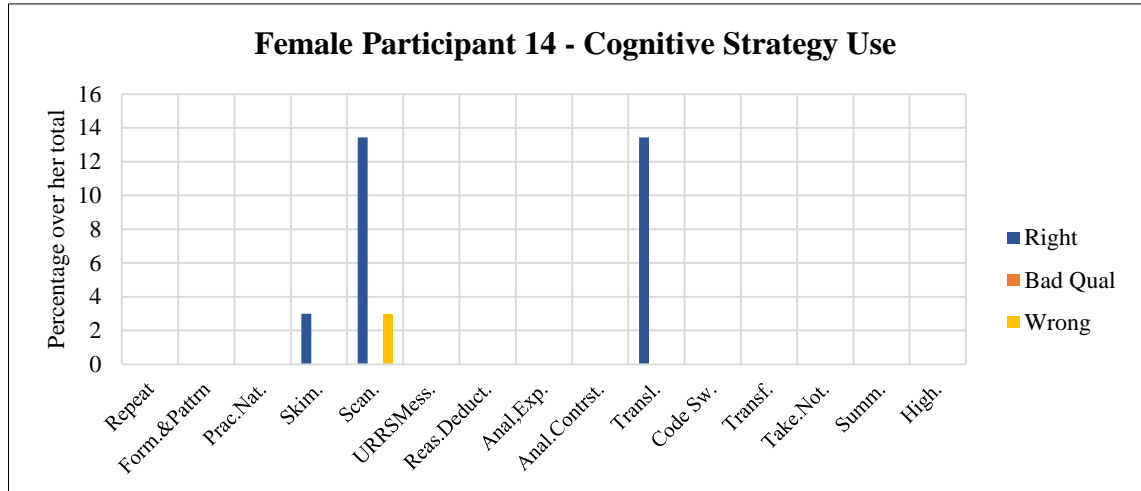
Figure 4-31. Cognitive strategy use of female participant 14.
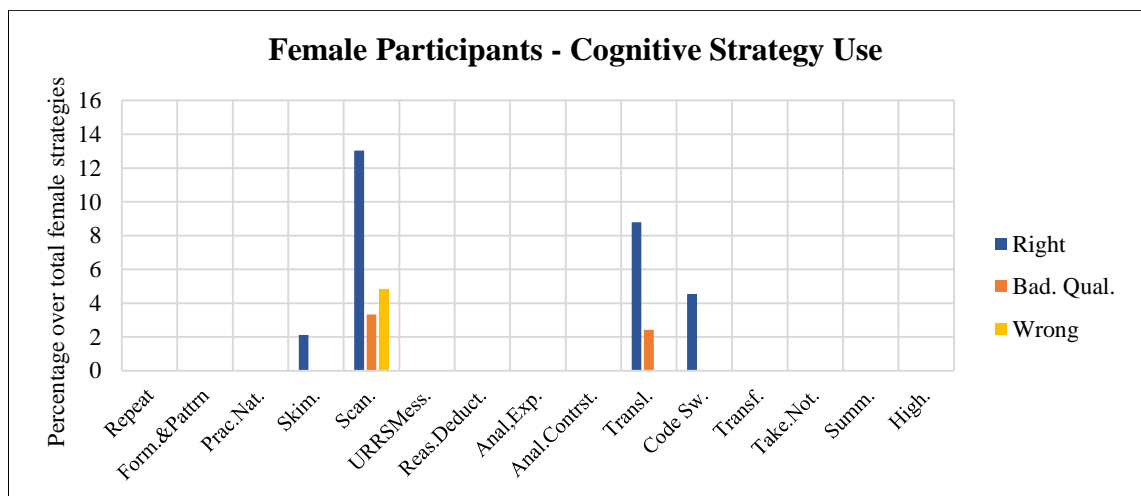
Figure 4-32. Percentages of cognitive strategy use of female participants relative to the total number of female strategies.

The absence of *Code Switching* and a correlated increase of *Translation* are observed when comparing the cognitive strategy use of female participant 14 with the rest of the participants of the same gender.
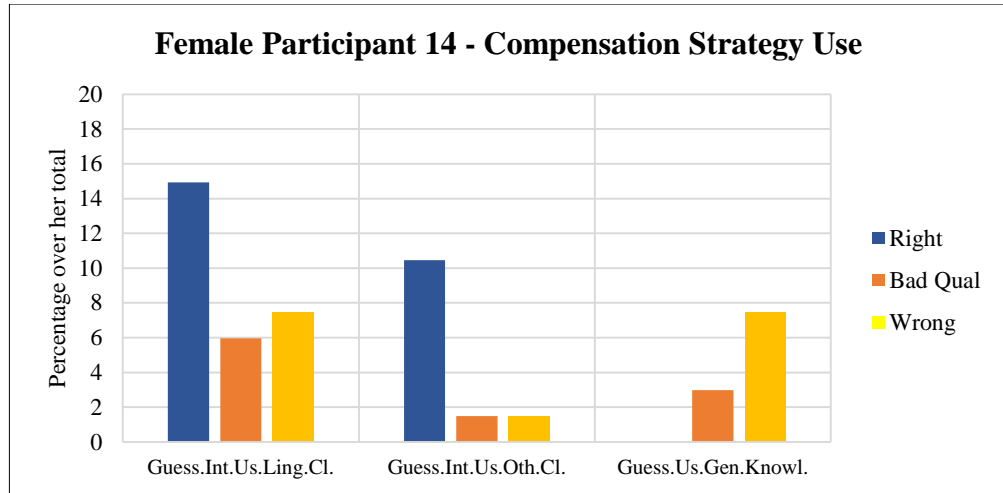
Figure 4-33. Compensation strategy use of female participant 14.
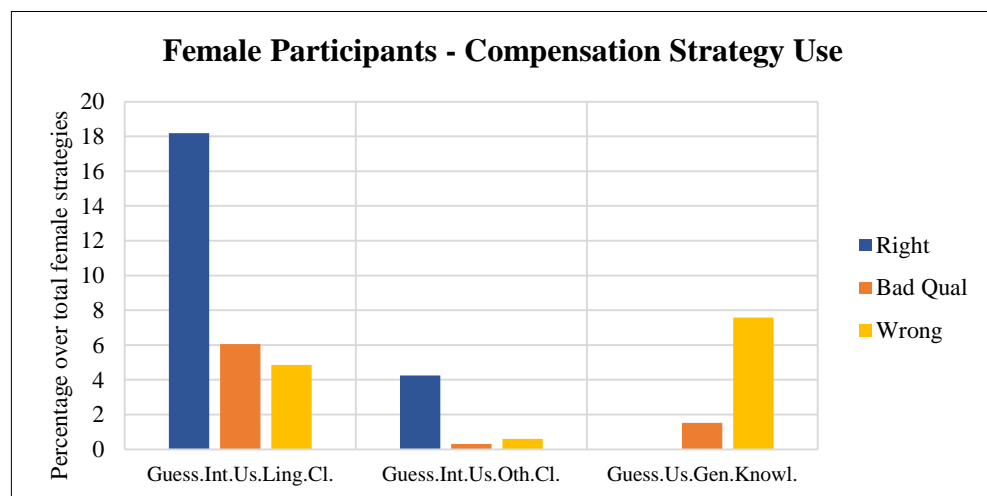
Figure 4-34. Percentages of compensation strategy use of female participants relative to the total number of female strategies.

An interesting result is observed. The successful participant uses slightly less *Guessing Using Linguistic Clue*s but twice as much *Guessing Using Other Clues* than the rest of female participants.
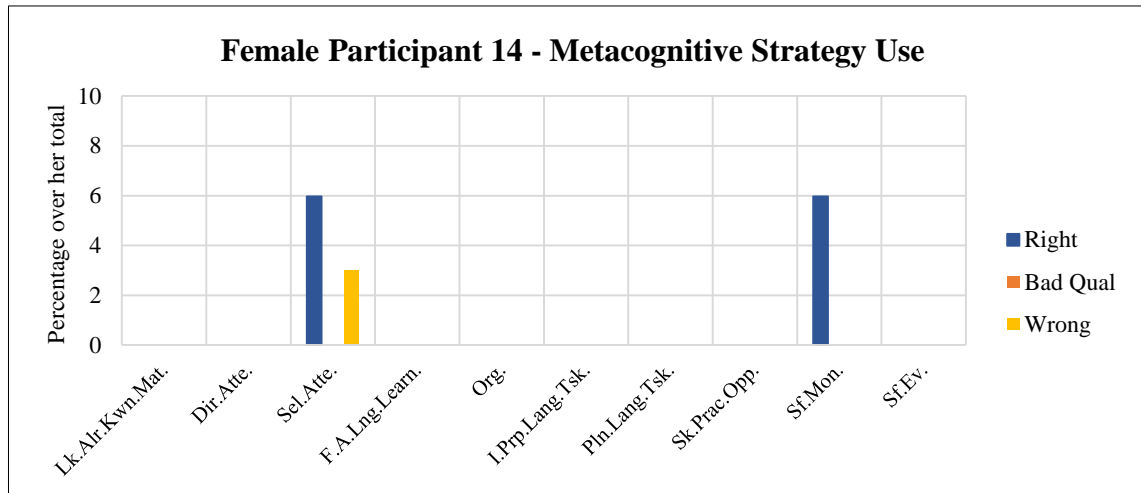
Figure 4-35. Metacognitive strategy use of female participant 14.
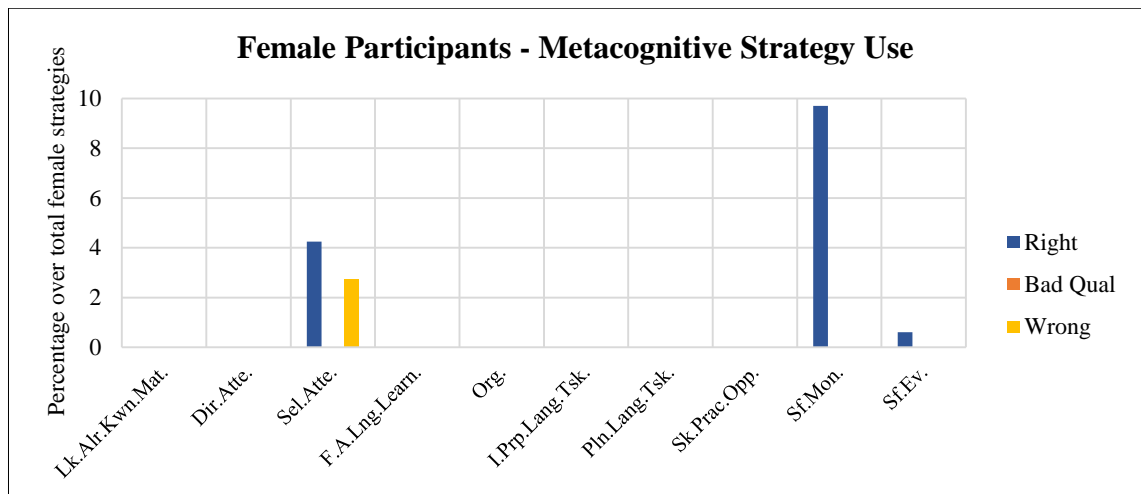
Figure 4-36. Percentages of metacognitive strategy use of female participants relative to the total number of female protocols.

The corresponding histogram of participant 14 shows an important increase in *Selective Attention* and a decrease in similar proportion in *Self-Monitoring* with respect to the rest of the female participants.

4.2.6 Main Study. Task by Task

There is much to be learned from the study of how participants have moved from one task to the next. The next few pages show a comparison between males and females about how they were changing the preferred strategy for each task presented to them. Ratios (x100=percentages) are calculated dividing the number of a given strategy used in a task by the total number of strategies in the same task.

Male Participants - Cognitive Strategy Use by Task
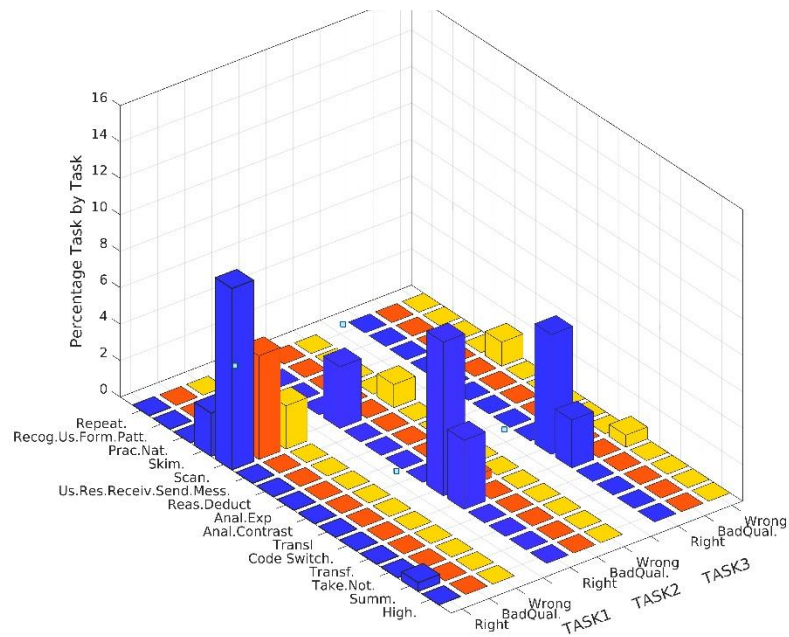
Figure 4-37. Cognitive strategy use of male participants task by task calculated over total strategies in each task.

Female Participants – Cognitive Strategy Use by Task
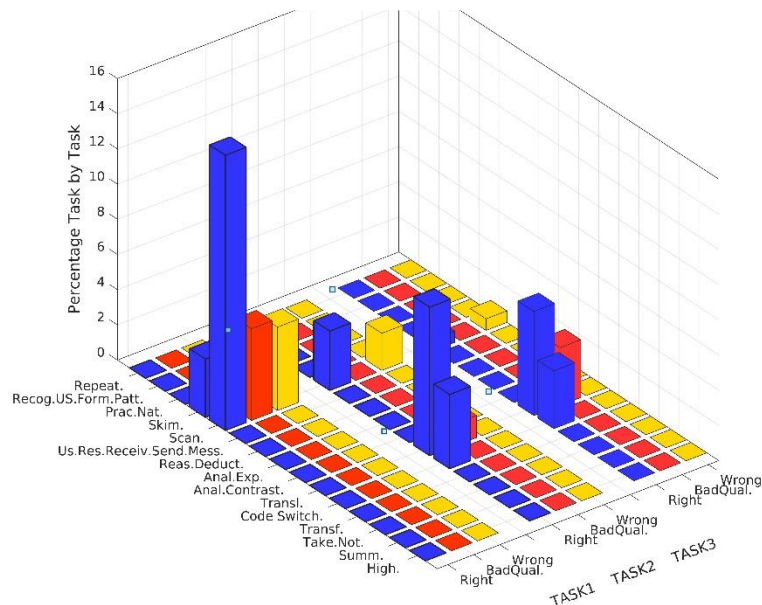
Figure 4-38.Cognitive strategy use of female participants task by task calculated over total strategies in each task.

In the first task, there is a clear difference between males and females in the frequency use of *Scanning*; however, in the second and in the third task males and females show a similar use of *Translating* and *Code Switching*. Clearly, there is a shift in the strategy use according to the task. If the participants had used more *Scanning*, and a lower amount of

Translating and *Code Switching* in Task 2 and 3, they would have achieved a better understanding of the listening text.

Male Participants – Compensation Strategy Use by Task
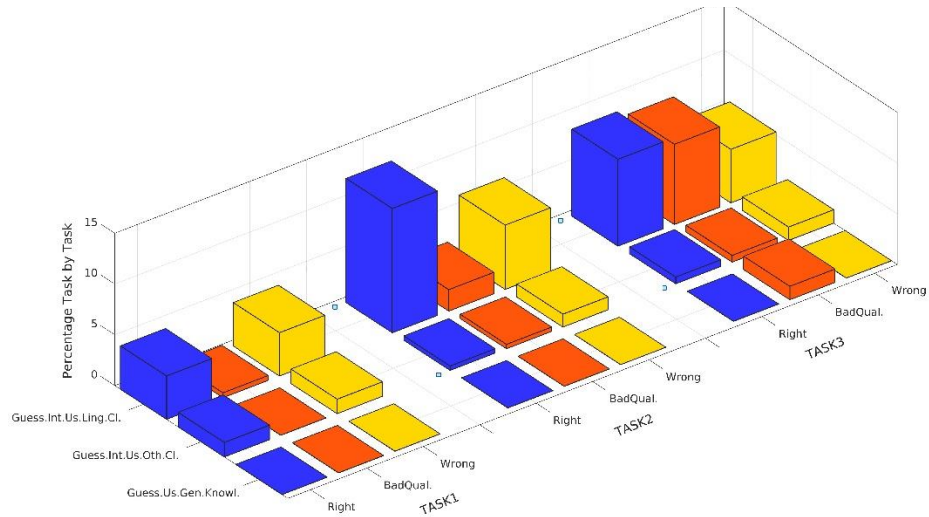
Figure 4-39. Compensation strategy use of male participants task by task calculated over total strategies in each task.

Female Participants – Compensation Strategy Use by Task
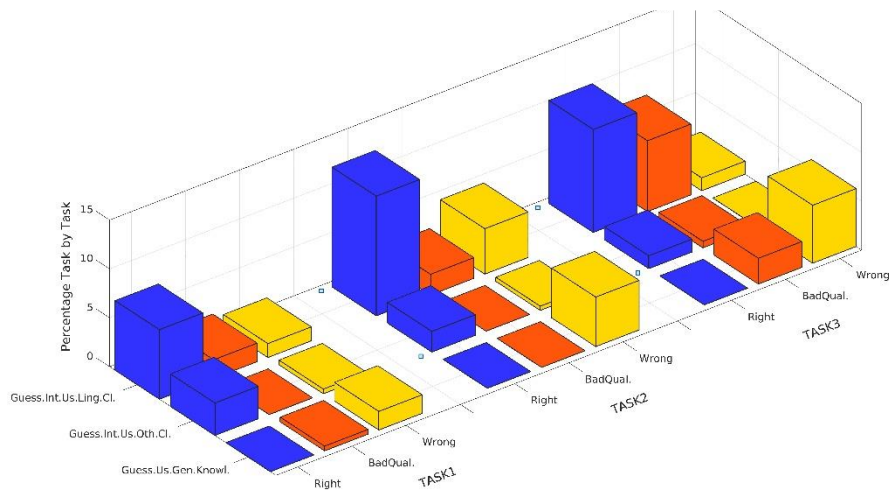
Figure 4-40. Compensation strategy use of female participants task by task calculated over total strategies in each task.

Regarding compensation strategies in the first task, girls used Guessing more frequently as well as more accurately than boys. In the second task, boys and girls have a similar use of *Guessing with Linguistic Clues* although boys have a higher wrong use of the same

strategy. In the third task, girls have a slightly higher frequency use of *Guessing with Linguistic Clues*, but much less wrong use of this strategy. It becomes noticeable that girls are more aware of paralinguistic clues since they use them more often than boys. While girls attempt to use *Guessing with General Knowledge*, they fail to do it. In contrast, boys do not even attempt to use this strategy.

Male Participants – Metacognitive Strategy Use by Task
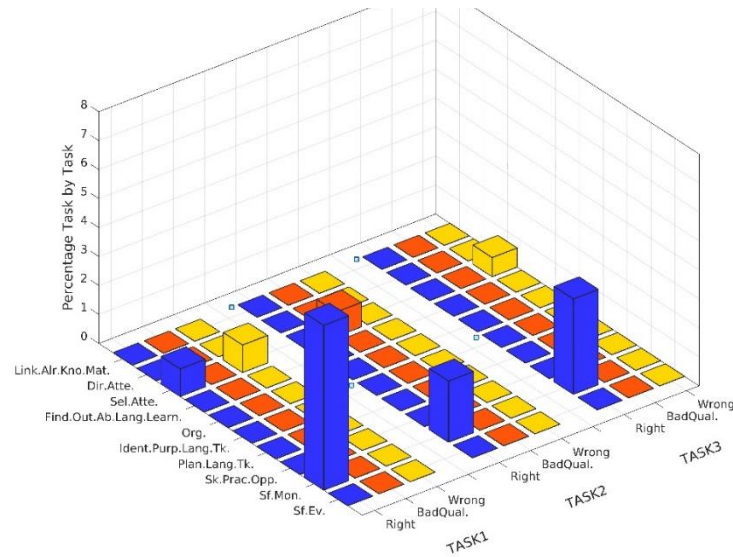
Figure 4-41. Metacognitive strategy use of male participants task by task calculated over total strategies in each task.

Female Participants – Metacognitive Strategy Use by Task
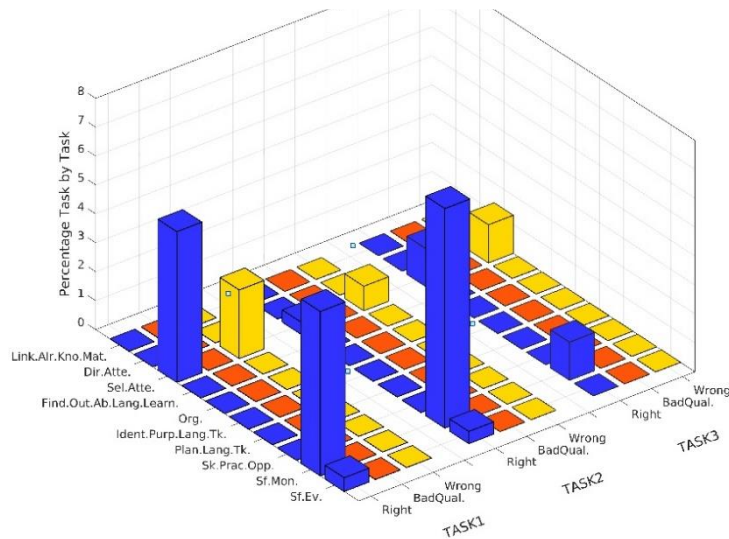
Figure 4-42.Metacognitive strategy use of female participants task by task calculated over total strategies in each task.

In Figure 4-42, the first task shows a significant difference in the female participants' use of *Selective Attention* while *Self-Monitoring* is used similarly. In the second task, girls display a pronounced increase in *Self-Monitoring*. In the third task roles are reversed, so boys use more *Self-Monitoring* than girls. On the other hand, girls use more *Selective Attention* than boys. Interestingly, Figure 4-42 shows female use of *Self-Evaluating* in the first and in the second task although it is completely absent in males.

4.3 Reanalysis of the Pilot Study

A comparison with a different group of students is of great value at this point of the main study. Then, the pilot study, which was formerly analysed according to Vandergrift's (1997) taxonomy, was reanalysed at the end of the main study using Oxford's (1990) taxonomy. The participants' think alouds of the pilot study were listened to again, and then the strategies involved in each of them were reclassified. The new results are seen in Figure 4-43.
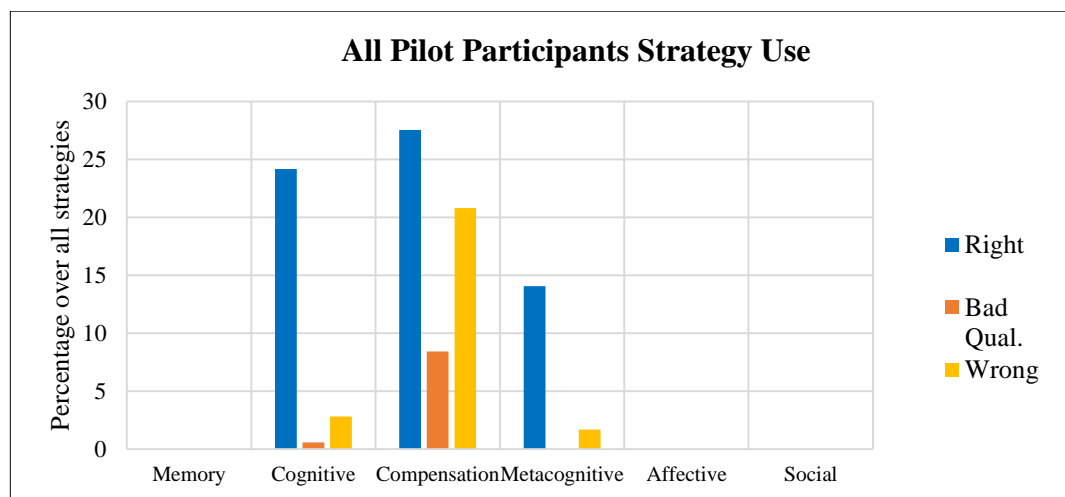
Figure 4-43. Percentage of all pilot participants' strategy use calculated over the total number of strategies.

The lack of memory, affective and social strategies is quite noticeable in the pilot study. The frequency of cognitive strategies used by these participants is lower than those of the main study being the rest almost the same. Summing up right, bad quality and wrong used strategies, the attempted strategy use is obtained.
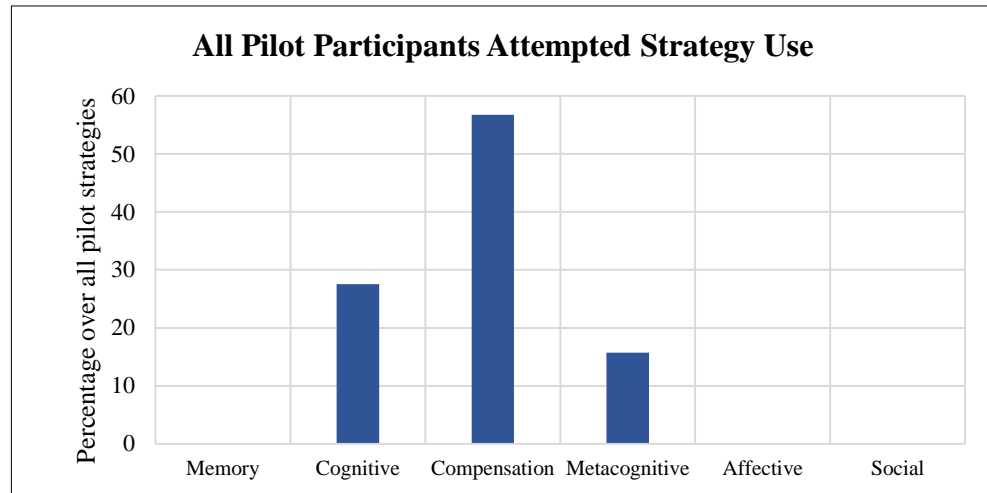
Figure 4-44. The attempted strategies calculated by adding up the Right, Bad Quality and Wrong used strategies.

Figure 4-44 resembles Figure 4-22 of the main study with a lower percentage of cognitive strategies (27% against 40%). When data are separated by gender some interesting differences become evident.
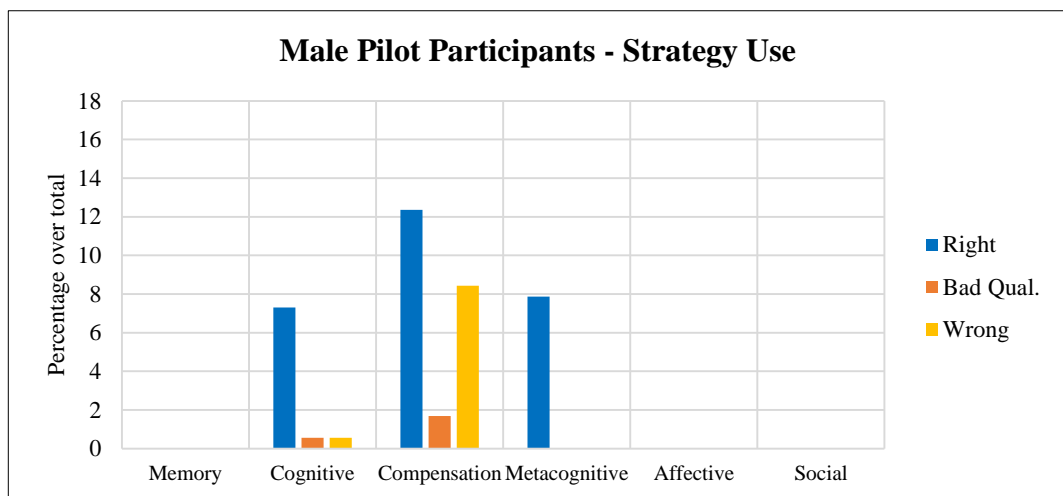
Figure 4-45. Percentage of male pilot participants' strategy use calculated over the total number of strategies.
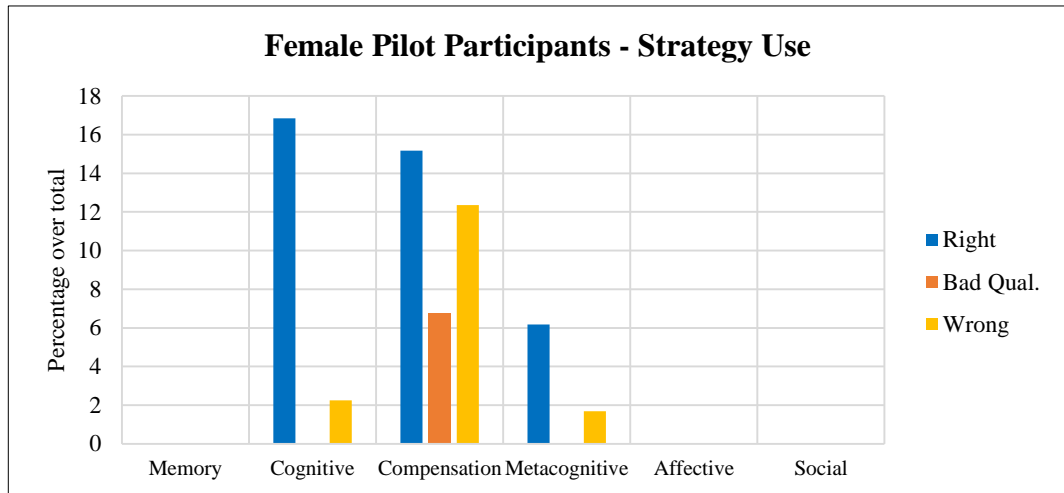
Figure 4-46. Percentage of female pilot participants' strategy use calculated over the total number of strategies.

A comparison between Figures 4-45 and 4-46 indicates an important increase (almost double) of correctly used cognitive strategies by the girls, a slight increase of compensation strategies, and a measurable lower correct use of metacognitive strategies with respect to the boys.

The composition of each category will be examined beginning with the cognitive strategies.
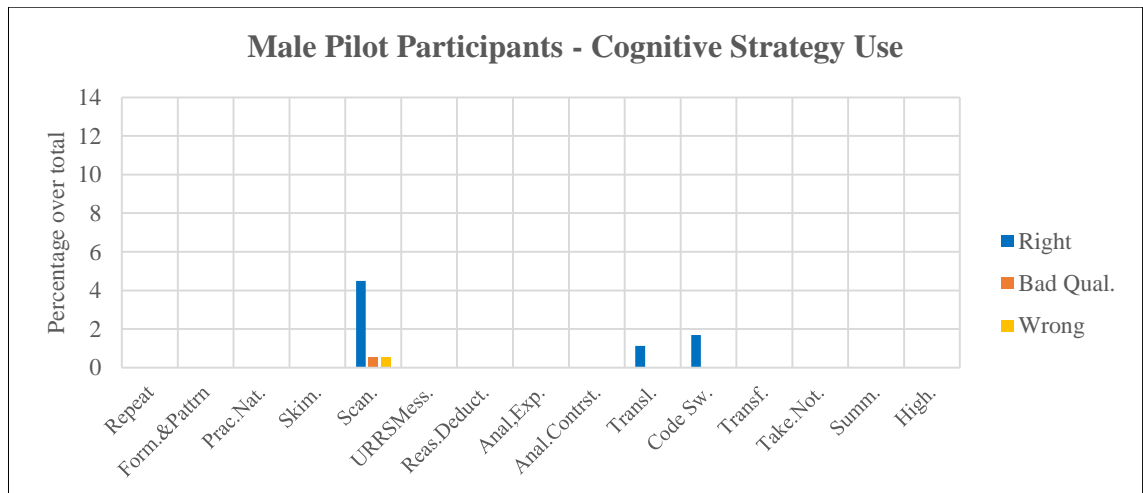
Figure 4-47. Percentage of male pilot participants' cognitive strategy use calculated over the total number of strategies.

Female Pilot Participants - Cognitive Strategy Use
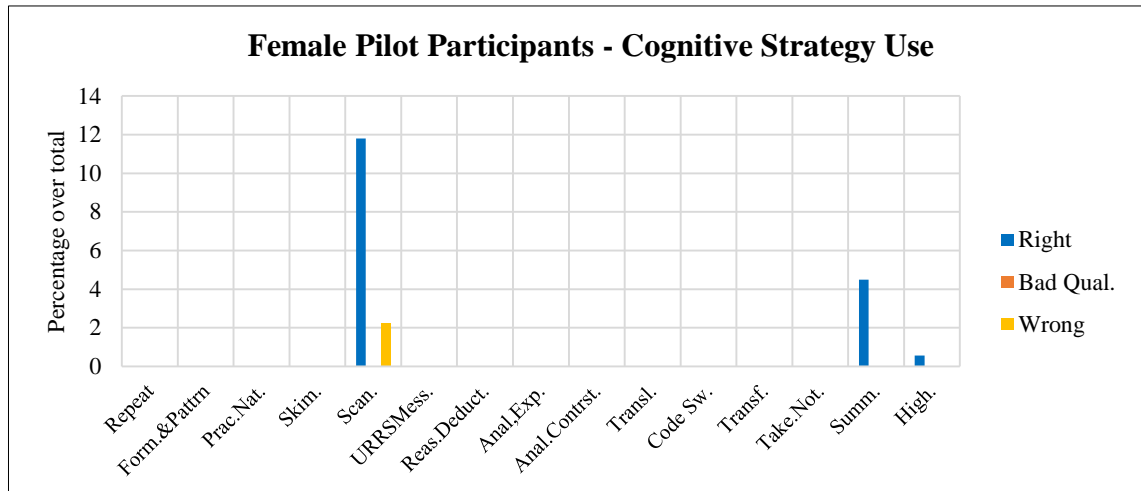
Figure 4-48. Percentage of female pilot participants' cognitive strategy use calculated over the total number of strategies.

Figures 4-47 and 4-48 show that girls use three times more *Scanning* than boys, and a moderate amount of *Summarizing* although they don't use T*ranslating* and *Code Switching*. Contrastively, boys lack *Summarizing*, but they use *Translating* and *Code Switching*.

As regards compensation strategies, all participants of the pilot study use guessing more than any other strategy although girls give evidence of a higher use of this strategy (31% to 22%). Only one male participant made use of *Guessing Using General Knowledge*. In addition, girls resort to the use of paralinguistic features (e.g. noises) more times than boys.

Male Pilot Participants - Compensation Strategy Use
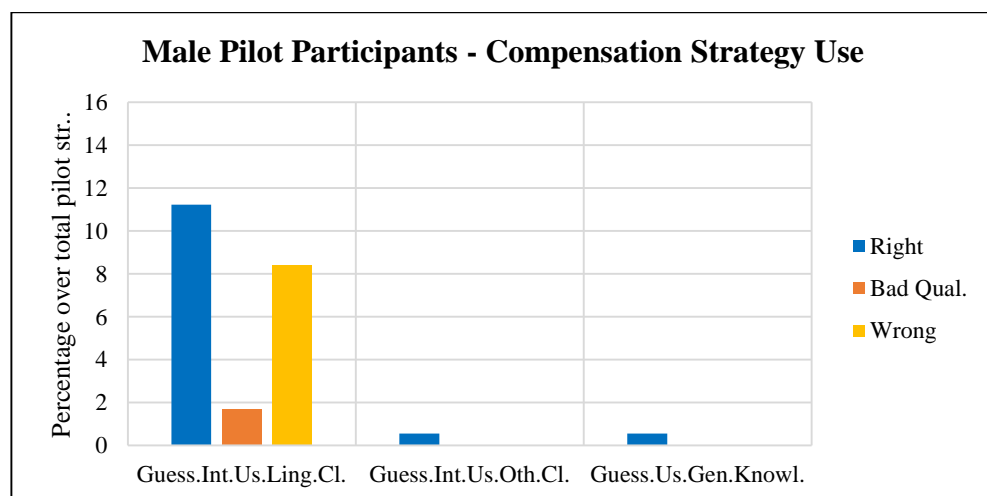
Figure 4-49. Percentage of male pilot participants' compensation strategy use calculated over the total number strategies.
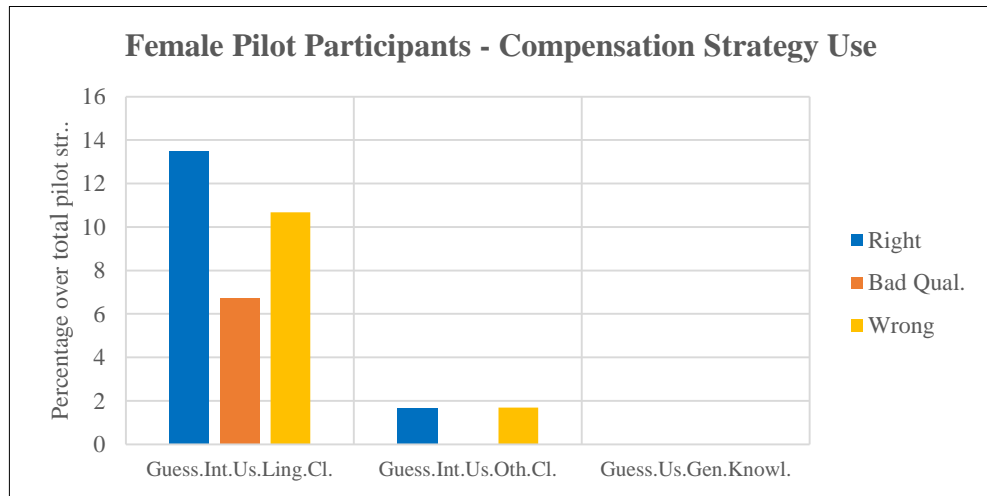
Figure 4-50. Percentage of female pilot participants' compensation strategy use calculated over the total number of strategies.

The use of metacognitive strategies is similar for both genders. These strategies are shown in Figures 4-51 and 4-52.
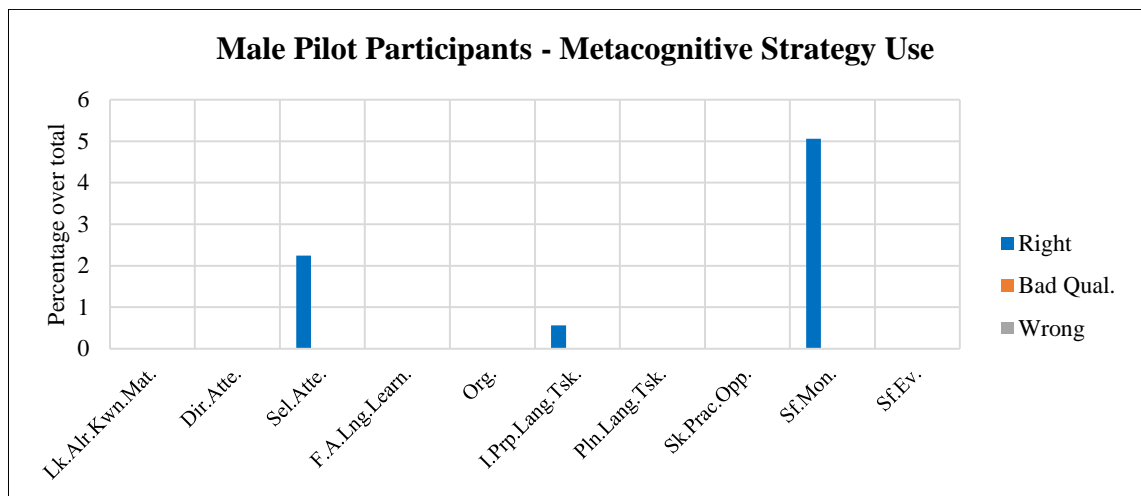
Figure 4-51. Percentage of male pilot participants' metacognitive strategy use calculated over the total number of strategies.
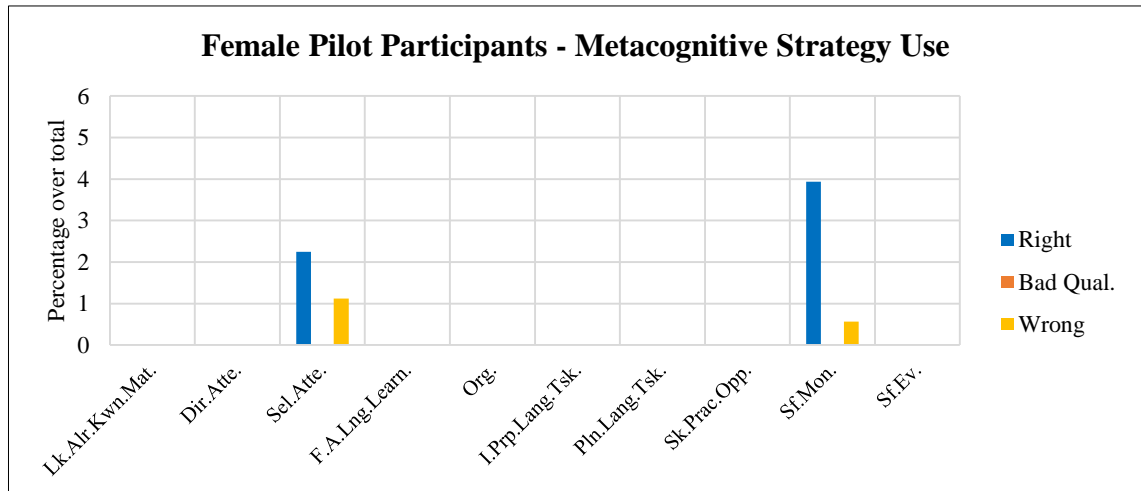
Figure 4-52. Percentage of female pilot participants' metacognitive strategy use calculated over the total number of strategies.

In general, although male and female participants use a similar set of strategies, they vary the frequency of their application. The pilot study is similar to the main study in the poor choice of available strategies: only 3 out of 15 cognitive strategies, 2 out of 3 compensation strategies, and at most 3 out of 10 metacognitive strategies.

4.3.1   Pilot Participant 6
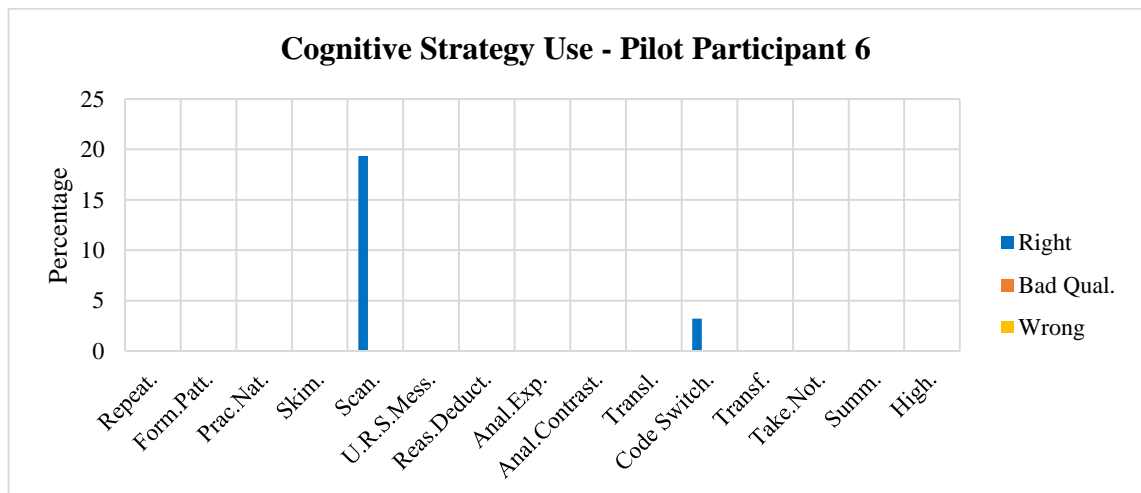
Figure 4-53. Percentage of cognitive strategy use by pilot participant 6.

Compensation Strategy Use - Pilot Participant 6
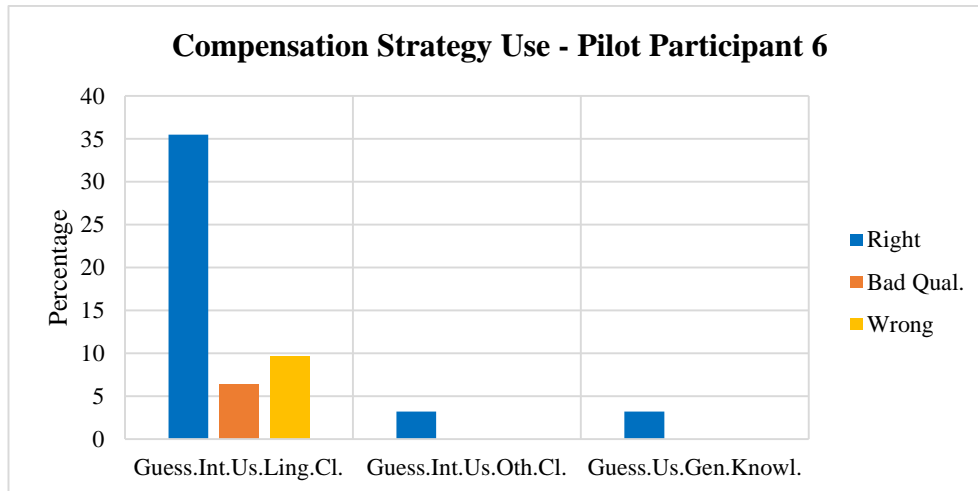
Figure 4-54. Percentage of compensation strategy use by pilot participant 6.

Metacognitive Strategy Use - Pilot Participant 6
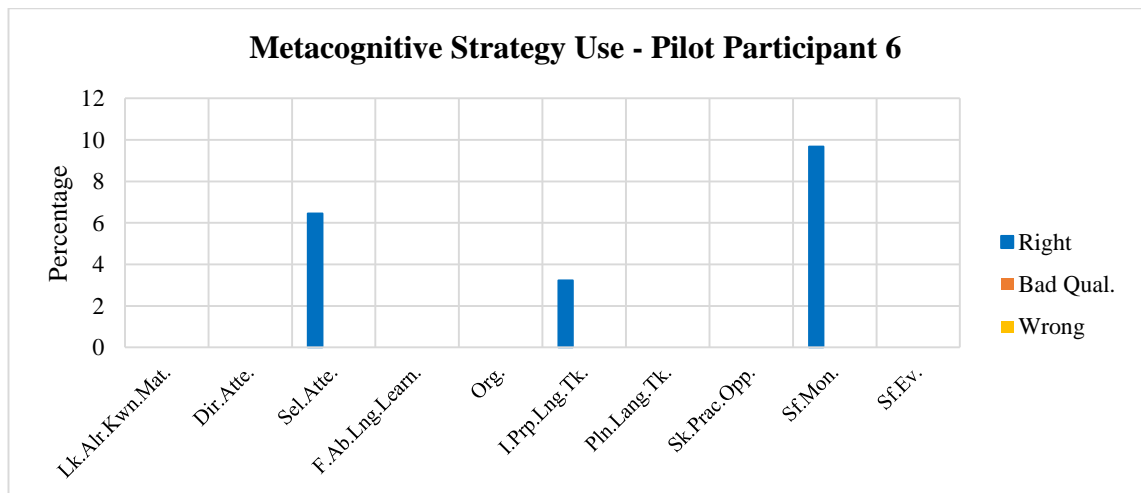
Figure 4-55. Percentage of metacognitive strategy use by pilot participant 6.

From Figures 4-53 to 4-55, it becomes apparent that participant 6 made a higher correct use of strategies than the rest of the participants in both the pilot study and the main study. In addition, he was the only participant who used *Purpose of a Language Task* and made correct use of *Guessing Using General Knowledge* in both studies.

The next chapter discusses the hypotheses, and relates them to findings of other listening comprehension studies in the field.

5   Discussion

This chapter presents a discussion of the findings of the present study. Each hypothesis is thoroughly examined and confirmed in the light of major works and studies in the field of learning strategies as well as listening comprehension strategies included in the second chapter. Finally, a further discussion of unanticipated results is provided.

In this work, the first hypothesis predicts that during the listening comprehension processes of perception, parsing and utilization, there are patterns of memory, cognitive, compensation, metacognitive and social affective strategies in upper secondary school students of English of both sexes. An observation of figures 4-45 to 4-52 about the pilot study, analysed following Oxford's (1990) taxonomy, gives clear evidence of patterns of strategy use in all the categories mentioned except memory and social affective strategies in male and female secondary school students. In agreement with results found in the pilot study, figures 4-24 to 4-30 about the main study support the existence of listening strategy patterns of cognitive, compensation, and metacognitive strategies although memory and social affective strategies appear to be missing.

Memory strategies are highly important in language learning; nevertheless, some students do not use these strategies beyond elementary levels (Oxford, 1990), which is a possibility that might have happened with the participants of this work. As regards social strategies, they are also very important for learning a language because they involve communication with other people. However, social strategies are seldom reported or preferred (Oxford, 1990), which agrees with the outcomes of this study. Furthermore, during protocol verbalizations, participants were unable to socialize or cooperate with peers, which is consistent with their behaviour when they were thinking aloud. It is worth mentioning that only 2 males out of 16 participants of the main study used *Asking for Clarification*.

It is well known that affective factors have a powerful influence on language learning; nevertheless, despite the fact that *Encouraging Yourself* or *Lowering your Anxiety* can help learners to overcome inhibition or risk taking, Oxford (1990) considers that these strategies are not fully used, since only 1 out of 20 learners applies them. This work agrees with Oxford since none of the participants of the sample were found to employ affective strategies.

The second hypothesis proposes that during the listening comprehension processes of perception, parsing and utilization, the patterns of memory, cognitive, compensation, metacognitive and social affective strategies will be different in male and female upper secondary school students of English. According to Oxford (1990) and Vandergrift (2011), cognitive strategies are essential since they allow learners either to manipulate the material or to apply techniques to tasks. The main study reveals that both genders use a limited range of cognitive strategies: *Skimming*, *Scanning*, *Translating* and *Code Switching*. Figures 4-25 and 4-26 show gender differences; unlike females, males use less *Skimming* and *Scanning* than females, and a similar amount of *Translating* and *Code Switching*. The limited range of cognitive strategies probably prevented students from understanding more accurately.

Compensation strategies helped students to make up for their lack of linguistic, non-linguistic and general knowledge. Figure 4-23 shows that these strategies were the most frequently used in this study. Furthermore, females used compensation strategies more frequently than males. Apparently, students recognized knowledge gaps in their understanding, which they overcame by guessing. Thus, female participants resorted to *Guessing Using Linguistic Clues*, *Guessing Using Other Clues*, and *Guessing Using General Knowledge* more frequently than their male counterparts.

Learners can guess the content of a listening text by making use of different signals: linguistic, paralinguistic and extralinguistic (Mendelsohn, 2006; Mendelsohn, 1994). Linguistic signals come from syntax, lexis, morphology, phonology, and stress/unstress. Paralinguistic signals include body language, gesture, facial expression, pausing, speed of speech, loudness and softness, and conscious variation in voice quality. Extralinguistic signals include background noise and visual signals. Oxford's and Mendelsohn's features can be grouped in a similar way. Linguistic clues (Oxford, 1990), and linguistic signals (Mendelsohn, 2006; Mendelsohn, 1994) are equivalent. Other clues by Oxford (1990) constitute Mendelsohn's (2006) and Mendelsohn's (1994) paralinguistic and extralinguistic signals. In contrast to male participants, when female participants guessed, they resorted more to grammar and lexis (linguistic signals), to noise and setting (extralinguistic signals) as well as to softness / loudness of speech or variation of voice quality (paralinguistic signals).

Lack of world knowledge prevented participants from making viable hypotheses, predicting and *Guessing Intelligently*. Students could not link the ice statue to any schema that they had stored. Schema activation presupposes that a learner possesses prior knowledge, which is mentioned in Chapter 2 (Hedge, 2000). The listening material included a specific aspect of culture, and since participants did not have a schema of the ice statue, their prior knowledge could not contribute to their comprehension.

Regarding metacognitive strategies, gender differences are observed. Both, boys and girls showed a narrow range of these strategies as seen in figures 4-29 and 4-30. In fact, boys made use of a small amount of *Selective Attention* and a bigger one of *Self-Monitoring* while girls showed an increased use of the former strategies in addition to a negligible amount of *Self-Evaluating*. Oxford (1990) points out that learners not only use these strategies infrequently but are also unaware of their significance. Furthermore, Oxford (1990) suggests that the range of metacognitive strategies used is limited to *Self-Evaluating* or *Self-Monitoring*. The results of the main study partly coincide with Oxford (1990) except for the use of *Selective Attention*.

Both, the pilot study and the main study, show the same tendencies regarding the lack of memory, affective, and social strategies. In the pilot study as well as in the main study, compensation strategies are the most frequently used followed by cognitive and metacognitive strategies. It should be emphasized that in the pilot study (See figures 4-45 and 4-46), cognitive strategies correctly used by girls duplicate those used by boys. In figure 4-46, girls' right use of compensation strategies is 20% higher than for boys (See figure 4-45), but their use of metacognitive strategies is 20% lower than for boys. Individually, within the cognitive strategies, *Scanning* is three times more frequently used by girls than by boys (See figures 4-47 and 4-48). Another significant difference seen in the same figures lies in the exclusive use of *Translating* and *Code Switching* by boys and *Summarizing and Highlighting* by girls. As far as compensation strategies are concerned, (figures 4-49 and 4-50), it should be noted that in the pilot study and in the main study, girls pay more attention than boys to extralinguistic signals (*Guessing Intelligently Using Other Clues*). In agreement with the main study, the pilot study shows the same use of metacognitive strategies (*Selective Attention* and *Self-Monitoring*). Only one boy in the pilot study used *Preparing for the Language Task* (See figures 4-51 and 4-52).

The third hypothesis states that during the listening comprehension processes of perception, parsing and utilization there are patterns of memory, cognitive, compensation, metacognitive and social affective strategies in upper secondary school students of English according to the task they perform. In the present study, the students had to perform three tasks: 1) summarize an oral text, 2) identify true or false information, and 3) answer questions.

The first task involved *Summarizing*, a cognitive strategy that learners had to use to provide a concise version of the original listening text. When students were listening, they supposed to pay attention to the main ideas conveyed, and to organize them so as to ensure that the summary was clear, understandable and complete. Instead, students neither grasped the most important concepts from the text nor did they express these concepts efficiently. In fact, figures 4-37 and 4-38 show that the main cognitive strategies used in task 1 were *Skimming* and *Scanning* although only participant 9 made use of *Summarizing*.

La bueno _ la historia es sobre Alice Jackson e..e..e.. quee … e..e.. vive con su esposo y con su hijo bebé e..e..e.. en su aniversario número dieze..e.. cuando el esposo Henry llega a su casa e..e.. le cuenta quee la ha estado engañando con otra persona. Y ellaa al sentirse enojada y triste por lo que él le había contado e..e.. ella e..e..e.. lo mata.

Figures 4-39 and 4-40 show the use of compensation strategies for males and females in task 1. Only *Guessing Intelligently Using Linguistic Clues* and *Guessing Intelligently Using Other Clues* could be identified; however, females made more use of the latter strategy than boys since their understanding depended more on paralinguistic and extralinguistic signals. Participants 5 and 14 illustrate the use of *Guessing Intelligently Using Other Clues.*

Participant 5

Y..y..y.. ella en ese momento como que _ no no recibe de muy buena manera la noticia y.. y.. e..e..e.. comienzan a escuchar ciertos ruidos y se escucha un grito de su marido.

Participant 14

…..bueno él dice que hacía mucho calor en la casa y..y.. como el el tono de la voz de la mujer cuando después después de llorar por Henry y todo hace_ entender de que ella era la asesina del esposo. Y _ era como una forma de vengarse ante lo que él le había dicho.

The metacognitive strategies used in the first task were restricted to *Selective Attention,*

Self-Monitoring and *Self-Evaluating* although the latter was seldom used by females and completely absent in males. Thus, the listening strategy pattern that learners displayed when they performed the first task consisted of *Skimming*, *Scanning*, *Summarizing*, *Guessing Intelligently Using Linguistic Clues*, *Guessing Intelligently Using Other Clues*, *Selective Attention*, *Self-Monitoring* and *Self-Evaluating*.

As mentioned above, in the second task participants had to distinguish true and false sentences, and were expected to use *Scanning*, *Guessing*, and *Selective Attention*. As seen in figures 4-37 and 4-38 participants of both genders make use of the following cognitive strategies: *Scanning*, *Translating* and *Code Switching*. As far as compensation strategies are concerned, figures 4-39 and 4-40 show an increase in *Guessing Intelligently Using Linguistic Clues* with respect to the first task, which was expected due to the requirements of the task. On the other hand, *Guessing Using General Knowledge* was not employed despite the fact that it would have been necessary to fully understand the meaning of the story. Figure 4-40 also shows that girls made use of *Guessing Intelligently Using Other Clues* although this strategy was absent with boys.

In the second task, it becomes noticeable that participants use a narrow range of metacognitive strategies. Females only use *Selective Attention*, *Self-Monitoring* and *Self-Evaluating* while males restrict their strategy use only to *Self-Monitoring*. In sum, the listening strategy pattern observed in the second task consists of the following strategies: *Scanning*, *Translation*, *Code Switching*, *Guessing Intelligently Using Linguistic Clues*, *Guessing Intelligently Using Other Clues*, *Selective Attention*, *Self-Monitoring*, and *Self-Evaluating*.

In the third task, participants answered questions about the story, and were expected to use mostly *Guessing Intelligently Using Linguistic Clues*, *Guessing Intelligently Using Other Clues* and *Guessing Using General Knowledge*. However, among cognitive strategies, all participants focused on the use of *Translating* and *Code Switching,* while girls, in contrast to boys, also applied a low proportion of *Scanning*. Although the different varieties of *Guessing* were applied by all participants as expected, figures 4-39 and 4-40 give evidence that *Bad Quality* and *Wrong Use* of these strategies were very significant, and most probably prevented males and females from understanding the oral text. As seen in figures 4-41 and 4-42, participants use a narrow range of metacognitive strategies in

task 3: *Self-Monitoring* and *Selective Attention*, which is only found in females. The listening strategy pattern in the third task includes: *Translating*, *Code Switching*, *Guessing Intelligently Using Linguistic Clues*, *Guessing Intelligently Using Other Clues*, *Self-Monitoring* and *Selective Attention*.

The fourth hypothesis presupposes that during the listening comprehension processes of perception, parsing and utilization, there are more efficient patterns of memory, cognitive, compensation, metacognitive and social affective strategies than others in upper secondary school students of English. Only male participant 6 in the pilot study, and female participant 14 in the main study could attain comprehension of the problem solving involved in the oral text. Therefore, this work examines their listening strategy patterns because they are considered the most efficient in the two studies. Comparing figures 4-31 and 4-32, the most significant difference in cognitive strategy use between participant 14 and the rest of the female participants is an absence of *Code Switching*, and an increased use of *Translating*. In addition, it is worth noticing that participant 14 also makes a slightly higher use of *Skimming* and better quality *Scanning* than the other female participants. With respect to compensation strategy use, figures 4-33 and 4-34 show that unlike the rest of the females, participant 14 made less use of *Guessing Intelligently Using Linguistic Clues*, but relied twice as much on *Guessing Intelligently Using Other Clues* than the rest of the girls. Regarding metacognitive strategy use, figures 4-35 and 4-36 give evidence that all female participants employed *Selective Attention* and *Self-Monitoring*; however, participant 14 shows a higher amount of *Selective Attention* and a lower one of *Self-Monitoring*. Therefore, the most efficient listening pattern of cognitive, compensation and metacognitive strategies includes: *Translating*, *Skimming*, *Scanning*, *Guessing Intelligently Using Linguistic Clues*, *Guessing Intelligently Using Other Clues*, *Selective Attention and Self-Monitoring*. As mentioned before, memory and social affective strategies were absent in the main study.

In comparison with participant 14, participant 6 used more *Scanning*, no *Translating*, and a low proportion of *Code Switching* among cognitive strategies. Regarding compensation strategies, participant 6 applied more good quality *Guessing Intelligently Using Linguistic Clues*, and much less use of *Guessing Intelligently Using Other Clues* than participant 14. A sharp difference was observed between participants 6 and 14 in the use of *Guessing Using General Knowledge*. While the former applied good quality world knowledge, the

latter displayed only wrong and bad quality world knowledge. With respect to metacognitive strategies, both participants applied an equal amount of Selective Attention, but in contrast to participant 14, participant 6 used more *Self- Monitoring*, and in addition, he made use of Identifying the *Purpose of a Language Task*. The latter strategy was only found in participant 6.

In agreement with O'Malley et al. (1989), participants 6 and 14, the most efficient listeners of the pilot study and the main study, used both top-down and bottom-up processing (See Chapter 2, page 15), which were also identified in Vandergrift (2003), where the author remarked that the more skilled listener used bottom-up and top-down processes interactively. In addition, the most efficient listeners of the present study also used *Self-Monitoring*, guessing and world knowledge, which also agrees with O'Malley et al. (1989), despite the fact that participant 14, the most efficient female listener of the main study, used wrong and bad quality world knowledge. Apparently, participant 14 did not use top-down processing efficiently unlike the more skilled listener in Vandergrift's (2003) study, which may have prevented her from using world and text knowledge to understand and interpret the oral text more accurately. On the other hand, similar to the more skilled listener in Vandergrift (2003), participant 6's efficient use of top-down processes allowed him to apply his world knowledge as well as to build conceptual frameworks to optimize his understanding (See Chapter 2, pages 16 and 17). Although Hu et al. (2009) did not provide a model of a proficient individual listener, they suggested that proficient learners were engaged in top-down processing since they could interpret oral texts beyond literal meaning. As a result of high level processing, they could make inferences and predictions based on text and world knowledge unlike less proficient learners who only engaged in bottom-up processes such as decoding. The profile of participant 6 in the pilot study agrees with the listening strategy patterns of the more proficient learners in Hu et al. (2009, p.33).

5.1 Further discussion of unanticipated results

Scarcella and Oxford (1992) consider the relevance of the strategic competence among other competences for the development of listening comprehension. In fact, this competence, which involves the knowledge of cognitive, metacognitive, compensation

and social affective strategies as well as the ability to use them, becomes essential for successful and efficient L2 listening comprehension (Usó-Juan & Martínez-Flor, 2006).

According to Scarcella & Oxford (1992), the strategic competence involves *Guessing*, which is very important because listening requires top-down and bottom-up processing during which inferences are made from context clues and background knowledge. In addition, top-down processing involves *Guessing*, which is essential to avoid learners' belief to understand every single word rather than to understand global meaning. Moreover, *Guessing* is vital for hypothesis testing and comprehension monitoring, which were not applied by the learners in this study. The ability to use linguistic and non-linguistic clues becomes significant for the development of the strategic competence in listening comprehension. While the former clues allow learners to guess unknown expressions, the latter clues also provide information to what is said even when listeners do not understand. It should be noted that non-linguistic clues were not efficiently used by the participants in this work.

The theoretical underpinnings of this work resort to the listening competence framework (Scarcella & Oxford, 1992), which includes grammatical, discourse, strategic and sociolinguistic competence (See Chapter 1). However, the results of this study require the enlargement of the listening competences framework (Usó-Juan & Martínez-Flor, 2006) to explain how the lack of intercultural competence prevented the learners in this study from fully understanding the listening text they were exposed to. See figure 5-1 on the next page. Deardorff (2006), defines intercultural competence as the ability to develop attitudes, knowledge and skills that lead to effective and appropriate intercultural communication (p. 254). Apparently, the participants of this study had not become interculturally competent since they were not provided with listening activities that would equip them with intercultural communicative competence.
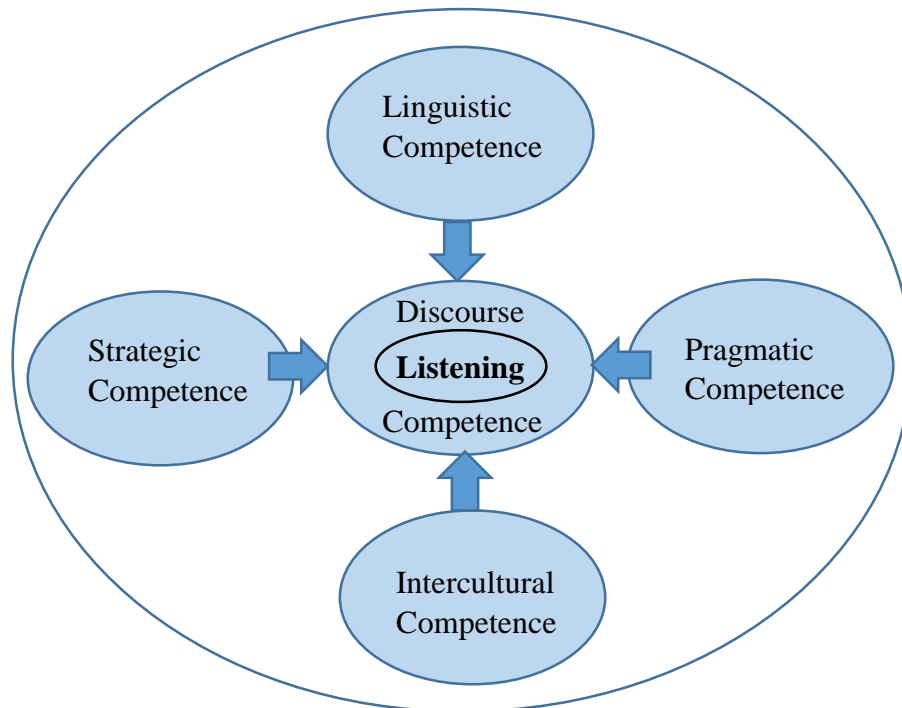
Figure 5-1. Listening Competence Framework.

Original Source: Integrating Listening within the Communicative Competence Framework, Martinez-Flor, A. & Usó- Juan, E.

Although Cetinavci (2012) considers that a pedagogical model to teach intercultural competence is not fully established yet, there are significant contributions to develop intercultural communicative competence (Beltrán-Palanques, 2014; Usó-Juan & Martínez-Flor, 2008). These researchers developed instructional approaches to integrate intercultural competence in EFL teaching, which could be implemented in EFL contexts in Argentina.

6   Conclusions

The purpose of the current study was to uncover the listening strategy patterns of male and female upper secondary school students from a private confessional school in Córdoba, Argentina. Attempts have been made to prove all four hypotheses by employing quantitative and qualitative methods. A pilot study was carried out prior to the main study. The following instruments were used: a Background Questionnaire, Oxford's SILL, individual listening sessions and three listening tasks. To the best of my knowledge, this is the first study which describes the listening strategy patterns of secondary school students in the province of Córdoba. The findings of this study have provided insights into how learners approach listening comprehension, and have brought pedagogical implications to instructional practice for teachers in the classrooms.

The results of this study give evidence that students not only used a limited range of direct and indirect strategies, but they also lacked the culture knowledge necessary for fully understanding the oral text that they were exposed to. Therefore, it becomes important to conceptualize the relationship between their limited strategy use as well as their lack of world knowledge to the underdevelopment of their strategic and intercultural competences. In fact, the learners in this study were unable firstly to use *Guessing* to compensate for missing knowledge and secondly, to apply the knowledge of cultural and non-verbal factors to understand and interpret the oral text given to them.

The participants of this study never became aware of the different components of the intercultural competence (Deardorff, 2006). Intercultural competence would have allowed them not only to have the culture specific knowledge required to understand key information but also the attitudes to be open, curious, and ready to discover relevant facts while they were listening, relating, evaluating and analysing an oral text We consider it would be important for secondary school teachers in Argentina to focus on cultural issues since they are essential factors that contribute to better listeners' interpretations of spoken text (Rost, 2006; White, 2006). Additionally, teachers should also include materials related to different cultures in order to develop learners' intercultural competence (White, 2006; Beltrán- Palanques, 2014; Usó-Juan & Martínez-Flor, 2008).

According to Usó-Juan & Martínez-Flor (2006), teaching EFL listening can be part of the communicative competence framework. In fact, fostering the secondary school learners

involved in this study to become strategically and interculturally competent to understand oral input would certainly improve their communicative competence. Therefore, these learners' communicative competence would be conducive towards the development of their listening skill.

In agreement with Buck (1995), the findings of the present study indicate that learners should experience lots of listening practice in order to become more effective listeners, which can be facilitated if teachers provide opportunities for optimal listening practice. Given the limited range of learners' strategy use in this study, teachers should also help them improve their awareness and use of cognitive, metacognitive, compensation and social affective strategies. Listening strategy instruction can play an important role in affecting learners' strategic behaviour, and facilitating their listening comprehension.

However, according to Vandergrift and Goh (2012), listening is still the most neglected skill by teachers and instructional materials since apart from a few cognitive strategies, learners are not systematically taught how to approach a listening text. Therefore, before educating EFL learners on how to listen, teachers should be educated on how listening must be taught. One of the reasons why learners develop their listening skills by themselves is that teachers are not properly trained to teach listening (Vandergrift and Goh, 2012).The present work suggests that teachers should incorporate listening strategies in the classroom. In addition, they should find opportunities not only to acquire the knowledge and skills about strategy instruction, but also to implement listening strategy training with effective materials and procedures.

In light of the small scale of this investigation and the human limitations of the study to report cognitive processes, the results should be understood as suggestive trends of listening strategy patterns. The findings are not conclusive, and should be interpreted as possibilities that need to be validated using the same research design with larger samples of learners of different ages, primary/secondary school contexts, and language backgrounds.

It is hoped that this study will bring a useful contribution to research into listening strategy patterns by the corroborating evidence with previous findings of the major studies in the field, by its thorough review of theoretical issues, and its detailed description of

methodological issues which need to be taken into account in research of cognitive processes.

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Appendix 1

The Perfect Crime - Script[1]

A: **Alice; H: Henry; P: Detective Parry; T: Sergeant Taylor; F1 and F2: Friends**

Alice Jackson is a happily married woman. She loves her baby son, and she adores her husband, Henry. Tonight is her tenth wedding anniversary, and some friends are coming round too have a drink. Everything seems perfect...but...Alice's life is going to change.

A: Hello, darling. Have some beer.

H: Sit down. I've got something to say....I'm sorry. I know it's a bad time to tell you. It's our anniversary. But it's just that Kathy and I are in love. Bobby won't miss m, he's too young.

A: I'll get ready for the party....

H: What on earth...?

A: Hello, police please. Hello, is that the police? Come quickly. It's my husband. Something awful has happened to him.

P: Detective Parry, Mrs. Jackson. Where is he?

A: In the kitchen. Is he all right?

P: He's dead.

A: No, no, not Henry! Oh Henry!

P: What happened?

A: I was putting the baby to bed upstairs. And I just came downstairs and found him lying on the kitchen floor.

T: Burglars.

P: Sit down, Mrs. Jackson. Sergeant Taylor, get Mrs. Jackson a drink. A brandy with some ice. Phew! It's hot in this room. I hope you understand, Mrs. Jackson that we have to search the house immediately. We must find the murder weapon.

---

[1] Taken from Soars J. & Soars (2000). L. *New Headway English Course*. Pre-Intermediate. Student's Book. Part A. Oxford University Press.

A: Yes, yes. Of course. P: What was that?

T: It's this statue, sir. It's melting.

T: Phew! Can I have a glass of water, Mrs. Jackson? It's so hot in here.

P: I think we all need one. And with ice.

F1: Poor Alice!

F2: Poor Henry! I don't believe it. What a shock for you!

A: Oh thank you. Please...stay and have a drink. Help yourselves.

F1: I wonder what the burglar hit him with.

F2: Who knows? Mmm.

Appendix 2

Name:

Class:

The Perfect Crime

I. Summarize the story.

II. Are these sentences true (T) or false (F)?

1. Alice was waiting for her husband because she wanted to kill him.

2. She was happy because it was her anniversary.

3. She didn't know what he was going to tell her.

4. Henry said he was in love with someone else.

5. She thought for a long time about how to murder Henry.

6. She turned up the central heating because the room was too cold.

7. After she murdered him, Alice was very clever in her behaviour.

8. Alice hid the murder weapon.

III. Answer the following questions.

a. At the beginning and a t the end of the play, Alice was smiling. Why?

b. Why do you think she did it?

c) Do you think it was the perfect crime?

d) Do you think she got away with the murder? Why / Why not?

Appendix 3

Background Questionnaire

Name: Class:

Date: Age:

School:

1) ¿Cursaste tus estudios primarios en este colegio?

a Sí. b. No

2) Si tu respuesta anterior es negativa - ¿tenías inglés en el colegio donde cursaste tus estudios primarios?

a. Sí. b. No

3) ¿Viniste a este colegio desde el inicio de la escuela secundaria?

a. Sí b. No

4) Si tu respuesta anterior es negativa - ¿tenías inglés en el colegio donde estudiaste anteriormente?

a. Sí b. No

5) ¿Estudiaste inglés en una academia o instituto?

a. Sí b. No

6) Si tu respuesta es afirmativa - ¿cuánto tiempo estudiaste?

a. Menos de un año b. Un año c. Dos años d. Más de dos e. Otro

7) ¿Continúas estudiando en una academia?

a. Sí b. No

8) ¿Qué nivel de inglés alcanzaste?

a. Elemental b. Pre-Intermedio c. Intermedio

9) ¿Rendiste algún examen internacional?

a. Sí b. No

10) En caso afirmativo - ¿cuál?

_____

11) ¿Comprendes cuando escuchas canciones en inglés?

a. Sí b. No

12) ¿Puedes comprender películas en inglés sin subtitular?

a. Sí b. No

13) ¿Te comunicas en inglés utilizando medios tecnológicos?

a.Sí b.No

14) ¿Has logrado comunicarte con hablantes ingleses o con personas de otras nacionalidades utilizando el inglés?

a.Sí b.No

15) ¿Cómo evalúas tu conocimiento de inglés?

Excelente - Muy Bueno - Bueno - Regular - Deficiente

16) ¿Consideras importante alcanzar un buen nivel idiomático?

Muy importante - Importante - No tan importante

17) ¿Por qué crees que es necesario aprender inglés? Marca con **X** las opciones que prefieras.

_____ Es necesario para mis estudios futuros.

_____ Estoy interesado/a en viajar.

_____ Estoy interesado/a en la cultura inglesa.

_____ Otros _____

_____

_____

18) ¿Disfrutas de aprender inglés? En caso positivo - ¿de qué modo?

_____

_____

_____

19) ¿Cuál ha sido tu experiencia favorita en el aprendizaje de inglés?

_____

_____

_____

Appendix 4

Cuestionario

<u>**Name:**</u> <u>**Date:**</u>

<u>**Age:**</u> <u>**Class:**</u>

<u>**School:**</u>

Las siguientes preguntas se refieren a lo que haces cuando escuchas hablar en inglés. Lee cada una de ellas y responde 1, 2, 3, 4 y 5 en el espacio al final de la pregunta.

1. Nunca o casi nunca

2. Generalmente no

3. A veces

4. Generalmente

5. Siempre o casi siempre

1) ¿Clasificas y agrupas información cuando escuchas un texto oral? _____

2) ¿Asocias la información que escuchas con conceptos que ya conoces para recordar de manera más efectiva? _____

3) ¿Creas imágenes mentales de lo que has escuchado? _____

4) ¿Organizas y relacionas los conceptos que escuchas en un diagrama o representación gráfica? _____

5) ¿Recuerdas con mayor eficacia cuando relacionas una palabra conocida que suena como la palabra nueva que escuchaste? _____

6) ¿Relacionas las palabras nuevas que escuchas con palabras o sonidos conocidos en inglés? _____

Continúa respondiendo 1, 2, 3, 4 y 5 en el espacio al final de la pregunta.

7) ¿Revisas o examinas lo que has escuchado? _____

8) ¿Realizas movimientos corporales que te ayuden a recordar lo que escuchas? _____

9) ¿Necesitas escuchar un texto oral más de una vez? _____

10) ¿Identificas fórmulas o expresiones idiomáticas cuando escuchas? _____

11) ¿Comprendes programas de TV, películas o canciones en inglés? _____

12) ¿Entiendes la idea principal de lo que escuchas en inglés? _____

13) ¿Logras identificar las ideas secundarias del material que escuchas? _____

14) ¿Utilizas diccionario, libro de gramática o libro de frases para comprender mejor? _____

15) ¿Haces deducciones con la información que escuchas? _____

16) ¿Divides las palabras, frases u oraciones para poder entender? _____

17) ¿Encuentras similitudes y diferencias cuando comparas sonidos y palabras en inglés y en español? _____

18) ¿Necesitas traducir lo que escuchas? _____

19) ¿Usas tu conocimiento del español para escuchar y comprender en inglés? _____

20) ¿Anotas la información que escuchas? _____

Continúa respondiendo 1, 2, 3, 4 y 5 en el espacio al final de la pregunta.

21) ¿Resumes un texto oral después de haberlo escuchado? _____

22) Si tienes también un texto escrito - ¿subrayas o marcas con color la información importante que escuchas? _____

23) ¿Tratas de adivinar el sentido general cuando no entiendes todas las palabras que escuchas en inglés? _____

24) ¿Adivinas a partir de ruidos, lenguaje corporal, tono de voz o expresión del rostro? _____

25) ¿Relacionas la información nueva que escuchas con otra que ya escuchaste anteriormente? _____

26) ¿Te concentras desde el principio hasta el final cuando escuchas en inglés? _____

27) ¿Entiendes información específica de un texto oral? _____

28) ¿Intentas descubrir como aprendes a escuchar? _____

29) ¿Te organizas para escuchar? _____

30) ¿Identificas el objetivo de las tareas cuando escuchas textos orales? _____

31) ¿Te preparas para realizar una tarea antes de escuchar? _____

32) ¿Buscas oportunidades para incrementar tu comprensión oral de inglés? _____

33) ¿Identificas tus errores de comprensión? _____

Continúa respondiendo 1, 2, 3, 4 y 5 en el espacio al final de la pregunta.

34) ¿Evalúas tu progreso al escuchar? _____

35) ¿Te tranquilizas antes de escuchar un texto oral? _____

36) ¿Puedes darte cuenta si estás ansioso cuando escuchas? _____

37) ¿Te das ánimo a vos mismo cuando escuchas? _____

38) ¿Pides que se repita o aclare la información que escuchas cuando no logras entender? _____

39) ¿Trabajas con tus pares para practicar, revisar o compartir la información que escuchas? _____

40) ¿Te interesa aprender acerca de la cultura de los países de habla inglesa? _____

¡Muchas gracias por tu cooperación!

Appendix 5

Output of the statistical program

GET

GET FILE="/DatosTesis.sav".

RELIABILITY

RELIABILITY /VARIABLES= Gender Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20 Q21 Q22 Q23 Q24 Q25 Q26 Q27 Q28 Q29 Q30 Q31 Q32 Q33 Q34 Q35 Q36 Q37 Q38 Q39 Q40 /MODEL=ALPHA.

Scale: ANY

Case Processing Summary

		N	%
Cases	**Valid**	15	30.00
	Excluded	35	70.00
	Total	50	100.00

Reliability Statistics

Cronbach's Alpha	**N of Items**
.88	41

RELIABILITY

RELIABILITY /VARIABLES= Gender Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20 Q21 Q22 Q23 Q24 Q25 Q26 Q27 Q28 Q29 Q30 Q31 Q32 Q33 Q34 Q35 Q36 Q37 Q38 Q39 Q40 /MODEL=SPLIT (0).

Scale: ANY

Case Processing Summary

		N	%
Cases	**Valid**	15	30.00
	Excluded	35	70.00
	Total	50	100.00

Reliability Statistics

Cronbach's Alpha	Part 1	Value	NaN
		N of Items	0
	Part 2	Value	.88
		N of Items	41
	Total N of Items		41
Correlation Between Forms			NaN
Spearman-Brown Coefficient	Equal Length		NaN
	Unequal Length		NaN
Guttman Split-Half Coefficient			.00

RELIABILITY

RELIABILITY /VARIABLES= Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20 Q21 Q22 Q23 Q24 Q25 Q26 Q27 Q28 Q29 Q30 Q31 Q32 Q33 Q34 Q35 Q36 Q37 Q38 Q39 Q40 /MODEL=ALPHA.

Scale: ANY

Case Processing Summary

		N	%
Cases	Valid	15	30.00
	Excluded	35	70.00
	Total	50	100.00

Reliability Statistics

Cronbach's Alpha	N of Items
.89	40

RELIABILITY

RELIABILITY /VARIABLES= Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20 Q21 Q22 Q23 Q24 Q25 Q26 Q27 Q28 Q29 Q30 Q31 Q32 Q33 Q34 Q35 Q36 Q37 Q38 Q39 Q40 /MODEL=SPLIT (0).

Scale: ANY

Case Processing Summary

			N	%
Cases	Valid		15	30.00
	Excluded		35	70.00
	Total		50	100.00

Reliability Statistics

Cronbach's Alpha	Part 1	Value	NaN
		N of Items	0
	Part 2	Value	.89
		N of Items	40
	Total N of Items		40
Correlation Between Forms			NaN
Spearman-Brown Coefficient	Equal Length		NaN
	Unequal Length		NaN
Guttman Split-Half Coefficient			.00

Appendix 6

Vandergrift's (1997) Taxonomy

Table A6-1. Vandergrift's Taxonomy of Listening Comprehension Strategies

Categories	Definitions
Metacognitive strategies	
Planning	Developing an awareness of what needs to be done to accomplish a listening task, developing an appropriate action plan and/or appropriate contingency plans to overcome difficulties that may interfere with the successful completion of the task.
Advanced organization	Clarifying the objectives of an anticipated listening task and/or proposing strategies for handling it.
Directed attention	Deciding in advance to attend in general to the listening task and to ignore irrelevant distractors, maintaining attention while listening.
Selective attention	Deciding to attend to specific aspects of language input or situational details that assist in understanding and/or task completion.
Self-management	Understanding the conditions that help one successfully accomplish listening tasks and arranging for the presence of those conditions.
Comprehension Monitoring	Checking, verifying, or correcting one's understanding at the local level.
Evaluation	Checking the outcomes of one's listening comprehension against an internal measure of completeness and accuracy.
Problem identification	Explicitly identifying the central point needing resolution in a task or identifying an aspect of the task that hinders its successful completion.
Cognitive strategies	
Inferencing	Using information within the text or conversational context to guess the meanings of unfamiliar language items associated with a listening task, or to fill in missing information.
Linguistic inferencing	Using known words in an utterance to guess the meaning of unknown words.
Extralinguistic inferencing	Using background sounds and relationships between speakers in an oral text, material in the response sheet, or concrete situational referents to guess the meaning of unknown words.
Elaboration	Using prior knowledge from outside the text or conversational context and relating it to knowledge gained from the text or conversation in order to fill in missing information.
Summarization	Making a mental or written summary of language and information presented in a listening task.
Translation	Rendering ideas from one language in another in a relatively verbatim manner.
Repetition	Repeating a chunk of language (a word or phrase) in the course of performing a listening task.

Note. Adapted from "The comprehension strategies of second language (French) listeners: A descriptive study" by Vandergrift, L. , 1997, *Foreign Language Annals*, 30(3) pp. 392-393.

Appendix 7

Oxford's (1990) Taxonomy

Table A7-1. Strategy Categories and Subcategories. Oxford's (1990) Taxonomy.

Direct and Indirect Strategy Groups	Strategy Categories	Strategy Sub-Categories	Strategies	Assigned Number*
		Creating Mental Linkages	Grouping	1
			Associating / Elaborating	2
		Applying Images and Sounds	Using Imagery	3
			Using Semantic Mapping	4
	Memory Strategies		Representing Sounds in Memory	5
			Using Key Words	6
		Reviewing Well	Reviewing	7
		Employing Action	Using Physical Response / Sensation	8
Direct		**Practicing**	Repeating	9
			Recognizing and Using Formulas and Patterns	10
			Practicing Naturalistically	11
	Cognitive Strategies	**Receiving and Sending Messages**	Skimming	12
			Scanning	13
			Using Resources for Receiving and Sending Messages	14

Indirect		Analyzing and Reasoning	Reasoning Deductively	15
			Analyzing Expressions	16
			Analyzing Contrastively	17
			Translating	18
			Code Switching	19
			Transferring	20
		Creating Structure For Input and Output	Taking Notes	21
			Summarizing	22
			Highlighting	23
	Compensation Strategies	Guessing Intelligently	Guessing Intelligently Using Linguistic Clues	24
			Guessing Intelligently Using Other Clues	25
			Guessing Using General Knowledge	26
	Metacognitive Strategies	Centering Your Learning	Overviewing and Linking with Already Known Material	27
		Paying Attention	Directed Attention	28
			Selective Attention	29
		Arranging and Planning Your Learning	Finding Out About Language Learning	30
			Organizing	31
			Identifying the Purpose of a Language Task	32
			Planning For a Language Task	33
			Seeking Practice Opportunities	34
		Evaluating Your Learning	Self-Monitoring	35
			Self-Evaluating	36

Affective Strategies	**Lowering Your Anxiety**	Lowering Your Anxiety	37
	Taking Your Emotional Temperature	Listening To your Body	38
	Encouraging Yourself	Encouraging Yourself	39
Social Strategies	**Asking Questions**	Asking For Clarification	40
	Cooperating With Peers	Cooperating with Peers	41
	Developing Cultural Understanding	Developing Cultural Understanding	42

Note. * In this study numeric assignment is used to help with statistics. Numbers represent neither ordering nor relative importance of strategies.

Adapted with modifications from *"Language Learning Strategies. What Every Teacher Should Know"* by Oxford, R. (1990), pp 18-21.

Appendix 8

Interrater Reliability

The problem addressed by these tests is that even if the coders rate at random there would be some agreement among them. So an effort should be made to subtract the agreement by chance from the actual agreement. To illustrate this let's examine the kappa coefficient by Cohen.

$$\kappa = \frac{P_a - P_e}{1 - P_e},$$

where P_a is the agreement observed between two examiners in relative form i.e. the quotient between the number of agreed protocols over the total protocols evaluated and P_e is the fraction of agreement by chance to be calculated. Let's assume that there are N items (in our case they will be the protocols) to be evaluated in k categories (in our case right, bad qual. and wrong) by two raters. One examiner assigns n_1 items to category 1, n_2 to category 2, n_i to the i-category up to n_k. The other examiner assigns $m_1, m_2, m_i...m_k$. But some of the n_1 items of rater 1 are categorized 2 by rater 2 so it is convenient to form a matrix of elements x_{ij}. Element x_{11} shows the number of items categorized 1 by both observers. Element x_{21} represents the number of items categorized 1 by observer 1 and 2 by observer 2 and so on. Of course the sums along columns give the ns and the sums along rows give the ms.

		Rater 1						
		1	*2*	...	*i*	...	*k*	
Rater 2	*1*	x_{11}	x_{12}		x_{1i}		x_{1k}	m_1
	2	x_{21}	x_{22}		$x2i$		$x2k$	$m2$
	...	..						
	i	$xi1$	$xi2$		xii		xik	mi
	...							
	k	$xk1$			xki		xkk	mk
		n_1	$n2$		n_i		n_k	

The total agreement is the sum of the diagonal (the trace of the matrix) and therefore P_a in kappa is

$$P_a = \frac{1}{N} \sum_{i=1}^{k} X_{ii} \, .$$

Now rater 1 assigns n_i times category i so the probability of assigning i by chance for this rater is n_i/N and the same for rater 2: m_i/N so the probability of both assigning i by chance is the product $(n_i/N)\,(m_i/N)$ and summing over i gives the total P_e

$$P_e = \sum_{i=1}^{k} \left(\frac{n_i}{N}\right)\left(\frac{m_i}{N}\right) = \frac{1}{N^2} \sum_{i=1}^{k} n_i m_i$$

Let's examine the matrix obtained from Eval 1 and Eval 2 in the present study. $N=596$ number of protocols analyzed and $k=4$ (Right, Bad Qual., Wrong and void) the categories used.

		Right	Bad Qual.	Wrong	void		
				EVAL 1			
EVAL 2	Right	349	11	5	12	377	
	Bad Qual.	13	63	4	3	83	
	Wrong	6	9	95	3	113	
	void	2	0	0	21	23	
		370	83	104	39		596
						596	528
	Agreement	349	63	95	21	528	
	By chance	234.0436	11.5587	19.7181	1.505	266.8255	

The trace of this matrix is 528. Thus $P_a=528/596=0.88591$ and the sum of the values by chance 266.825 giving $P_e=266.825/596=0.44769$. The resulting kappa is 0.7934 or 79.34%.

Let's look at the other two matrices

		Right	Bad Qual.	Wrong	void		
				EVAL 1			
EVAL 3	Right	349	14	5	11	379	
	Bad Qual.	11	60	4	5	80	
	Wrong	10	9	95	1	115	
	void	1	0	0	22	23	
		371	83	104	39		596
						596	526
	Agreement	349	60	95	21	526	
	By chance	235.5259	11.1223	20.0335	1.5025	268.1942	

with a kappa Eval 1 versus Eval 3 of 0.79016 and

EVAL 2						
		Right	Bad Qual.	Wrong	void		
	Right	367	4	6	2	379	
	Bad Qual.	4	75	0	0	79	
EVAL 3	Wrong	6	4	106	0	116	
	void	1	0	1	21	23	
		378	83	113	23		597
						597	569
	Agreement	367	75	106	21	569	
	By chance	239.9698	10.9832	21.9564	0.8861	273.7956	

With the result of kappa Eval 2 versus Eval 3 of 0.9134.

A measure of the consistency or interrater agreement would be the average kappa=0.83.

Another parameter used for this purpose is the Fleiss kappa. This coefficient has the advantage that takes into account all the intervening raters not by pairs. The Fleiss kappa has the same form as Cohen's:

$$\kappa = \frac{\bar{P_a} - \bar{P_e}}{1 - \bar{P_e}}$$

The difference with Cohen's is the way P_a and P_e are calculated. The Fleiss matrix is formed with the items to be evaluated in the rows and the categories in the columns. Each element of this matrix x_{ij} represents how many raters gave an i-item a j-category. The main condition for this coefficient is that every item gets the same total number of evaluations; i.e. the sum of the elements of any row is always the number of raters r. Next, to calculate the average agreement P_a, we find the proportion of pairs of raters that agree on i-item is given by:

$$p_i = \frac{1}{r(r-1)} \sum_{j=1}^{k} x_{ij}(x_{ij} - 1).$$

The agreement mean in kappa is

$$\bar{P_a} = \frac{1}{N} \sum_{i=1}^{N} p_i .$$

Summing along columns give us the proportion of all rates in the j-class:

$$q_j = \frac{1}{rN} \sum_{i=1}^{N} x_{ij},$$

and the P_e in Fleiss kappa is:

$$\overline{P}_e = \sum_{j=1}^{k} q_j^2 .$$

Let's examine now our study. There are N=606 items (protocols), r=3 raters and k=4 categories (Right, Bad Qual., Wrong and void). So the matrix has 606 rows by four columns. The resulting P_a=0.89054 and the q_j are 0.62321, 0.13531, 0.18372 and 0.0495. Summing their squares gives P_e=0.44291. Replacing

$$\kappa = \frac{0.89054 - 0.44291}{1 - 0.44291} = 0.80351 ,$$

a result very similar to the average Cohen calculated above.

An important point is the error involved in these calculations. For example the error in Cohen's kappa is given by

$$Standard\,error = \sqrt{\frac{Pa(1 - Pa)}{N(1 - Pe)^2}} ,$$

giving for the three pairs of raters 0.02357, 0.023757 and 0.024170 which represents slightly above 2% error. Similarly, the calculation of the standard error for Fleiss kappa gives 0.01924 again very similar to Cohen's kappa error.

Altman, (1991) proposed the following table to interpret the κ:

Table A8-1. Altman's scale for strength of agreement.

Value of κ	Strength of agreement
< 0.20	Poor
0.21 - 0.40	Fair
0.41 - 0.60	Moderate
0.61 - 0.80	Good
0.81 - 1.00	Very good

Therefore our values are just borderline between Good and Very Good Agreement.

Appendix 9

Table A9-1. Protocol Example.

Partic. 15 Task 1 Summary	Protocol Segment	Code	Comment
	114. Bueno, laa historia comienza presentando a una mujer que se llama _ Alice, que tiene un esposo que se llama Henry y un bebé.	**Cog. Strat. Receiv. Send. Mess.Scan.** **Sel. Att.**	
	115. E..es su aniversario de bodas , entonces unos amigos van a ir a a cenar a su casa.	**Cog. Strat. Receiv. Send. Mess. Scan.** **Wrong Pay Atte. Sel. Atte.**	
	116. Alice está esperándolo a su esposo. Su esposo llega Henry, y..y..y.. le comenta que tiene que decirle algo. Y él le dice queem _ que está enamorado de otra mujer que se llama Katy.	**Cog. Strat. Receiv. Send. Mess. Scan**	
	117. Bueno, a todo esto Alice responde e..e..e.. asesinándolo creo que cccon un cuchillo ah y..y.. bueno despúes de que lo lo asesina **e..** llama a la policía pidiendo ayuda diciendo que es le pasó algo a su esposo.	**BAD QUALITY SCANNING**	
	118. La policía llega y la encuentra a Alice llorando pidiendo a gritos ayuda y le pregunta que pasó. Ella dice que estaba tendiendo a su bebé en la parte de arriba y..y..y.. que bajó y que lo encontró a su esposo _ sangrando.	**BAD QUALITY SCANNING**	**Alice didn't say Henry was bleeding.**
	119. A todo esto, e..e.. bueno el policía le pide ayuda al otro sargento y le dice que le dé una bebida a Alice. Prepara una bebida y en el momento que se la está por dar, se se como que se desmaya, se desvanece. El sargento le le da la bebida igual y Alice se reincorpora.	**BAD QUALITY SCANNING**	**Alice neither faints nor becomes unconscious.**
	120. El, para el otro policía, para los dos policías también piden una bebida porque hace mucho calor por la __ calefacción que está prendida.	**Cog. Strat. Receiv.Send.Mess. Scan**	

	121. Después que Alice se reincorpora, se van los policías, dicen que tienen que buscar la arma del asesino, que tienen que registrar su casa.	**Cog. Strat. Receiv. Send. Mess. Scan**	**The policemen have to search the house to find the murder weapon.**
	122. Comienzan a registrar la casa y tocan el timbre y..y..y.. llega una de las amigas de Alice y le da _ le da los pésames por lo que _ le pasó a su esposo que no lo puede creer y bueno __ Se quedan tomando una bebida y ..y ahí se termina la grabación de la historia.	**BAD QUALITY SCANNING**	**There are TWO FRIENDS.** **Alice's friends do not give her their condolences although they express they are sorry**.