UNIVERSIDADE FEDERAL DE SANTA CATARINA

PÓS-GRADUAÇÃO EM LETRAS/INGLÊS E LITERATURA CORRESPONDENTE

WORKING MEMORY CAPACITY, NOTICING, AND L2 SPEECH PRODUCTION

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Abstract

Working Memory Capacity, Noticing, and L2 Speech Production

Joara Martin Bergsleithner

Universidade Federal de Santa Catarina
2007

Supervisor Professor: Prof. Dr. Mailce Borges Mota Fortkamp
Co-Advisor: Prof. Dr. Richard Schmidt

The present study investigated the relationship among working memory capacity, noticing of L2 forms, and L2 oral production by thirty Brazilian adult learners of English as a second or foreign language at *Universidade Federal de Santa Catarina*. The experiment consisted of five tasks: (a) one task aimed at measuring working memory capacity through the *Speaking Span Test*; (b) three oral tasks (one pretest before treatment, and two posttests after treatment) aimed at measuring grammatical accuracy through subjects' oral performance of the target structure (*Indirect Questions*); and (c) one task aimed at measuring noticing through an oral protocol. The results reveal that there are statistically significant relationships among working memory capacity, noticing of L2 forms, and grammatical accuracy on L2 oral performance. Individuals with a larger working memory capacity noticed more L2 formal aspects of the target structure and demonstrated better performance in L2 oral tasks whereas individuals with smaller working memory capacity notice fewer L2 formal aspects and demonstrated poorer performance of the target structure in L2 oral tasks.

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Resumo

Capacidade de Memória de Trabalho, Registro Cognitivo e Produção Oral em L2

Joara Martin Bergsleithner

Universidade Federal de Santa Catarina
2007

Supervisor Professor: Dr. Mailce Fortkamp
Prof. Co-Supervisor: Dr. Richard Schmidt

O presente estudo investigou a relação entre a capacidade de memória de trabalho, o registro cognitivo de aspectos da L2 e a produção oral da L2 em 30 adultos brasileiros aprendizes de inglês como segunda língua ou língua estrangeira, na *Universidade Federal de Santa Catarina*. O experimento consistiu de cinco tarefas: (a) uma tarefa teve por objetivo medir a capacidade de memória de trabalho através do *Speaking Span Test*; (b) três tarefas orais (um pré-teste antes do tratamento e dois pró-testes após o tratamento) tiveram por objetivo medir a acurácia gramatical da performance oral dos sujeitos ao produzirem a estrutura alvo (*Questões Indiretas*); e (c) uma tarefa teve por objetivo medir o registro cognitivo de aspectos da L2 através de um protocolo oral. Os resultados revelam que existe relação estatisticamente significativa entre a capacidade de memória de trabalho, o registro cognitivo de aspectos da L2 e a produção oral da L2. Indivíduos com a capacidade de memória de trabalho maior registraram melhor os aspectos da estrutura alvo e demonstraram melhor desempenho nas tarefas orais de L2, enquanto que indivíduos com uma capacidade de memória de trabalho menor registraram menos os aspectos formais da L2 e tiveram um desempenho menos preciso ao produzir a estrutura alvo nas tarefas orais.

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CHAPTER 1

INTRODUCTION

There have been several ways in which research and theorizing about second language acquisition[1] (SLA) has changed and developed in the last 50 years or so. SLA is a subfield of Applied Linguistics research field which is interested in understanding how individuals acquire a second language (Ortega, 2007).

There are several factors that may influence second language acquisition processes in SLA, such as cognitive, social, affective, cultural, etc. However, I believe that second language acquisition is primarily a mental cognitive process. This mental process is responsible for acquiring knowledge of a second language system (Harrington, 1992). Thus, some theory on cognitive mechanisms is fundamental to explain how this mental process works and why this process happens in a noteworthy different and particular way among humans.

Therefore, there is a need to do a combination with the *Second Language Acquisition* research field to a different (but very interrelated) field -- the *Cognitive Psychology* field -- to carry out the current study since it deals with both theoretical and experimental issues on working memory capacity, noticing of L2 forms, and L2 speech production.

In recent years, many theorists and researchers have raised their voices in claiming that humans have individual differences among themselves when dealing

[1] The theoretical terms *acquisition* and *learning* will be used interchangeably throughout this study, and so will the terms *second language* (L2) and *English as a foreign language* (EFL) learning/teaching.

with a complex cognitive task, such as when acquiring a second language (Cowan, 1988; Daneman & Carpenter, 1980, 1983; Engle, 1999; Harrington & Sawyer, 1992; Miyake & Friedman, 1998; Mackey, Philp, Fujii, Egi, & Tatsumi, 2002; Mackey, Adams, Stafford & Winke, 2006; Robinson, 2002a, 2002b; Skehan, 1998, among others).

Recent studies in SLA and Cognitive Psychology areas have been investigating and discussing the issue regarding individual differences among humans. In the current study, I will deal with two cognitive constructs that may influence in individual differences, which are working memory capacity and noticing (Robinson, 1995, 1996a, 1996b, 1997, 2001, 2002a, 2002b, among others).

Theoretical literature and experimental studies on the topics of **working memory capacity** (Anderson, 1991; Atkinson & Shiffrin, 1968; Baddeley, 1997; Baddeley & Hitch, 1974; Daneman & Carpenter, 1980, 1983; Daneman & Green, 1986; Fortkamp, 1999; 2000; Just & Carpenter, 1992; Miyake & Friedman, 1998; Miyake, Just & Carpenter, 1994; Shah & Miyake, 1996; Tomitch, 1996, 2000; Torres, 2003), **noticing** (Mackey et al., 2002; Robinson, 1995, 1996a, 1996b 1997, 2001, 2002a; Schmidt, 1990, 1995; Schmidt & Frota, 1986;), and **L2 oral production** (De Bot, 1992; Fortkamp, 1999, 2000; Green, 1986; Poulisse, 1994, 1997; Poulisse & Bongaerts, 1994) have brought a significant contribution to these research fields.

In the mainstream Cognitive Psychology and SLA research fields, cognitive mechanisms such as working memory and noticing may contribute to second language acquisition, and they have also been potential variables which distinguish individuals among themselves. In order to understand how these

cognitive mechanisms may affect individuals' second language (L2) acquisition process and their oral performance in a second language, one must first understand how these cognitive mechanisms trigger such individual differences among humans in L2 oral performance.

Therefore, the current study makes an effort to build up the relationships among the variables: working memory, noticing, and L2 speech production. More specifically, this research investigates individual differences in working memory capacity, noticing of linguistic aspects in the input, and L2 performance of oral tasks, within a Cognitive Perspective, as well as explores why humans are different from each other when learning a second language, and how differences among them can contribute to a better understanding of the SLA process.

Over the past years, several studies have shown that individuals with larger working memory capacities (higher spans/higher processors) demonstrate better performance on complex cognitive tasks, since they efficiently administrate their attentional cognitive processes demanded by the task. On the other hand, individuals with smaller working memory capacity (lower spans/lower processors) seem to administrate these processes in a less efficient way (Daneman & Carpenter, 1980, 1983; Daneman & Green, 1986; Just & Carpenter, 1992; Miyake, Just, & Carpenter, 1994; Miyake & Friedman, 1998; Miyake & Shah, 1999; Shah & Miyake, 1996; Fortkamp, 1999, 2000).

Other studies (Mackey & Philp, 1998; Mackey et al., 2002; Robinson, 1995, 1996a, 1996b, 1997, 2001, among others) have investigated the *Noticing Hypothesis*, as proposed by Schmidt (1990). These studies showed that noticing of L2 linguistic aspects in the input makes learners acquire the L2. In the current

study, noticing is seen as a crucial cognitive construct that triggers second language learning, and that works simultaneously with working memory.

Initially, I will depart from Schmidt's (1990) concept of noticing, since he was the proponent of *the Noticing Hypothesis*, and also because I agree with his *Noticing Hypothesis*. Thus, I will adopt his concept of noticing to this study, and present a new construct for noticing that may match better with this particular study. This researcher's concept of noticing will be fully developed in the Review of Literature, Section 2.2.

Up to now, there are still few studies about (1) the relationship between noticing and working memory capacity (Mackey et al, 2002; Robinson, 2002a), and only one in (2) working memory, noticing of interactional feedback and L2 development (Mackey et al, 2002). Thus, a better understanding of the relationships among working memory capacity, noticing, and L2 oral performance can facilitate an explanation for learners' individual differences when learning a second language.

In order to investigate these relationships, the present study has as theoretical foundations the studies on individual differences in noticing and working memory capacity in SLA based upon the *Noticing Hypothesis*, as proposed by Schmidt (1990, 1995), as well as on individual differences in working memory capacity and the performance of L2 oral tasks (Daro & Fabbro, 1994; Fortkamp, 1999, 2000; Mackey et al., 2002; Payne & Ross, 2005; Payne & Whitney, 2002).

In order to conduct this experimental study, the following five research questions were posed, followed by hypotheses:

RQ1. Are there relationships among individual differences in working memory capacity, noticing of L2 forms, and L2 oral performance?

Hypothesis: There are statistically significant relationships among individual differences in working memory capacity, noticing of L2 forms, and L2 oral performance. Individuals with a larger working memory capacity, as measured by the *Speaking Span Test*, notice more L2 formal aspects and demonstrate more accuracy in performing the L2 oral tasks using the target structure, while individuals with smaller working memory capacity, as measured by the Speaking Span Test, notice fewer L2 formal aspects and make more inaccuracies in using the target structure and performing the oral tasks.

RQ2. Is working memory capacity related to noticing?

Hypotheses:

(a) There is a statistically significant relationship between working memory capacity and noticing. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, have more attentional resources available to notice L2 formal aspects when receiving L2 linguistic input.

(b) There is a statistically significant relationship between working memory capacity and noticing. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, have more ability to recall what was noticed -- *the targeted structure* -- in their episodic memory as well as to activate this

information in their long-term memory.

RQ3. Is working memory capacity related to L2 oral performance?

Hypothesis: There is a statistically significant relationship between working memory capacity and L2 oral performance. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, demonstrate better accuracy in performance of L2 oral tasks.

RQ4. Is noticing related to L2 oral performance?

Hypothesis: There is a statistically significant relationship between noticing and oral performance. Individuals who notice more L2 linguistic aspects demonstrate better performance in the target structure in the L2 oral tasks in the two posttests.

RQ5. Is accuracy in oral performance of the target structure – Indirect Questions – statistically different in the pretest phase and in the posttest phases? If so, is this difference related to working memory capacity and/or noticing?

Hypotheses:

(a) There is a statistically significant difference in accuracy in oral performance of the target structure in the pretest compared to the accuracy in the posttests. This difference in accuracy of oral performance of the target structure in the three test conditions (one pretest phase, and two posttest-phases) is related to working

memory capacity and noticing. Thus, individuals with a larger working memory capacity, as measured by the Speaking Span Test, notice more L2 linguistic aspects when receiving L2 linguistic input, and are more accurate in performing oral tasks.

b) There is a significant improvement in accuracy in the performance of the target structure in the pretest phase compared to the immediate posttest phase after treatment. However, there is some weakening of accuracy in oral performance of the target structure in the delayed posttest compared to the immediate posttest due to the difficulty of maintenance of the target structure. The maintenance is related to subjects' working memory capacity and noticing.

The experiment was carried out with one group of 30 participants and consisted of five tasks: (a) one task aimed at measuring working memory capacity through the Speaking Span Test; (b) three oral tasks aimed at measuring accuracy of the target structure through participants' oral performance, one pretest before treatment, and two posttests after treatment; and (c) one task aimed at measuring noticing of linguistics aspects of the target structure through an oral protocol.

In sum, the present study is organized into five chapters. Chapter 1 concerns this introductory chapter. Chapter 2 reviews theoretical issues in working memory capacity, noticing, and L2 oral production. Chapter 3 provides the method adopted to collect and analyze the data (the participants, the study design, the instruments, the procedures used to collect and analyze the data). Chapter 4 presents the results and discussion concerning the analysis of the relationships among working memory capacity, noticing of linguistic aspects of

the target structure, and the accuracy of oral performance in oral tasks. This is followed by a discussion of such relationships among the variables, which is offered by answering each particular research question and supporting the hypotheses as well. Chapter 5 presents the conclusion for the study, and suggests some pedagogical implications, acknowledges the limitations of this study, and finally presents suggestions for further research.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

The aim of this chapter is to present theoretical and empirical research on: (a) working memory (WM) capacity, (b) noticing (N), and (c) L2 oral production (OP). The chapter is organized in 3 large sections. Section 1 presents a review of the literature on working memory. Section 2 presents a review on the issue of noticing. And section 3 presents a review on the issue of oral production. Each section is further subdivided so that issues that were found relevant to the present study will be discussed in detail.

2.1 Working Memory

Working memory (WM) is a cognitive construct that refers to the system or mechanism responsible for storage and processing of information during performance of complex cognitive tasks (Baddeley & Hitch, 1974; Daneman & Carpenter, 1980; Harrington & Sawyer, 1992; Shah & Miyake, 1996), such as comprehension (reading and listening), and production (speaking and writing), among others. In addition, “WM is a psychological construct of a mechanism of retrieval and maintenance of information during cognitive processing” (Watanabe

& Bergsleithner, 2006, p. 47, based on Baddeley, 1986, 1990; Daneman & Carpenter, 1980; Miyake & Shah, 1999).

I tend to see the two definitions of working memory above as quite similar and also complementary. The definition of working memory for the present study is: *Working memory is a cognitive construct responsible for the storage and processing of information and for the processes of recall and maintenance of the information acquired.*

Baddeley and Hitch (1974) carried out a series of experiments using the dual-task technique to investigate whether the memory system consisted of a unitary system or separate subsystems. These researchers assumed that short-term memory (STM) is composed of a single limited capacity construct. For them, STM was responsible for the execution of many different levels of cognitive tasks demands. However, they found one task may be blemished when the limited capacity is overloaded. Baddeley (1992) also found that some impairment in the execution of a given task may point to different short-term store memory systems.

Up to now, even after Baddley's findings, there is still controversy between the concept of *short-term memory* and *working memory* in the literature. For many researchers (e.g., Ashcraft, 1994; Baddeley, 1986, 1990, 1999; Engle & Oransky, 1999; Miyake & Shah, 1999), STM was initially predicted as a passive unitary system with limited capacity and a necessary step for the acquisition and use of any kind of information.

Atkinson and Shiffrin (1968) proposed a three-stage model in which the incoming information would concurrently pass in the course of different sensory buffers. By means of rehearsal in STM such information could pass into long-term memory (LTM). For them, it was the amount of rehearsal that could facilitate

storage in the STM. This point of view became outdated in the literature because it presented some problems.

One of the problems that this view presented was that the model did not explain how and why some patients with problems in STM showed intact LTM storage. Another problem, as suggested by Tulving (1966), was related to the notion of rote rehearsal in STM resulting in LTM storage, which was forged by some studies in the field of memory that showed that repetition did not automatically result in learning.

Baddeley and Hitch (1974) opposed this thought of a passive unitary system, in which STM was the single access to LTM, as suggested by Atkinson and Shiffrin (1968). Instead, they proposed an innovative model in which, working memory could not only hold information, but also process and manipulate any input while individuals are performing complex cognitive tasks. For these researchers, STM could also act as working memory.

Other researchers also have different positions concerning WM and STM. While Anderson (1990) argues that STM is quite similar to WM, Cowan (1995) claims that WM is conceptualized as a set of elements activated in memory and it is a cognitive construct much more complex than STM. The first definition is related to similar constructs regarding WM and STM whereas the second regards both memories as separate subsets (Engle, Laughlin, Tuholski & Conway, 1999). Cantor and Engle (1993), and Just and Carpenter (1992) distinguish WM from STM by saying that WM is a dynamic system able to both store and process information, while STM is only able to store it. Therefore, STM seems to be different from WM due to the fact that STM has limitations in retaining multiple items when executing a storage type cognitive task, while WM has limitations in

storing and processing information simultaneously because of its limitation in the attention resources available for such a task (Cowan, 1988; Tomitch, 1996; Torres, 2003).

Some researchers use metaphors in order to conceptualize working memory. Baddeley (1992c) regarded WM as the *brain system*. Baddeley and Hitch (1974), and Just, Carpenter, and Hemphill (1996) called WM an *arena of computation.* Haberlandt (1994) named it *the hub of cognition* while Just and Carpenter (1992) named it *the blackboard of the mind*. Finally, Stoltzfus, Hasher and Zacks (1996) asserted that WM is a *mental workplace*. These metaphors are in line with Fortkamp's (2000, p. 21) supposition that WM is viewed by the majority of theorists and researchers as the center of cognitive action.

Miyake and Friedman (1998) defined working memory as "a computational arena or workplace, fueled by flexibly deployable, limited cognitive resources (or activation) that support both the execution of various symbolic computations and the maintenance of intermediate products generated by these computations" (p. 341). This conceptualization of WM relates more to its limitations, and thus, emphasizes the fact that WM is a limited-resource system.

In another study, Miyake and Shah (1999) conceptualized working memory as "those mechanisms or processes that are involved in the control, regulation, and active maintenance of task-relevant information in the service of complex cognition, including novel as well as familiar, skilled tasks" (p. 450). Miyake and Shah's (1999) definition highlights the dynamic nature of the system, which is responsible for both storage and processing functions.

Contemporarily, the hottest debate in the literature on the LTM issue has been related to its space in WM models (Miyake & Shah, 1999). Researchers such as Cantor and Engle (1993) argue that most WM models seem to distinguish between previously acquired knowledge in LTM and the temporary activation of such knowledge in working memory. The current debate also relates to whether individual differences exist among humans because they have limitations in their WM capacity or because they do not have efficient encoding representations in their LTM (Cowan, 1988; Engle, 1999). Until the 1960's, researchers still believed that LTM was a unitary system.

In 1968, Norman raised the fundamental idea that short-term memory and long-term memory were distinct and that rather than two physical different systems, both memories comprised dissimilar aspects of a single storage mechanism (Norman, 1968). Meanwhile, other researchers stated that the role of LTM has been ignored in WM models. For example, Ericsson and Kintsch (1995) claimed that limits on performance would not reflect constraints on WM capacity, but instead would reflect constraints on the interaction among representations, procedures, and knowledge in LTM. Cantor and Engle (1993) also conducted a number of experiments in order to see the relationship between WM and LTM, trying to find out whether WM capacity and LTM activation limits tap the same constructs.

Daneman and Tardiff (1987) found that individual differences in working memory capacity appear to reflect the entire amount of resources available in WM or LTM activation available to individuals. Even though many researchers in the WM literature have tried to explain the role of LTM in relation to WM constraint while individuals are performing a cognitive task, there is no clear explanation up

to now on how individuals' previous knowledge in LTM may contribute to WM functioning (Miyake & Shah, 1999). Further research is needed on this issue.

2.1.1 Models of working memory

Among many working memory models that have emerged in the WM literature, two major models of WM emerged in the 1970s and 1980s to explain the constraints of human performance in complex cognitive tasks, such as learning a language. These models have influenced research in cognitive psychology by exploring how humans retain, process, and retrieve information (Watanabe & Bergsleithner, 2006).

The first model, the Multi-Component WM Model, was proposed by Baddeley and his colleagues (Baddeley, 1978, 1986, 1990; Baddeley & Hitch, 1974; Gathercole & Baddeley, 1993), and departed from the belief that STM is not merely a temporary storage but also a work space that accomplishes a range of cognitive processes. This idea derived from an investigation with patients who had impaired STM, although they could still perform common information processing tasks (Shallice & Warrington, 1970).

The Multi-Component WM Model proposes that working memory is composed of three slave systems which are controlled by the central executive (CE). The CE is responsible for (a) processing new information in the slaves systems, (b) controlling attention by filtering[2] some incoming information while

[2] *Filtering* incoming information in this study means selecting some information while neglecting others.

neglecting others, and (c) coordinating relevant incoming information within the long-term memory. The slave systems of the CE are: (a) the visual-spatial sketchpad (VSSP), i.e., a visual trace and manipulation system, (b) the phonological loop (PL), i.e., a phonological coding and storage system, and (c) the episodic buffer, which coordinates information from the VSSP and PL and from long-term memory.

The other WM model to be discussed here is the WM model chosen for the present study, which is The Embedded-Processes Model (a unitary model), as proposed by Cowan (1988). Cowan's (1988) Embedded-Processes Model of working memory suggests that the mechanism of attention is understood as a subset of activated information in long-term memory. In the model, working memory activates elements of long-term memory. Within this WM model, for individuals to be successful when performing cognitive tasks, it is necessary to activate simultaneously several available pieces of information. In order to make a sentence, for example, it is necessary to activate in memory some grammatical components, such as subject and verb simultaneously.

In his 1995 study, Cowan claimed that declarative memories are encoded with the focus of attention or awareness, while procedural memories are automatic. For Cowan, some of necessary information may be in the focus of attention; some may be in an especially activate state, ready to enter the focus as needed; and some may simply have the appropriate contextual coding in long-term memory that allows it to be made available quickly (Miyake & Shah, 1999, p. 88, based on Cowan, 1988, 1995).

Cowan's (1988) model emphasizes associations between memory and attention. According to this model, "working memory refers to cognitive

processes that retain information in an unusually accessible state, suitable for carrying out any task with a mental component" (Miyake & Shah, 1999, p. 62), such as language comprehension and production. In this model, attention is based on limited capacity and it is controlled by voluntary and involuntary processes, while activation is time limited.

Combining with the current study, the crucial principle of this model is that processing is influenced by awareness, and awareness and attention seem to be coextensive. According to Cowan (1988), activation, attention plus awareness (what I call *noticing* in this study) and long-term memory are memory components that may contribute to WM functioning. I assume that these memory components influence WM processing, and awareness (at the level of noticing), and "allows new episodic representations to be available for explicit recall" (Miyake & Shah, 1999, p. 62).

Cowan's (1988) model is in part in line with Anderson's (1972) proposal that the contents of WM could be identified with items or nodes activated within LTM. In Cowan's proposal, the LTM is activated in two ways: (a) by voluntary processing controlled by the CE; and (b) by habituated/automatic processing. Cowan (1988) emphasizes not only how the CE controls attention, but also how WM can be effective in activating both STM and LTM simultaneously. Thus, Cowan's (1988) interpretation for the limited capacity of WM is due to attentional resources constraints.

Following Cowan's (1988) theory, information in working memory may come from three different sources: (a) long-term memory, (b) the sub-set of long-term memory which is presently activated, and (c) the sub-set of activated memory where attention is focused, in which both attention and activation are

limited. Some researchers are in favor of Cowan's position (e.g., Just & Carpenter, 1992) since they also claim that working memory processing and storage functions are mediated by activation of long-term memory.

In agreement with Cowan's (1988, 1995) Embedded-Processes model, I believe that working memory is a cognitive mechanism responsible for storing and processing cognitive information, and for (a) activating a set of sub-memories in LTM; (b) controlling the attentional resources under the focus of attention (with awareness), or in combination with unconscious processes; and (c) recalling information as well.

In my viewpoint, working memory is linked to attention and awareness, and leads humans to: (a) perform any cognitive task; (b) make sense between previous and incoming information; (c) be aware of L2 linguistic aspects in the input; and (d) produce language (oral or written) with more accuracy, complexity, and fluency.

2.1.2 WM studies in L1 and in L2

In the eyes of some researchers (Daneman & Carpenter, 1980, 1983; Daneman & Green, 1986), learners' individual differences in L1 development may reflect differences in their WM capacity, precisely between processing and storage functions, in performing different cognitive tasks such as reading comprehension, sensitivity to grammatical regularities, and speech production. Similarly, Carpenter, Miyake, and Just (1994) claimed that WM is an important

determining factor of L1 proficiency. Thus, according to them, WM is responsible for explaining individual differences both in L1 and in L2.

The first study that verified whether individual variations in oral production in L1 are related to individual differences in WM capacity was carried out by Daneman and Green (1986), who used the *Speaking Span Test* (SST)[3]. The objective of the study was to verify whether WM capacity was related to the speaker's ability and execution of speech. Daneman and Green's (1986) findings showed a significant correlation between WM and L1 oral production. They concluded that higher spans are more fluent in performing a contextualized vocabulary task than lower spans.

In a further study, Daneman (1991) hypothesized that individuals with larger WM capacities would be more efficient in the coordination of cognitive processes involved in oral production. According to Daneman (1991), these individuals would perform better on tasks that measure fluency, showing more fluent oral production at the discursive[4] and articulatory[5] levels.

Further, Fortkamp (1999) carried out a study in which among other things she replicated Daneman's (1991) study to verify whether Daneman's hypothesis would also be true in studies of L2 oral production. Fortkamp's results showed equivalent results to Daneman's, demonstrating that individuals with a larger working memory capacity are more fluent in L2 oral production tasks. Fortkamp (1999) claimed that individuals' oral performance varies according to their working memory capacity. She seems to associate higher spans with faster and more efficient speakers than the lower spans.

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[3] *The Speaking Span Test* was the WM test adopted for the present study (see Section 3.6.1.2).
[4] *The discursive level* here regards the level of the speech.
[5] *The articulatory level* is that level of the speech that is responsible for "the execution of the phonetic plan by the musculature of the respiratory, the laryngeal, and the supralaryngeal systems" (Levelt, 1989, p. 12).

In a further study, Fortkamp (2000) hypothesized that working memory is an attentional system, whose capacity is shared by at least 4 macro-cognitive processes demanded by oral production: (1) activation of information of the L1 and L2; (2) suppression of irrelevant information of the L1; (3) search and serial retrieval of the L2; and (4) monitoring of performance either to avoid or to correct errors. This WM hypothesis strengthens her 1999 study, since the study conducted in 2000 reconfirmed her previous findings, showing that there is a relationship between individuals' WM capacity and L2 oral performance.

Harrington (1992) and Miyake and Friedman (1998) claimed that WM could be a constraint to L2 acquisition. For Harrington (1992), two factors could limit WM functioning in L2: (1) the lack of access to Universal Grammar (UG), since UG principles have different significance in L2 than in L1, and (2) the belief that complex skills, such as the acquisition of an L2, demands higher-level cognitive processing.

According to Harrington's (1992) findings, individuals use extra attentional resources in their working memory capacity when dealing with L2 learning/acquisition processes. According to Miyake and Friedman (1998), an extra load on the system would affect the quality and speed of language acquisition. Their findings showed that L2 acquisition demands greater extent acquisition on WM than does L1.

Ellis and Sinclair (1996) suggested that one of the complex cognitive tasks in the learning of an L2 is dealing with the abstraction and application of rules, since a great amount of attention is required to suppress the learner's L1 rule system. Similarly, Just and Carpenter (1987) claimed that learning an L2 is a

complex cognitive task that takes place mainly when computing syntactic information from successive words, phrases and sentences in a given context.

Moreover, Ellis and Sinclair (1996) claimed that in the acquisition of L2 syntax, individuals with deficits in WM show restriction in the acquisition of syntax not only in L2 but also in L1. These researchers reported that individuals who were prevented from rehearsing L2 phrases while doing a WM test were less efficient in using their metacognitive knowledge to apply syntactic rules and to abstract grammatical regularities from sentences. These individuals were also more predisposed to making mistakes. In the same train of thought, Harrington and Sawyer's (1992) findings showed that higher L2 reading span learners were more successful in the Test of English as a Foreign Language (*TOEFL)* both in the sections related to grammar and vocabulary than lower L2 reading span learners.

Miyake and Friedman's (1998) findings corroborated with Harrington and Sawyer's (1992) by suggesting that there is a strong relationship between the grammatical knowledge of L2 learners and their WM capacity. Miyake and Friedman's (1998) proposed a model in order to see the relationship between working memory capacity and L2 syntactic comprehension, since they recognize that this relationship has an impact on L2 proficiency. According to the study they carried out with Japanese learners of English and English native speakers, learners' individual differences are related to their WM capacity and to their L2 cue preferences. For them, this relationship illustrated the way each learner understands complex sentences in English. They concluded that L2 working memory interferes with both learners' L2 cue preference and syntactic comprehension.

Taking again Fortkamp's (2000) study, which investigated the relationship between WM capacity and L2 speech production, it is important to highlight that this study demonstrated that one of the variables which may influence speech production in an L2 is grammatical accuracy. In her 2000 study, she found a negative correlation between working memory capacity and number of errors in L2 speech production, which led the researcher to conclude that individuals' WM capacity may be a predictor of their level of grammatical accuracy in L2 speech production. Individual differences in working memory capacity have gained great attention in SLA. As Mackey, Adams, Stafford and Winke (2006) wrote: "It's worthwhile to continue to ask the question of how processing capacities like working memory factor into the success of specific approaches to promoting language development such as conversational interaction."

Up to now, only a few SLA researchers have asked themselves on how the big theoretical and measurement questions in the L1 working memory capacity literature may affect measurements in L2 working memory capacity. Ellis (2006) guarantees that a sufficient amount of studies using L2 WM capacity measurements have been accumulated to carry out a meta-analysis. Such an analysis allows researchers to understand how WM capacity has been measured while individuals are performing L2 complex cognitive tasks, and how WM capacity limitations have influenced L2 language attainment.

2.1.3 A systematic research synthesis of L2 WM measurements

Several WM measurements have been proposed in the literature on the

issues of WM and Individual Differences (IDs) in order to evaluate how humans can maintain information for a short period of time and process information efficiently. A great community of researchers has claimed that individual differences in WM capacity play an important role in the performance of activities that involve language comprehension and production (Adams & Garthercole, 2000; Daneman, 1991; Daneman & Carpenter, 1980; Kintsch & van Dijk, 1978; Daneman & Green, 1986; Just & Carpenter, 1992; Fortkamp, 1999; 2000; Scott, 1994; Tomitch, 1996, 1999; among others).

Thus far, only Danemann and Merikle's (1996) study, through a meta-analytic approach, examined the relationships among a variety of L1 WM measurements. Danemann and Merikle (1996) carried out a meta-analysis on 77 studies on individual differences in WM in L1. Their findings showed that the storage plus processing tasks predict individuals' performance in reading comprehension better than in traditional storage tasks only. MacDonald and Christiansen (2002) stated that performance on the WM tasks depends on learners' experience, as WM capacity measurements in L1 may be different in L2, predominantly in reading or listening comprehension tests.

Based on this rationale above, and on Ellis's (2006) suggestion, Watanabe and Bergsleithner (2006) investigated the relationships among WM in an L2, through a systematic research synthesis of L2 WM measurements, by following the question "What are the L2 WM measures actually measuring?" (p. 47). The study was carried out by means of a meta-synthetic approach, and the researchers were the pioneers in the literature in exploring a research synthesis among various L2 WM measurements, which was motivated by: (a) the controversial validity of WM capacity measurements; (b) the current interest in the role of WM in SLA;

and (c) the arbitrary use of L2 WM measurements. Thus, the researchers established a set of strict inclusion and exclusion criteria to maintain only potentially relevant studies in their meta-synthesis (see p. 50-51 for more details). They departed from 242 studies, and after submitting them to the exclusion criteria, they obtained twenty potential studies.

Watanabe and Bergsleithner (2006) investigated the types of tasks for WM measurements in L2. They reported that there are two types of tasks in the L1 and L2 WM literature used for measuring verbal WM: (a) recall tasks, which measure the WM storage-only; and (b) storage plus processing tasks, which tap both storage and processing measurements.

According to Watanabe and Bergsleithner (2006), some researchers who trust in the involvement of phonological STM in verbal activities frequently use a digit, letter, or word span task to measure its limitation. Such measurement is determined by the length of the maximum string of items (digits, letters, or words) one can recall successfully. On the other hand, other researchers use non-word as a recall item so that lexical knowledge will not interfere or facilitate recall (Gathercole & Baddeley, 1990).

However, it was with the work of Daneman and Carpenter (1980) that kinds of WM measurement started changing. Daneman and Carpenter (1980) argue that the storage-only measurements do not depict the function of WM as a computational space where information processing and maintenance occur concurrently (Just & Carpenter, 1992). Based on this idea to measure storage plus processing, Daneman and Carpenter (1980) proposed a memory test - *The Reading Span Test (RST)*, which has contributed to L2 WM studies. The RST taps both WM storage and processing capacity simultaneously. In this test, participants

are required to read a set of sentences aloud and to recall the final word of each sentence within a set. The scores are determined according to the number of words in each sentence one recalls.

Watanabe and Bergsleithner (2006) mention Caplan and Walters's (1999) claim that the storage plus processing measure sets up a dual-task factor that may affect WM capacity by dividing ones' attention, and it does not predict the efficiency of language processing. Caplan and Walters (2003) found out moderate statistically significant correlations among alphabet span[6], backward digit span[7], subtract 2 span[8], running item span[9], simple sentence span[10], and complex sentence span[11]. By means of a positive factor analysis, which was conducted on the five WM spans previously mentioned (two of the sentence span tests were averaged), it was shown that all five measures loaded on one factor accounting for about 66% of the variance. For them, the measurements of WM storage plus processing seemed to reflect the same construct when recalling simple and complex sentences.

Other researchers (MacDonald & Christiansen, 2002), based on a Connectionist Approach, argue that the difference between WM tasks and language processing tasks is irrelevant. For them, both tasks are merely testing the same language processing skills; however, with different demands. They also claim that individuals' performance on such tasks depends on their language experience.

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[6] *Alphabet span*: Individuals repeat and rearrange the words in alphabetical order.
[7] *Backward digit span*: Individuals repeat the presented digits in reverse order.
[8] *Subtract 2 span*: Individuals repeat the digits after subtracting 2 from each digit.
[9] *Running item span*: Individuals recall the final 2-8 items from a list length of 9-17 digits.
[10] *Simple sentence span*: Individuals read, judge grammatical acceptance and recall simple sentence.
[11] *Complex sentence span:* Individuals read, judge grammatical acceptance and recall complex sentence.

Watanabe and Bergsleithner's (2006) meta-synthesis also reports Friedman and Miyake's (2004) test on the validity of the Reading Span Test and suggest that there is no satisfactory explanation for the predictability of the RST. Other storage plus processing measurements, which are used in the literature of L1 WM studies, include the *Listening Span Test (LST*) and the *Speaking Span Test.* The Reading Span Test is similar to the Listening Span Test, although the stimuli are aurally presented in the latter. In this test, individuals listen to a series of sentences and have to recall either the first or the final word in the order they were presented. Some variation of the LST includes recall of an agent or the object of an action.

In addition, the 2006 meta-synthesis also synthesized some studies that measured working memory capacity through the Speaking Span Test, as proposed by Daneman and Green (1986) and Daneman (1991), which taps both storage and processing functions simultaneously under speech production. In this test, after participants read a set of words displayed at the rate of one per second on a computer screen, they are required to recall and pronounce aloud the last word at the end of each set, and to make oral sentences with those words by following the same form and order. The number of words in sets increases as the participant proceeds. By means of the SST, the aspects of oral production such as fluency, accuracy, lexical density and complexity can be measured, depending on the purpose of the study. In the current study, only the aspect of accuracy was taken into account.

WM tests in the L1 processing paradigm are still under debate among researchers as to what the measurements are actually tapping and how valid are those tasks to measure WM capacity. Still, in their 2006 meta-synthesis,

Watanabe and Bergsleithner found out that up to now there are only two studies in the SLA literature that have looked at the relationship between noticing and L2 WM capacity (Mackey et al. 2002; Robinson, 2002a), and four studies that have looked at the relationship between L2 Oral Production and WM (Daro & Fabbro, 1994; Fortkamp, 1999; Payne & Ross, 2005; Payne & Whitney, 2002). More studies on how WM may affect noticing and oral production (or speaking) may be a promising area for further research.

The other studies that the researchers meta-analyzed also carried out research to see the relationship between SLA and WM. However, they looked at different areas, such as reading, listening, interpretation, grammar, vocabulary, and aptitude (Atkins & Baddeley, 1998; Call, 1985; Christoffels et al., 2006; Ellis & Schmidt, 1997; Harrington & Sawyer, 1992; Juffs, 2004; Miyake & Friedman, 1998; Osaka & Osaka, 1992; Papagano & Vallar, 1995; Robinson, 2002a; Scott, 1994; Williams & Lovatt, 2005; Yoshimura, 2001). There have not been any studies that have looked at the relationship between L2 WM and L2 writing that followed the researchers' inclusion and exclusion criteria. Thus, more studies on how WM may affect writing could also be a promising area for further research.

In addition, the 2006 meta-synthesis findings revealed that researchers have recently used WM capacity in the literature as a predictor of learning in L1 and L2. Although researchers working on L1 studies have been debating the construct validity of the WM tasks, many L2 researchers do not seem to be aware of what they are measuring when using WM. Some studies overall results have shown that measuring WM capacity in L2 tends to measure L2 proficiency and not WM capacity per se. In this sense, WM cannot be considered as a predictor of learning only, but it should also be considered as a predictor of language

proficiency in L2. Some researchers have equivocated themselves in the way they measure WM capacity. Instead of measuring storage plus processing, they measure storage only, or sometimes recognition, rather than storage plus processing, and recognition tasks are less cognitive demanding than storage plus processing tasks. Thus, much research on this issue is needed (Watanabe & Bergsleithner, 2006).

Furthermore, the limited report of descriptive statistics and the lack of information on the estimated reliability of the WM measurements in the studies did not allow the researchers to estimate the range of possible WM scores and the reliability for each measurement. Only five out of twenty studies have reported reliability (Scott, 1994; Yoshimura, 2001; Robinson, 2002a; Payne & Whitney, 2002; Williams & Lovatt, 2005), and only three of eighteen have reported participants' proficiency level using standardized tests[12] (Harrigton & Sawyer, 1992; Juffs, 2004; Mackey et al., 2002).

In sum, Watanabe and Bergsleithner (2006) concluded the meta-analysis by saying that a huge variability was detected on the relationship between L1 and L2 storage plus processing measurements. Storage plus processing involves sentence level stimuli, requiring a greater cognitive load to process L2 information than in storage-only measurements. Moreover, the greater load that language processing puts on the WM system affects the quality and speed of language processing. To conclude, these researchers suggested further investigation on how language proficiency is mediating the performance on the L2 WM measurements.

[12] *Standardized tests* stand for proficiency tests such as TOEFL and Michigan Test of English Language Proficiency.

2.1.4 Episodic Memory

Another aspect of memory that is important for the present study is *episodic memory* since it is related to the ability the individuals have to remember the target structure they were supposed to notice in the input of the treatment.

Episodic memory is the process involved in remembering past events. It refers to exclusive and personal experiences we have registered in our memory that can remind us of any event in the past, as for example, our first day at school, the day we got the first job, the day we met our boyfriend or husband, the day we bought our first car, among many other private situations (Cowan, 1988).

Episodic memory is thus related to our ability to remember events in our daily life personal experience and to acquire specific facts after reading a book, a newspaper, or watching news on TV. It is also related to our ability to rapidly acquire new memories. In general, these memories encode who did what to whom, where and when. Thus, episodic memory is closely related to the self and consciousness. Studies on episodic memory are usually concerned with the relationship between memory and consciousness (Cowan, 1988).

2.1.5 Retrospective accounts

In addition to episodic memory, another aspect of memory was adopted for the current study: the *retrospective accounts*[13], since they are related to the

[13] The theoretical term *retrospective accounts* is also known as stimulated recall or postprocess oral observation (Gass & Mackey, 2000). "Stimulated recall is one subset of a range of introspective methods that represent a means of eliciting data about thought processes involved in carrying out a task or activity" (Gass & Mackey, 2000, p.1)

recalling of noticing. Both episodic memory and retrospective accounts may contribute to the process of retrieving the target structure in the oral protocol so as to assess individuals' noticing (see Section 3.5.3.1, and Section 3.6.4).

The theoretical term retrospective accounts was chosen by this researcher based on the theoretical term *retrospective verbal reports*, as suggested by Ericsson and Simon (1993). Gass and Mackey (2000), based on Ericson and Simon (1987), claimed that "verbal reporting is a special type of introspection and assumes a model of information processing described by Ericson and Simon" (p. 11). According to Gass and Mackey (2000), Simon (1987) claimed that:

> To obtain verbal reports, as new information (thoughts) enters attention, the subjects should verbalize the corresponding thought or thoughts … the new incoming information is *maintained* in attention until the corresponding verbalization of it is completed (p. 32) .

Further, Ericsson and Simon (1993, p. xi) cited Anderson (1987) to state that "current and retrospective verbal reports are now generally recognized as major sources of data on subjects' cognitive processes in specific tasks." For Ericsson and Simon (1993), verbal accounts are elicited by asking a specific question to an individual. The individual has to understand the question he is required to answer and he has to further retrieve[14], from the huge amount of information in long-term memory, the target information required by the task. In a previous study, Ericsson and Simon (1980) recommended that stimulated recall should be carried out immediately after the event and should use a strong stimulus.

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[14] *Retrieve/retrieval* refers to the access of the information by recognition or recall, or implicitly by demonstrating that a relevant task is performed more efficiently as a result of prior experience (Baddeley, 2004, p. 7).

Taking again Ericsson and Simon's (1993) study, they claimed that we cannot reject the possibility that the information retrieved by subjects during verbal reporting is different from the information that subjects retrieve when performing the experimental task. Based on this assumption, the researchers suggested that there is a need to avoid the access of information at two different times. They considered the first time as the real cognitive processing, and the second as the time of report. Thus, the solution they propose for this problem is that concurrent verbal reports should be collected whenever possible, so that processing and verbal report coincide in time.

Moreover, Ericsson and Simon (1993) standardized a method for the individuals to verbalize their thoughts by means of think-aloud protocols. Through this method, individuals are able to verbalize thoughts on what they are attending or paying attention to. When individuals are performing a task and verbalizing their thoughts at the same time, they just verbalize the information they rely upon to create an answer; however, they do not explain or describe what they are doing.

In contrast, other kinds of protocols require subjects to explain or describe in details what they are doing. The same researchers found that when subjects receive a kind of instruction to verbalize their thoughts as compared to a silent control condition, they have some changes in the accuracy of performance because of the instructional treatment. That is, through treatment, learners may pay attention to form rather than with no kind of instruction.

Furthermore, Ericsson and Simon (1993) claimed that some oral protocols require unconscious processes while others require conscious processes, depending on the task and on the time it is required. At the time of the verbal

reports, individuals report facts of incoming attention or conscious processes in reply to precise cues. These researchers claim that, "to obtain verbal reports, as new information (thoughts) enters attention, the subjects should verbalize the corresponding thought or thoughts…the new incoming information is maintained in attention until the corresponding verbalization of it is completed" (Ericsson & Simon, 1987, p. 32).

On the other hand, when post-experimental interviews are applied with delayed oral protocols without any kind of specific cues, the course of recall is much more difficult to be processed because of memory limitation. Sometimes the information necessary to retrieve has vanished from long-term memory and is nearly impossible to recall. However, if any of the required information is recalled after a longer period of time rather than the current time of the report, then, it can be said that learning of that specific feature actually happened (Ericsson & Simon, 1993).

2.2 Noticing

According to Schmidt (1990), the role of conscious and unconscious processes has been a controversial issue in the mainstream SLA research field. The crux of his claim in his *Noticing Hypothesis Theory* is that second language learners need to notice second language linguistic aspects when receiving input[15] in order to acquire them. L2 learners also need to have some conscious understanding of how structures are organized in a given context. In other words,

[15] *Input* means potentially processable language data which are made available to the language learner (Sharwood-Smith, 1994).

the theory presupposes that learners have to be able to, or be inclined to notice some linguistic aspects of the L2. Moreover, Schmidt (1990, 1995) assumes that some aspects of the input[16] can be transformed into intake[17] by means of noticing, thus leading learners to produce the L2 more accurately.

To address this topic, Schmidt (1990) highlighted the importance of awareness during the learning process. He distinguished awareness into three different levels: (1) *perception*, which refers to the mental organization of external events into internal representations; (2) *noticing*, which occurs when something is attended to, to the extent that it is available for verbal report; and (3) *understanding*, which shows "recognition of a general principle, rule or pattern" (Schmidt 1995, p. 29).

In the present study, the main issue to be discussed is awareness at the level of *noticing*, since Schmidt (1995) has used the theoretical term *noticing* in order to mean the occurrence of some event by means of conscious registration. He believes that noticing plays an important role in SLA, since once learners notice linguistic aspects in the input, input can be transformed into intake. For Schmidt (1995, 2001), learners are able to notice not only formal aspects of the L2 but also other linguistic aspects in different levels, such as noticing in: (1) sequence of learning (the order of words and chunks in utterances); (2) vocabulary (lexical items and how they are used in different categories); (3) syntax (the order of words and the meanings they are associated with); (4) morphology - *both derivational and inflectional* – (the forms of morphemes and their meanings); and

[16] Part of input that has been processed by the learner and turned into some kind of knowledge (Sharwood-Smith, 1994).

(5) pragmatics (the linguistic form of utterances and the relevant social and contextual features with which they are associated) (Schmidt, 2001, p. 30-31). Schmidt (2001) claimed that just exposure to input is not enough for learning to take place. Noticing is a necessary condition for the acquisition of L2 formal aspects.

Moreover, Schmidt (1990) admitted that there are a diversity of terms for what he calls noticing, including *focal awareness* and *episodic awareness* (Schmidt, 1990, p. 132, based on Atkinson & Shiffrin, 1968; Allport, 1979, respectively). For him, "noticing refers to private experience, although noticing can be operationally defined as availability for verbal report, subject to certain conditions" (Schmidt, 1990, 132).

In his 1990 study, Schmidt reviewed some theories of consciousness so as to check whether they attempt to explain what he has called noticing. One of the theories was proposed by McLaughlin's (1983), which is one of the information processing theories. According to Schmidt (1999), this theory among others relates consciousness to attention. In this sense, attention is a control process that transfers information into noticing (focal awareness). Most information processing theories view attention as a filter or gate that selects information from complex input. In addition, "most theories assume that skilled behaviors begin as controlled processes and gradually become automatic practice" (Schmidt, 1990, p. 136).

In a further study, Schmidt (1992) cited Anderson to claim that a new domain of knowledge (such as second language learning) starts with declarative knowledge (propositional), which becomes procedural through practice (Ellis & Schmidt, 1997). In Schmidt's (1992) words, "this initial stage must also

encompass examples in which learners produce linguistic forms by self-discovered rules of thumb or by analogy with known forms" (p. 361).

Another relevant information processing theory that Schmidt (1990) reviewed is Baars' theory (1983, 1988), which incorporates many of the consciousness notions contained in other theories. Barrs' (1983) concept of consciousness is explained through the following metaphor:

> consciousness is not a powerful executive, but a broadcasting station that accepts input from various sources and provides information to a large number of viewers. Conscious experience results when interaction between an input pattern and unconscious contextual constraints results in a coherent and stable representation that is then displayed to any processor that can make use of it (Baars, 1983, p. 72, as cited in Schmidt, 1990, p. 137).

In addition, the crux of Baars' (1988) theory is that conscious experience is always informative. In other words,

> Learning begins with the realization that something is to be learned, progresses through a series of stages that establish a context for understanding new material, and concludes with the new material fading out of consciousness as it becomes itself a part of the unconscious context that shapes the interpretation of future events (Schmidt, 1990, p. 138, based on Baars, 1988).

Up to now, theories of information processing have associated consciousness with a variety of constructs such as attention, control processing, and working memory. Schmidt (1990) said "all theories of consciousness specify a crucial role for consciousness in dealing with novel information, novice behavior, and learning" (138).

Based on this assumption, attention to the input is crucial for storage and a pathfinder to hypothesis formation and testing (Schmidt, 2001). This assumption may be related to what Schmidt and Frota (1986) and Doughty and Williams (1998) proposed by *noticing the gap*, that is, when learners notice gaps in their interlanguage[18] during speech process, for example, they can realize the right form of a word, phrase or sentence (if they have already noticed it in input) or at least recognize that there is something wrong with their utterances, if they do not know how to correct it. Therefore, attention or awareness at the level of noticing is crucial to the input of linguistic aspects.

Schmidt (1995) states that both attention and awareness consist of the same kind of process, and he claims that awareness is important at the precise time of learning. His idea of noticing is related to explicit knowledge or explicit learning within implicit teaching or implicit instruction, through interaction among people, without any kind of teacher's grammar rules explanations (Schmidt, 2006, in a personal communication; see Schmidt & Frota's (1985) study).

Based on this claim, that L2 learning is essentially conscious, Schmidt (1995) criticized Carr and Curran's (1994) and Tomlin and Villa's (1994) findings when they state that learning can take place without noticing and awareness. These researchers' findings mirrored an ongoing controversy over Schmidt's theory, since their findings reflected diverging positions. Schmidt claimed in his Noticing Hypothesis that conscious registration at the level of "noticing" is necessary for L2 learning. In contrast, Tomlin and Villa (1994) claim that individuals learn on the basis of detection, but, for them, detection does not

[18] Interlanguage means "the kind of language produced by second- or foreign-language learners who are still learning the language" (Tsui, 1995, p. 114).

require awareness. Tomlin and Villa (1994) suggested a more neutral word for conceptualizing noticing, that is, *registration*.

Like Schmidt (1990, 1995), Robinson (1995, 1996) refuted Tomlim and Villa's (1999) ideas, conceptualizing noticing as cognitive registration and distinguishes the terms detection and noticing based on the description of awareness. Following Schmidt's concept of noticing, Robinson (1995) defined his concept of noticing as "detection plus rehearsal in short-term memory, prior to encoding in long-term memory" (p. 296). This researcher also described data-driven processing as stimuli encoded in small pieces and later assembled in working memory. Moreover, he distinguished noticing from detection and also agreed with Schmidt's contention that there is no learning without noticing.

Robinson (1995) proposed a framework[19] in order to measure noticing by means of a yes/no questionnaire, which elicits three levels of awareness. It asks participants whether they: (1) notice any rules; (2) look for rules; and (3) can verbalize the rules. I also agree with Schmidt and Robinson's claims that there is no learning without noticing. Robinson's (1996) concept of noticing that detection in addition to rehearsal in short-term memory precedes encoding in long-term memory combines Ellis and Schmidt's (1997) claim that frequency effects in the input benefit learners in their second language acquisition process.

Although I side with Schmidt's proposal as presented in his claim of the Noticing Hypothesis, I have conceptualized the registration of noticing in a different way in the current study, by means of teachers' formal instruction, since I also believe that noticing may also happen on different registrations, that is, when individuals are given implicit or explicit teaching. Schmidt (1990, 1995)

[19] Robinson's (1995) framework was adopted in the present study and is dealt with again in Section 3.5.1.3.1.

believes that noticing happens naturally in the input without explicit grammar treatment (see Schmidt and Frota (1986) for a better understanding of noticing).

Up to now, there has been a misunderstanding of the Noticing Hypothesis by many researchers in the SLA research field. Schmidt's (1990, 1995) whole idea of noticing (based on his own experience of learning Portuguese as an L2 in Brazil, see Schmidt & Frota, 1986) assumes that conscious learning (explicit learning or explicit knowledge) takes place through exposure to input in communicative interaction. His noticing proposal relates to inductive teaching. Definitely, it is not related at all to explanations in language classes or explicit teaching. He pointed out that once you are taught something explicitly in class it is more likely that you will notice it in the input of subsequent communicative interaction input than in the teacher's grammar explanations input (Robinson, 1997; 2002a; Schmidt, 2005, 2006, in personal communications).

Furthermore, Schmidt (1990, 1995) never said that the mechanism of noticing may occur in the output, as Swain (1995, 1998) proposed in her claim of the Output Hypothesis, in which she emphasized the importance of output besides input processes for language acquisition to take place. Swain (1995, 1998) hypothesized that output promotes noticing, that is, learners may notice a form in the target language (TL) when they produce the L2. This idea is in contrast with Schmidt's and my notion of noticing, since Schmidt and this researcher believe that noticing is registered in the input only, and not in the output (see the debate in this researcher's discussion in Section 4.3, RQ4, regarding noticing in the input and in the output).

The second different occasion of noticing concerns the noticing which I assume occurs in the second language learning process. Noticing is forced or

provoked by means of treatment or teachers' instruction. This idea of noticing corresponds with that of R. Ellis's (1993, 1994, 1999). For him, noticing and awareness of L2 formal aspects may occur during instruction.

In the current study, I used a kind of treatment of a specific grammatical rule in order to provoke participants' noticing because this study was an experimental study in a language laboratory (see more details for the treatment in Section 3.5.2). Thus, noticing was not taken here as the cognitive process that takes place within communicative interaction among individuals, as proposed by Schmidt (1990, 1995), and by Schmidt and Frota (1986). Although the two occasions of noticing are different, I assume that both occasions are possible for consciously registering noticing.

In light with the above discussion, and for the purposes of the present study, *noticing is a psychological construct conducted by working memory capacity. Through noticing, learners can register linguistic input in instructional and/or non-instructional constructs. In addition, noticing is also related to sustained performance.*

Based on this researcher's assumptions, noticing may lead to language development and may be evidence of L2 learning. It can be measured through on-line or off-line processes. On line processes may be directly measured in the input by means of think-aloud protocols while offline processes may be indirectly measured by means of retrospective accounts through oral protocol also, as proposed by this researcher (see Section 3.6.4).

Robinson (1995, 1996a, 1997, 2001, 2002a, 2002b; Mackey et al., 2002) suggested that one of the variables that influences second language acquisition is noticing, which is commanded by the central executive and also constrained by

limitations of the working memory capacity (N. Ellis, 1994; N. Ellis & Schmidt, 1997; Schmidt, 1992). Like Schmidt, Robinson (1995, 1996) claims that noticing may help learners to acquire a second language. Mackey et al. (2002) investigated the relationship among individual differences in working memory, noticing of interactional feedback, and L2 development. The study attempted to investigate working memory capacity and noticing within oral interaction between the teacher and the learners. This study distinguishes from the majority of studies in the literature that have measured these two cognitive variables in controlled laboratory settings or in verbal protocols. The researchers' findings suggest that those learners who have a larger WM capacity (higher spans) tend to notice more linguistic aspects during interactional feedback rather than the lower spans.

Based on the findings above, learners acquire L2 rules and grammatical structures regarding the amount of attention they deliver to input. Different L2 learners will notice different aspects when receiving language input. One learner may notice form, a second may notice phonological aspects, a third may notice vocabulary, and a fourth may notice form, meaning, and function relationships (Schmidt, 1995). This difference in noticing probably happens according to learners' motivation, interest or grammatical sensitivity (Schmidt, 1995, 2001). Humans present differences in noticing, that is, some people notice more than other people. These differences may also be related to individual differences in working memory capacity and to the attentional resources individuals have available to perform complex cognitive tasks (Mackey et al., 2002; Robinson, 1995, 1996a, 1997, 2001, 2002a, 2002b).

Some empirical studies suggest that awareness (at the level of noticing) of L2 formal aspects may benefit individuals' accuracy in oral and/or written

production. Leow (1997), for instance, examined the relationship between awareness and written production. His study, on the role of awareness, investigated the human attentional system and its effects on L2 behavior, showing that differences in learning could be accounted for in terms of different levels of awareness. In his study, Leow (1997) concluded that the higher the level of awareness, the better the processing, which enhances more recognition and accuracy in written production. Leow (1997) defined noticing as "some form of subjective awareness of new targeted linguistic forms in L2 data as revealed in learners' think-aloud protocols produced while completing a problem-solving task" (p. 474).

Tarone's (1983, 1985) findings reveal that paying attention to speech production has an impact on learners' accuracy. Her 1983 study shows that performance can vary as a result of different degrees of attention, which are influenced by the degree of formality of the L2. On the other hand, in her 1985 study she claims that a good performance could be achieved as a consequence of attention to language use and as a function of discourse demands.

As regards oral production, Bergsleithner and Mota (2005) investigated the relationship between attention and L2 speech production. After participants received a treatment on some L2 formal aspects, the researchers carried out an interview in which the participants had to verbalize rules as well as to orally produce two sentences by using the rule they were taught. Thus, awareness was measured by means of verbalization of rules (Robinson, 1996a, 2001), and by the accuracy of the sentences they produced. The results indicated that learners who consciously paid more attention to the instructional treatment were more aware of L2 formal aspects, and thus they can more accurately perform L2 oral tasks.

Moreover, another aspect related to noticing that is important for the present study is *uptake*, since noticing was accessed by means of uptake in this study (see Section 3.6.4). The theoretical term *uptake* refers to what learners claim to learn from a particular lesson focused on a specific grammar topic (Loewen, 2004). It is also evidence of noticing, that is, of what learners have noticed or attended to during their teacher's grammar explanation. It also shows learners' awareness and reflection upon what they are studying (Palmeira, 1995; Slimani, 1989, 1992).

Sometimes the theoretical terms noticing and uptake overlap, but they do not tap the same construct. Noticing is an on-line process that requires explicit knowledge of linguistic aspects in the input under the focus of attention and consciousness. Uptake requires explicit knowledge about rules (metalinguistic knowledge), that is, knowledge and awareness of grammatical rules and terminology. In other words, noticing refers to the cognitive process that registers any linguistic information present in the input, whereas uptake is more related to the recall of what was noticed since it requires verbalizable or reportable knowledge from the rule, which may probably be in long-term memory.

2.3 L2 oral production and models of oral production in L1 and L2

In this section, I will briefly review Levelt's model of L1 speech production and its adaptations to the L2.

Levelt's (1989) L1 model suggested that oral production is organized in three components: (1) the *conceptualizer*, which generates the pre-verbal message

after the speaker has a communicative intention, and then proceeds into the elaboration of speaking. For Levelt (1989), two kinds of concepts take place in the conceptualizer: planning: (a) *macro-planning*, which consists of selecting a particular information content, choosing levels of directness and politeness to speak by bearing in mind some communicative goals and sub-goals and by retrieving information in order to achieve such goals; and (b) *micro-planning*, which consists of bringing information into perspective by assigning issue, and of making decisions about the right form of the message for allocating each chunk of information.

According to Levelt (1989), these two conceptual planning happen in the order previously mentioned, since the second starts just when the first finishes. When the conceptualizer has just produced the preverbal message, then the conceptualizer is prepared to go to the next component (the input of formulator); (2) the *formulator*, in which the preverbal message is translated into a linguistic structure, which is proceeded in two steps: grammatical encoding and phonological encoding. The former consists of lemmas (semantic information) and syntactic building procedures (such as phrases and sentences). For Levelt (1989), lemmas are stored in the mental lexicon, since a lemma contains concepts for each word.

Moreover, after a conceptual structure is activated in the preverbal message, a syntactic category is selected by means of the activation of the syntactic procedures. The phonological encoding consists of lexemes and of a phonetic plan or internal speech. In other words, phonological encoding has as its function to retrieve a phonetic plan for each lemma as well as for the whole utterance. Its prevailing role is to plan how words or sentences will be articulated.

Then, it is the output of the formulator that will be the input of the articulator, (3) the *articulator*, which is responsible for "the execution of the phonetic plan by the musculature of the respiratory, the laryngeal, and the supralaryngeal systems" (Levelt, 1989, p. 12). In fact, before execution takes place, the phonetic plan that comes from the formulator (lexeme) needs to be stored in the *Articulatory Buffer*, which is a storage device. The articulator is responsible for retrieving sequential chunks of internal speech from this buffer by elaborating them for speech production to take place.

Finally, the fourth component of the system is the *Speech-Comprehension System*, which is responsible for monitoring the speaker's internal and overt speech. Monitoring, which may take place at all phases of the speech production process, allows speakers to contrast what they have intended to say to what they linguistically executed.

The Speech-Comprehension System component involves an *Audition* processing component, whereby, speakers may attend to their own internal speech (Levelt, 1989). This claim assumes that parsed internal speech is maintained in working memory. Consequently, by detecting problems in his internal speech, the speaker can presumably correct him/herself (Levelt, 1983, 1989). Thus, the speaker may probably control this monitoring process both in his internal and overt speech.

It is important to highlight that in Levelt's (1989) speech production model (the blueprint model in the literature) working memory is fundamental for the process of speech production. In other words, working memory has as its role to store transitional representations of messages and make those messages accessible for further processing to take place. For Levelt (1989), the information that is

currently accessed and manipulated by the speaker is placed in working memory, which determines the degree of attention that different aspects of such information will receive. Working memory, therefore, has an important role since it is the limited capacity resource at play in both conceptualizing and monitoring. This proposal is in line with Cowan's (1988, 1995) idea that individuals have limitation in their attentional resources. The next paragraph shows how speech is processed by bilinguals.

Green's (1986) bilingual speech production model (the first model to L2) explains the performance of normal as well as brain-damaged patients in an L2. This model explains that bilingual brain-damaged patients might lose command of one language but not both languages. For Green (1986), L1 and L2 speech plans are arranged in separate subsystems. Thus, Green suggests the mechanism of activation and proposes that this mechanism may activate the language the speaker will use. On the other hand, the language which is not selected can be also activated; however, to a different degree of activation.

The pervasive bilingual model in the Oral Production issue is the model proposed by De Bot (1992), which was an adaptation of Levelt's (1989) model to L2. De Bot (1992) hypothesizes that the speaker needs to choose which language to use before actually starting to encode the message. For De Bot, this decision takes place in the conceptualizer, by assuming that macro-planning is language-specific and micro-planning is language-independent. De Bot's model suggests that L1 and L2 lexical items make part of the same conceptual network, though they are stored in different subsets. He assumes that the articulator is language-independent, which means it contains syllable programs and patterns for both languages.

Poulisse (1994) stated that a factor which could influence L2 speech production model building concerns how speakers manage to separate two languages (L1/L2). This researcher presented some characteristics of second language production, such as L2 knowledge is incomplete, L2 carries traces of L1, and also L2 is more hesitant (repetitions, corrections and filled pauses). Poulisse and Bongaerts's (1994) model assumed that the speaker specifies his language choice in the *conceptualizer*, and that there is only one store for L1 and L2 words. Lemmas are tagged and selected through a spreading activation process. In a similar way, there is only one store for L1 and L2 lexemes, which are tagged for language use.

In order to sum up these L2 models, it can be said that the model proposed by Green (1986) helps our understanding of the L2 speech process in that this researcher incorporates a mechanism of activation to explain lexical access and search by mentioning the importance of control as a key feature for avoiding speech disruptions.

On the other hand, De Bot (1992) presented the whole process in a rather uneconomical manner (Poulisse, 1994). This researcher gives a detailed account of the L2 speech process and elucidates how we can account for phonological interference by proposing the existence of one articulator in which all sounds are stored. Last, Poulisse and Bongaerts (1994) incorporate De Bot's supposition that language choice occurs at the level of the *conceptualizer*. However, lexical access and search happens in an activation spreading manner, an idea that is in line with Green's (1986).

Up to now, this review on Oral Production Models seems to be important for our understanding in language information processing underlying speech

production. However, it is not the oral production models per se which are the most relevant for the current study. In fact, the most relevant discussion here is the relationship among the variables of this study during speech processing: (a) the relationship between working memory (WM) and oral production (OP); (b) the relationship between noticing (N) and oral production (OP); (c) the relationship between N and WM; and (d) the relationship among the three variables: WM, N, and OP. Therefore, the issue that is in discussion here is related to how these three variables interrelate when L2 learners speak and how these variables affect accuracy in oral performance.

Fortkamp (2000) suggested that individuals with a larger working memory capacity coordinate better the cognitive processes involved in L2 oral production. She advanced the proposal that these individuals have a larger amount of attentional resources to be shared between the macro-processes of speech. In her 2000 study, Fortkamp conceptualized L2 speech production as a complex cognitive task which demands regulation and control of the individual's attentional resources.

According to Fortkamp (2000), individual differences in WM capacity are related to (a) fluency, (b) complexity, (c) accuracy, and (d) lexical density. Her results showed that individuals with a larger WM capacity are more fluent, speak with more grammatical complexity, more accuracy, but less lexical density. Also, this researcher suggests that there is a trade-off effect among these four aspects: fluency seems to increase according to the degree of complexity, while gains in these two aspects indicate losses in accuracy and richness of vocabulary. Moreover, there seems to be a conflict between fluency and accuracy which can

be the result of learners' difficulty in having to regulate attention for fluency and formal aspects at the same time (Skehan, 1996, 1998).

In this sense, the *Noticing Hypothesis*, as proposed by Schmidt (1990), could be elucidative for the losses in accuracy, since it proposes that the acquisition of L2 formal aspects depends on the degree of attention that the learner dispenses to such formal aspects during the acquisition process. For Schmidt (1990, 1995), when learners notice L2 formal aspects in the input, they acquire them. Thus, L2 forms become part of their interlanguage and these may be accessed or retrieved automatically for use. Then, the conflict between fluency and accuracy could be minimized (Skehan, 1996, 1998). Thus, individuals' attentional resources could be freed for other aspects of oral production, such as lexical density for example, and accuracy could be improved.

2.3.1 Accuracy

Several studies on the speech production literature suggest that humans vary in their performance of L1 and L2 speech production due to their working memory capacity (Daneman, 1991; Daneman & Green, 1986; Fortkamp, 1999, 2000). These studies have shown that individuals with a higher working memory capacity tend to perform better than those with a lower working memory capacity in various aspects of speech production. The current study aims at contributing to the literature by focusing one aspect of L2 speech production: accuracy.

In general terms, the term *accuracy* in SLA is generally defined as "the concern for the formal correctness in terms of specific language items" (Brumfit,

2000). Accuracy, therefore, concerns form but is distinct from grammatical complexity. For some researchers (Foster & Skehan, 1996, for example), the assessment of accuracy is strict to precise grammar aspects, that is, without any type of error no matter what language is being used.

In contrast, complexity highlights the organization of grammatical structures in utterances and draws attention to language use with more elaboration and sophistication of language pattern used by the speaker. It is, in fact, the result of a more elaborated language, that is, a language that presents sentences with more subordinate clauses and includes s-nodes in tensed and untensed verbs (Crooks, 1989; Foster & Skehan, 1996).

However, this study proposes a distinct concept of accuracy. The concept of accuracy here seems to reflect correctness in the target structure only. Such aspect of accuracy requires processes involved in the grammatical encoding of the message, which are those processes that take place in the formulator component of Levelt's model (1989). These processes are supposed to occur automatically in L1, and they seem to require controlled processing activity for their formulation in L2 (Fortkamp, 2000). The next chapter presents the method chosen to collect and analyze data in the current study.

CHAPTER 3

METHOD

Introduction

The current chapter first presents the purpose of the study, which is followed by (a) the research questions that guided this study; (b) the research hypotheses derived from each particular research question; (c) the rationale for the research hypotheses; (d) the participants of the study; and (e) the procedures for selecting participants. This chapter also presents (f) the instruments, materials, and equipments; (g) the design of the study, which is followed by the data collection procedure for each phase of the study; (h) the data analysis design, which is followed by the statistical choice for the data analysis; and (i) the assessment of each variable of the present study - working memory capacity, noticing, and L2 oral performance of the target structure - in order to analyze the data. Finally, the last section of this chapter presents the pilot study which was carried out prior to the current study.

3.1 Research questions and hypotheses

The general objective of this study was to investigate the relationship among working memory capacity, noticing, and L2 oral performance. Five research questions and seven hypotheses guided and motivated this study:

(1) Are there relationships among individual differences in working memory capacity, noticing of L2 forms, and L2 oral performance?
(2) Is working memory capacity related to noticing?
(3) Is working memory capacity related to L2 oral performance?
(4) Is noticing related to L2 oral performance?
(5) Is accuracy in oral performance of the target structure statistically different in the pretest phase and in the posttest phases? If so, is this difference related to working memory capacity and/or noticing?

From the five research questions, seven hypotheses follow. The rationales for the hypotheses are also presented.

Hypothesis 1 is related to Research Question 1. There are statistically significant relationships in working memory capacity, noticing of L2 forms, and L2 oral performance. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, notice more L2 formal aspects and demonstrate more accuracy in performing the L2 oral tasks using the target structure, while individuals with smaller working memory capacity, as measured

by the Speaking Span Test, notice fewer L2 formal aspects and make more inaccuracies in using the target structure and performing the oral tasks.

Hypothesis 2 is related to Research Question 2. There is a statistically significant relationship between working memory capacity and noticing. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, have more attentional resources available to notice L2 formal aspects when receiving L2 linguistic input.

Hypothesis 3 is related to Research Question 2. There is a statistically significant relationship between working memory capacity and noticing. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, have more ability to filter[20] what was noticed -- *the target structure* -- in their episodic memory as well as to activate this information in their long-term memory.

Hypothesis 4 is related to Research Question 3. There is a statistically significant relationship between working memory capacity and L2 oral performance. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, demonstrate better accuracy in performance of L2 oral tasks.

Hypothesis 5 is related to Research Question 4. There is a statistically significant relationship between noticing and oral performance. Individuals who

[20] *Filter* here, as mentioned in the Review of Literature, means selecting the linguistic information that was noticed – the target grammar structure, in this case.

notice more L2 linguistic aspects demonstrate better performance in the target structure in the L2 oral tasks in the two posttests.

Hypothesis 6 is related to Research Question 5. There is a statistically significant difference in accuracy in oral performance of the target structure in the pretest compared to the accuracy in the posttests. This difference in accuracy of oral performance of the target structure in the three test conditions (one pretest phase, and two posttest-phases) is related to working memory capacity and noticing. Thus, individuals with a larger working memory capacity, as measured by the Speaking Span Test, notice more L2 linguistic aspects when receiving L2 linguistic input, thus being more accurate in performing oral tasks.

Hypothesis 7 is related to Research Question 5. There is a significant improvement in accuracy in the performance of the target structure in the pretest phase compared to the immediate posttest phase after treatment. However, there is some weakening of accuracy in oral performance of the target structure in the delayed posttest compared to the immediate posttest due to the difficulty of maintenance of the target structure. The maintenance is related to subjects' working memory capacity and noticing.

3.2 The rationale for the research hypotheses

Rationale for Hypothesis 1. This hypothesis relates relationships between working memory capacity and noticing (Mackey et al., 2002; Robinson, 1995,

1996a, 1996b, 1997; Schmidt, 1990, 1995), and relationships between working memory capacity and L2 oral production (Daro & Fabbro, 1994; Fortkamp, 1999, 2000; Payne & Ross, 2005; Payne & Whitney, 2002). Thus, it aims at investigating whether there are relationships among working memory capacity, noticing, and accuracy of the target structure in the performance of oral tasks. In addition, this hypothesis tries to investigate whether individuals differentiate among themselves because of those variables above. In other words, this hypothesis seeks for finding out correlations among the variables and look for differences among individuals, because of the three variables mentioned above.

Rationale for Hypothesis 2. This hypothesis entails individual differences in attentional resources and WM capacity (Cowan, 1998; Engle, 1999; Fortkamp, 2000; Harrington, 1992; Harrington & Sawyer, 1992; Miyake & Friedman, 1998; Robinson, 1995, 1996, 1997, 2001, 2002; Schmidt, 1990, 1995; Tomitch, 1999). The individual differences in humans because of these two cognitive variables (working memory capacity and noticing) lead individuals to notice more of the incoming linguistic information they receive in the input (Mackey, Adams, Stafford, & Winke, 2006; Mackey, Philp, Fujii, Egi, & Tatsumi, 2002; Skehan, 1998, 2002).

Rationale for Hypothesis 3. This hypothesis regards the recall of noticing by means of uptake (Loewen, 2004; Palmeira, 1995; Slimani, 1989, 1992). The participants were asked to answer some questions as well as to perform a brief oral task by using the target structure in order to see whether they noticed the target structure in the treatment, and whether they could further recall it (Ericsson

& Simon, 1993; Gass & Mackey, 2000). Thus, this hypothesis aims at assessing noticing, by means of an indirect way of measuring noticing.

Rationale for Hypothesis 4. This hypothesis implies individual differences in oral performance due to individual differences in their working memory capacity (Daro & Fabbro, 1994; Fortkamp, 1999, 2000; Payne & Ross, 2005; Payne & Whitney, 2002). Basically, this hypothesis aims at assessing the participants' working memory capacity and grammatical accuracy in oral performance of the three oral tasks showing whether individuals with a larger working memory capacity perform oral tasks more accurately than individuals with a smaller working memory capacity (Bergsleithner, 2005; Bergsleithner & Mota, 2005; Fortkamp & Bergsleithner, 2007).

Rationale for Hypothesis 5. This hypothesis is concerned with the Noticing Hypothesis, as proposed by Schmidt (1990). The hypothesis is that individuals would perform better in the oral tasks after noticing linguistic aspects in the input (Mackey et al., 2006; Mackey et al., 2002; Robinson, 1997; Schmidt, 1990, 2001; Skehan, 1998, 2002). Thus, in this hypothesis grammatical accuracy in the performance of the oral tasks was assessed in order to see whether those participants who notice the target structure more perform better as a consequence of noticing.

Rationale for Hypothesis 6. This hypothesis is related to the assessment of accuracy before and after treatment (Brown, 1988; 2005; Norris, Brown, Hudson, & Yoshioka, 1998). More explicitly, it concerns the participants' ability to notice

the target structure during treatment commanded by their working memory capacity, and further perform oral tasks with grammatical accuracy (Skehan, 1998).

Rationale for Hypothesis 7. The last hypothesis is related to the processes of recall, retrieval and maintenance of the target structure (Baddeley, 2004; Cowan, 1988), since the hypothesis scrutinizes whether the participants are able to make indirect questions in the delayed posttest, that is, two weeks after receiving the instructional treatment, and whether grammatical accuracy lasts for a long period of time (Ericson & Simon, 1987; Gass & Mackey, 2000).

3.3 Participants

This study was carried out with a group of 30 intermediate English students, who were all native speakers of Portuguese learning English as a Foreign Language (EFL). The participants ranged in age from 18 to 43 years, with a mean of 25, being 17 male and 13 female. They came from two different groups, group A and group B, although from the same university. Group A had 18 participants from the second semester of the Undergraduate English *Letras Program*, at the *Universidade Federal de Santa Catarina* – UFSC – while group B had 12 participants from the Extracurricular English Language Course, Level 3, offered by the university to the academic and non-academic communities. Both groups were studying the first part (Units 1-8) of the same book – New Interchange 2 (Richards, Hull, & Proctor, 2002).

The three main reasons why I chose participants who were learning English with this book were (a) because it is in the New Interchange 2 that more complex grammatical structures start being presented, compared to the grammatical structures presented in the New Interchange 1; (b) because the *Indirect Questions* were presented in Unit 2 of this book, and they seem to be complex to foreign learners to learn since this structure in English is structurally organized in utterances in a different way than in most languages[21]; and (c) because according to Selinker (1972), it is through learning complex grammatical structures (usually at an intermediary level of language learning) that a great number of changes in interlanguage take place.

As regards the English teachers who conducted the classes, two took part in the experiment. In group A, the teacher was a PhD professor who works for UFSC at the Letras Undergraduate program. In group B, the teacher was a PhD candidate at the *English and Applied Linguistics Graduate Program* at the *Universidade Federal de Santa Catarina* – UFSC, who was temporarily working as an English instructor for the Extracurricular Language Course.

3.3.1 Procedures for selecting participants

The selection of participants for this study was carried out in June, 2005. Despite enrolled in the same level, as it usually happens not only in English courses in Brazil but also around the world, students have different levels of L2

[21] In Portuguese language, for example, when one asks for direction by using an indirect question, the verb to be or the main verb of the sentence comes in the middle of the indirect question, while in English language it generally comes at the end of the question.

language proficiency. For this reason, a language proficiency selection was made trying to obtain a more homogeneous group of participants for this study.

Initially, a group of 50 participants was recruited by this researcher to perform individually an oral task at the language laboratory. The participants came from different groups, which I will call here group A and group B. Group A is composed by participants from the second semester of the Undergraduate English Letras Program, at the *Universidade Federal de Santa Catarina* – UFSC – while group B is composed by participants from the Extracurricular English Language Course, Level 3, offered by the university to academic and non-academic communities.

Although the participants came from different groups, this researcher placed them in a single group. It is relevant to say that the reason why I divided the participants into two groups, Group A and Group B, was merely with the aim at organizing information about participants. However, this division is not proper to further apply in the data analysis.

Primarily, the whole group of 50 participants (20 participants from the Letras Undergraduate Program and 30 participants from the Extracurricular language course) was recorded individually at the language laboratory while performing an oral production task (see Appendix A for the picture used to elicit their production). This task was not about the target structure of this study yet; however, it was a task in which the participants were asked to talk about the picture during two minutes. This researcher asked the participants the following question: *What do you see in this picture? Talk about what you see in the picture for two minutes.* This picture description task aimed at verifying the participants' English proficiency level in order to obtain a more homogenous group.

Therefore, the participants' speech samples were transcribed by this researcher and judged by four raters (4 English teachers, including this researcher). All raters were PhD candidates of the *English and Applied Linguistics Graduate Program* at the *Universidade Federal de Santa Catarina* – UFSC. They were asked to judge the participants' L2 oral performance taking into account grammatical accuracy only, without considering fluency and complexity. They judged the participants' accuracy on a scale of 0 to 5, following a rating scale adapted from the FCE Speaking Test Assessment Scales (Cambridge Examination), Iwashita, McNamara and Elder (2001), and the RSA test (in Hughes, 1989) (See Appendix B).

The four raters' scores were considered for inter-reliability, calculated by a simple agreement ratio, resulting at 81.5%. After determining the participants' level of proficiency, I selected 32 participants (20 participants from the *Letras* program and 12 from the Extracurricular English course) to take part in the study. Eighteen participants out of 50 participants, who were submitted to the language selection process, were excluded from this study due to their level of proficiency not being judged as intermediate (on a scale from 2 to 4), a condition for the whole group to be considered slightly more homogenous.

Another exclusion of participants was made after applying the pretest, before treatment. This turn, two other participants were excluded because they demonstrated to know the target structure adopted for this study, which was required in the pretest. The final sample consisted of 30 participants.

Since the beginning of this research, my goal was to carry out a study with undergraduate students only. However, as the *Letras* Undergraduate Program second semester group had only 20 participants (2 were excluded in the pretest) at

this language level, studying the New Interchange book 2, more participants were included in this study in order to have a larger sample to deal with more powerful statistical results.

Thus, a selection of twelve more participants was carried out by this researcher and the three raters to choose the other 12 participants from the Extra Curricular language course, taking into consideration the average of the undergraduate participants' English proficiency level, as a parameter to judge the language level.

Furthermore, two teachers were chosen in order to give the participants instruction when teaching the target structure - *Indirect Questions*. They were selected because they were teaching the New Interchange 2, and thus, they were required to teach *Indirect Questions*, in Unit 2, in the beginning of the semester.

3.4 Instruments

This section will describe the materials and equipment used in the current study.

3.4.1 Materials and equipment for data collection

The experiment consisted of five tasks: one task aimed at measuring working memory capacity through the Speaking Span Test; three oral tasks aimed at measuring accuracy through the participants' oral performance of twelve

Indirect Questions in each task; and one task aimed at measuring noticing through an oral protocol.

In order to assess the participants' working memory capacity, the *Speaking Span Test* (SST) in English as a second language was administered. The test was conducted using a PC computer, and this was the only part of the data collection which was not carried out in the language laboratory. The participants were individually recorded by this researcher in a private room at *Centro de Comunicação e Expressão* (CCE) at UFSC.

The *Speaking Span Test* took about 20 minutes per participant to be administered. In the first five minutes, the participants received instructions from this researcher, in Portuguese, on how to do the test. Then, they practiced the test once, in English, in the following five minutes. After that, they started doing the real test.

The three oral tasks were also recorded individually in the language laboratory at CCE. This language laboratory was located in the same building in which the participants had their English language classes. The lab was very large and had good equipment for recording. Each participant had an individual headphone and microphone. During the three oral tasks, all participants recorded their speech at the same time, but individually. Thus, they could not hear the other participants' voices.

The oral protocol was also individually recorded in the language lab at CCE. During this task, all participants used headphones with a microphone to record their speech. This researcher asked the participants the questions from the oral protocol in Portuguese (see Appendix E). The answers were recorded on a cassette tape.

The participants' performances in the five tasks were recorded on magnetic tape using a SONY Voice Operated Recording tape recorder. A separate tape with their names on it was used for each participant.

The participants' performance on the three oral tasks that aimed at measuring accuracy was timed through the use of a SPORTLINE Model 220 stopwatch to signal the beginning and end of the time allotted for the task (2 minutes).

3.4.2 Statistical Packages

Data of all tasks (the working memory task, the three oral performance tasks, and the oral protocol task) were subsequently entered on a spreadsheet of the Excel program. An HP Pavilion laptop computer was used for the data entry. Within the SPSS 11.5 for windows program, the data was imported in order to analyze the Coefficient of Pearson Correlation, as well as One-way ANOVA for repeated measures, and Pairwise Comparisons. Moreover, the SPSS and the Excel programs were used to obtain all the tables and figures to illustrate the results, reported in Chapter 4.

3.5 Data collection procedures

This section will describe the design of the study and the procedures for collecting data in each step of the present study.

3.5.1 Design of the study

The design of this study consisted of four distinctive phases: (a) one pretest phase, (b) one treatment, and (c) two posttest phases. The pretest phase was carried out before treatment, while the two posttest phases were carried out after treatment, one immediate and the other delayed.

3.5.1.1 The Pretest Phase

The pretest phase was carried out in the first two weeks of August, 2005, and was divided into two parts: (a) the performance of an L2 oral speech task in order to assess accuracy in oral performance of *Indirect Questions* (see Appendix A); and (b) the application of a working memory capacity test in English as a second language – the *Speaking Span Test* - SST (Daneman, 1991; Daneman & Green, 1986; Fortkamp, 1999, 2000) in order to assess the participants' working memory capacity. The following sub-sections report in details how the oral task and the SST were administered. Then, Section 3.6.2 presents how data was assessed.

3.5.1.2 The performance of an L2 oral production task

Thirty-two participants performed this task (20 from group A and 12 from Group B). The participants were instructed by the researcher to make twelve

questions by looking at two different pictures, but in different moments. First, they were required to make six indirect questions for the first picture, and secondly they were required to make six indirect questions for the second picture (see appendices C and D for the pictures). In order to elaborate the questions, the participants were told in Portuguese to use Indirect Questions. In the first picture, they were asked to make six indirect questions about directions with a picture of a map (see Appendix C for the map), and in the second picture they were required to make six indirect questions about a picture with a fictional situation and action of some people on it (see Appendix D for the picture).

This researcher decided for two pictures for the same task in order to see whether the participants knew how to use indirect questions when asking information about places (while looking at a map), and when asking information about what the people on the picture were doing in the second picture. The instructions for this task were given by this researcher in Portuguese so as to avoid making indirect questions in English during instruction of the task.

There was a criterion established by this researcher to eliminate participants from this task, if necessary. If the participants accurately produced indirect questions from zero to three (0-3), they could continue in this study. However, if the participants accurately performed more than three indirect questions, out of 12, they could not make part of the study. After recording the participants' speech, this researcher analyzed their questions in order to verify whether they could orally perform indirect questions. The grammatical structure chosen for this study was part of the syllabus of the 2005 second semester for groups A and B. The participants who demonstrated previous knowledge on *Indirect Questions* were excluded from the study.

Then, 2 participants out of 20 from Group A (*Letras* Undergraduate program) were excluded after the oral task because they could accurately produce indirect questions. Thus, I considered that they previously knew the target structure. For this reason, these two participants were eliminated from this study after performing the pretest. This was the second and last elimination of participants.

3.5.1.3 The Speaking Span Test (SST)

This *Speaking Span Test* (SST) test was proposed by Daneman and Green (1986) and Daneman (1991) for L1 studies, and adapted by Fortkamp (1999) for L2 studies. Fortkamp (1999, 2000) suggested that this kind of test aims at measuring individuals' working memory capacity under L2 speech production, while Daneman and Green (1986), and Daneman (1991) assessed individuals' WM capacity in their L1. Following Fortkamp (1999, 2000), this test consists of 60 unrelated nouns, organized in sets of two to six words (see Appendix N for all sets), which were read by the subjects aloud. Each word in bold was individually presented for one second in the center of a computer screen. At the end of each set of two to six words, two to six question marks appeared respectively in the middle of the computer screen to inform the participants that the set had finished. The number of question marks indicated the number of words presented in each set. Then, the participants were asked to produce a sentence aloud for each word presented.

For example, after being presented with the following set of two words:

People

Earth

??

A participant produced sentences as follows:

People are beautiful.

The Earth is being killed.

Another example, after being presented with the following set of three words:

Soccer

Wife

Power

???

Other participants produced sentences as follows:

I love soccer.

I don't wanna be a wife.

I've got the power.

The sentences produced should contain the words presented in their original form and order of presentation (as for instance, people/earth; soccer/wife/power), and they should be accurate to be scored. Otherwise, the utterances that did not present the words in their original form and order of presentation were not scored, even if they were accurate. The sentences were judged as accurate or inaccurate by following the parameters established by this researcher and a native speaker of American English in order to assess working memory capacity (see Section 3.6.3 for assessment of grammatical accuracy in the sentences produced in the WM test).

In order to assess grammatical accuracy in the working memory task, by means of the Speaking Span test, two kinds of working memory scores - *WM-strict* and *WM-lenient* scores - were used to verify the outcomes:

(a) Strict – Scores were considered strict if the sentences were grammatically accurate with some pragmatic competence and some naturalness or native-likeness. In other words, the sentences must sound well for native speakers and make sense even if not contextualized. For instance, one produced a sentence as follows: e.g.: *I've got the power.*

(b) Lenient – Scores were considered lenient if the sentences were grammatically correct, although they were not properly used as native speakers do, that means, the sentences do not sound native-like. In other words, the sentences just make sense within a context, but not in isolation. For instance, one participant produced a sentence as follows: e.g.: *I got the power*.

3.5.2 The Instructional Treatment

After collecting the data in the pretest condition, I asked the two teachers, one from group A and one from group B, to instruct the participants to use Indirect Questions. The main aim of this instruction was to prepare the participants to use indirect questions in the immediate posttest, which was applied on the same day of the treatment, and in the delayed posttest, which was applied two weeks after treatment.

Both posttests were applied in order to verify whether the participants had noticed the target structure during treatment. The delayed posttest was applied not only to check whether participants had noticed the target rule, but also whether they could maintain what they noticed for a longer period of time because of noticing.

Concerning treatment, I assumed that all the participants needed treatment for this target structure since this structure is presented only in New Interchange book 2, and not in New Interchange book 1. Furthermore, the analysis of the pretest led me to exclude the two participants who knew the target structure.

It is important to say that the treatment was original. In other words, the participants were taught this grammar structure only once. After the treatment, the participants did not have any kind of practice on this grammar structure with their teacher, at least not during data collection.

The kind of treatment adopted in this study was the *planned focus-on-form* treatment, as proposed by Ellis (2001). A planned focus on form entails pre-selected linguistic aspects to be taught (Ellis, 2001; Loewen, 2005). By means of planned focus-on-form treatment, the participants were induced to learn some

specific formal aspects. Thus, the *planned focus-on-form* was the kind of treatment adopted in this study since there was a previous selection of a specific grammar focus (*Indirect Questions)*. This particular grammar structure was chosen by this researcher due to two reasons: (a) this grammar focus was part of the syllabus; and (b) this particular target grammar structure seems to be more complex than others, since it is related to the *embedded questions*[22], which are questions embedded in another sentence. This kind of question seemed to demand more cognitive effort from the participants, since they were required to elaborate a question embedded into the other. Thus, using embedded questions in this study was probably more advantageous than using simple questions, because the degree of difficulty and complexity in constructing indirect questions might have contributed to a better distinction between higher and lower processors.

3.5.2.1 Procedure for the treatment

Both teachers from group A and group B were told to teach the participants about the use of *Indirect Questions*. The teachers had one class of 45 minutes to instruct the participants the grammatical structure of Indirect Questions. This researcher was allowed to attend the classes in the two groups. The two teachers were instructed by this researcher to teach the Indirect Questions explicitly. However, they were asked to teach the target structure by indirectly

[22] Linguists have tried to explain for some time that meaning and grammar of embedded interrogatives and predicates with interrogative complements, like the indirect questions – the embedded questions, distinguish from direct questions in form and word order in the structure of the question, and usually in the politeness of the question as well (Lahiri, 2002).

calling the learners' attention to the specific form first, instead of departing the class from explicitly stating the structure of the target grammar focus.

The questions that the teachers were instructed to ask as a warm up were: (a) how would you ask information about directions on the streets?; (b) what kind of questions would you use to ask other people about directions or any other information?; (c) how would you ask a friend about directions?; (d) how would you ask an unknown person about anything?; (e) how would you make polite questions?; (f) in which situations would you use indirect questions?; (g) how would you make indirect questions?

After the warm-up session, the teachers from groups A and B asked the learners about the situations in which indirect rather than direct questions are more properly used. For example, the teachers were instructed to tell the participants that when individuals are very close friends they usually ask each other some questions such as *What time is it?, Where is the supermarket?, Where is the university?, What time does the bank close?, How much is this or that?.* On the other hand, when individuals are not very close or do not know each other, they usually ask the questions above in a more formal or polite way such as *Do you know what time it is?, Can you tell me where the supermarket is? Could you tell me where the university is? Do you know what time the bank closes?*

After this introductory part of the class, the two teachers were instructed by this researcher to: (a) give oral examples of indirect questions to the participants; (b) ask participants to practice indirect questions in pairs for a few minutes; and finally, (c) follow instructions of the book adopted for their classes. Thus, they asked the students to open their books on page 11, unit 2 in which the target grammar focus was presented. As can be seen, the book shows explicitly

the grammar focus by mentioning terminology and some questions as examples. A comparison is provided between direct questions and indirect questions derived from *Wh-questions*.

The examples from the New Interchange book 2 (Richards et al., 2002, p. 11) are as follow:

Indirect questions from Wh-questions

Wh-questions with be	**Indirect Questions**
Where is the bank?	Could you tell me **where the bank is**?
Where is the taxi stand?	Do you know where the taxi stand is?
Wh-questions with do or did	**Indirect Questions**
How often do the buses leave for the city?	Could you tell me **how often the buses leave for the city**?
When did flight 566 arrive?	Do you know **when Flight 566 arrived**?
What time does the duty-free shop open?	Do you know **what time the duty-free shop opens**?

Then, both teachers wrote the target structure on the blackboard and explicitly showed the participants the modifications in the position of the verb when comparing the structure of direct and indirect questions, as well as the use and position of the auxiliary verbs, and the main verbs in both kinds of questions. Thus, both teachers gave explicit instruction of the target structure, that is, they explicitly stated how Indirect Questions are formed.

3.5.3 Posttests Phases

There were two posttests phases in the present study. The objective of the posttests was to verify whether the participants noticed the target structure, which was needed to adequately make indirect questions, as well as to verify whether there was some maintenance in grammatical accuracy of such target structure in the delayed phase after treatment. Thus, the posttest phase was divided into two phases: (a) *immediate*, right after treatment (on the same day that the treatment was provided), and (b) *delayed*, two weeks after treatment.

The immediate posttest was carried out in two steps: (a) the oral protocol collection, in which the participants were asked some questions by this researcher in the language lab; and (b) the performance of an L2 oral task, in which the participants were asked to make twelve indirect questions again. Then, they were required to make six indirect questions about a picture of a map, as the task required in the pretest, and six indirect questions about a picture with an action on it (the pictures were different this time) (see Appendices F and G for the pictures).

Finally, the delayed posttest was carried out in just one moment in time, two weeks after treatment. Over again, the participants were asked to make twelve indirect questions while looking at two other different pictures (see Appendices H and I). This delayed posttest was administered in order to see whether grammatical accuracy in the specific formal aspects of the target structure (*Indirect Questions)* were consistently used in the participants' L2 oral performance two weeks later. In other words, this posttest was administered in order to verify whether the students maintained the same degree of accuracy in the

oral performance of the delayed phase as compared to their oral performance in the immediate posttest phase. See more details for each subsection below.

3.5.3.1 The Oral Protocol (Immediate Posttest)

The oral protocol aimed at assessing the learners' noticing of the indirect questions structure, which they had been taught. This researcher used Robinson's (1995) framework as a guide to elaborate the questions for the oral protocol as well as to analyze the learners' answers. Robinson's framework (1995) was adapted in order to add one more question and one oral task (see appendix E for question number 3 and the oral task number 5). The oral protocol consisted of questions concerning whether the learners noticed any rules, looked for rules, and could verbalize rules (Robinson, 1995).

Although I followed Robinson's framework, I acknowledge that *looking for rules* is a weak measure of noticing for two reasons. First, because *looking for rules* is a statement about what one does when speaking, i.e., producing utterances, possibly with the help of explicit knowledge, not about how one learns or gets that knowledge. Secondly, looking for rules is not the same as finding them. For example, the psychologist Reber (1989, 1993) often uses a rule-search condition that he calls "explicit." In my opinion, this is very misleading, because the experiments are designed in such a way that subjects might look for rules but they might not be able to discover them. Thus, someone answering "yes" to this question in the oral protocol does not indicate that this person has necessarily noticed anything.

Therefore, in order to see if *looking for rules* made any difference in the outcome I scored the participants' noticing in the two following ways: (a) Noticing 1, in which I did not include Robinson's second question (Do you look for rules?), and (b) Noticing 2, in which I included Robinson's second question (Do you look for rules?) to score the measure of noticing.

Furthermore, I added one more question to the oral protocol. I asked the participants whether they could remember the target grammar structure which they had been taught, and I asked them whether they could explain how such target grammar structure was organized in indirect questions. In addition to this question, I added a short oral task in which the participants were asked to orally perform two indirect questions by using the grammar structure of indirect questions (see Section 3.6.4 for the assessment of noticing).

In the fourth question in the oral protocol, proposed by Robinson (1995), the participants were asked to recall and verbalize the target grammar structure they were instructed during treatment. They were asked to recall the grammatical rule of Indirect Questions from memory and to talk about it (for instance, they were asked to talk about the grammar structure of Indirect Questions, such as the position of the verb to be in the question, or the opposition of any other verb). In this recall phase about the target grammar structure, the need to draw on memory in order to complete the task was made explicit since they had to consciously recall the target structure.

3.5.3.2 The Oral Task (Immediate Posttest)

A new recording was made at the language lab immediately after the grammatical treatment and the oral protocol. For this recording, two new pictures (Appendices F and G) were used in order to minimize the effects of task repetition on the participants' oral production, following Bygate (2001). In this oral production task, participants were asked to use the same grammatical structure they used in the first oral task in the pretest phase, before treatment (see Section 3.5.1.2). The main objective of performing this task immediately after treatment was to verify whether the participants noticed the linguistic aspects they were instructed through treatment and whether they could accurately produce those aspects.

3.5.3.3 The Oral Task (Delayed Posttest)

The delayed posttest was carried out in only one phase, which took place two weeks after the grammatical treatment. Then, a new recording was collected with two different pictures in the language lab (see Appendices H and I for the pictures), the oral task was the same as the ones administered in the pretest and in the immediate posttest; however, with different pictures. At last, the participants were required to orally perform *Indirect Questions*. This final lab recording aimed at verifying whether the participants could (a) notice indirect questions during treatment, (b) perform indirect questions in a delayed phase, and (c) sustain grammatical accuracy in performing indirect questions two weeks after treatment.

Initially, this researcher tried to avoid task repetition by shifting the pictures several times; however, later on, I recognized that I could not avoid task repetition by changing pictures each time. The pictures were different, but the oral task was exactly the same at the three times (one before treatment and two after it). Thus, although task repetition was avoided by changing pictures in the oral production tasks, the frequency of the same task was not avoided and probably contributed to recalling of noticing of the target grammar structure.

3.6 Data analysis

This quantitative study was carried out based on four different variables: two independent variables (IV): Working memory capacity and treatment; one moderator variable: Noticing (which is also a kind of independent variable); and one dependent variable (DV): the grammatical accuracy of oral performance. More specifically, the grammatical accuracy of the *Indirect Questions* performed by the participants in the oral tasks was the measure of the dependent variable, that is, what was supposed to change after treatment.

This section is divided into two subsections. The first reports on the design chosen to statistically analyze the data in this study, and the second reports on the assessment of working memory capacity, noticing of the target structure, and accuracy of the target structure in the three L2 oral performance tasks.

3.6.1 Design of data analysis

This subsection reports on the design for analyzing the data as well as on the analyses to address the hypotheses of the study.

(i) Working memory capacity (WMC), noticing (N), and oral production (OP).

Pearson correlations were conducted among WMC, N, and the three different testing occasions: OP1, OP2, and OP3, in order to see if all the variables correlated among them. More specifically, calculations were made between the two measures of working memory capacity (WM-strict and WM-lenient scores), the two measures of noticing (N1 and N2), and between these two cognitive variables (WMC and N) and the scores obtained on the three testing occasions (OP1, OP2, OP3).

(ii) OP1, OP2, and OP3

One repeated measures analysis of variance (ANOVA) was performed with pretest (OP1), posttest (OP2), and delayed test (OP3) as the three levels of the within-subjects variable (called “test” here). ANOVA was performed to see the discrepancies in the results among the participants by measuring the same dependent variable (the grammatical accuracy of the target structure in the oral

performance tasks) in the three different tests occasion (1 before treatment (OP1) and 2 tests after treatment, one immediate (OP2) and the other delayed (OP3)).

(iii) Pairwise Comparisons

Tests for pairwise comparisons were carried out between each level of each variable under investigation in order to examine where the discrepancy is greater, that is, between each tests the results are more inconsistent.

(iv) Analyses to address the hypotheses

To address Hypothesis 1, 2, 3, 4, and 5, Pearson correlations were carried out in order to see correlations among all the variables: working memory capacity, noticing, and oral performance in the three oral tasks, in the pretest and in the posttests.

To address Hypotheses 6 and 7 one repeated measures ANOVA was conducted with pre-, post-, and delayed oral production tasks in order to measure the participants' accuracy at the three oral test occasions.

ANOVA was conducted with both posttesting phases (immediate and delayed) in order to measure the participants' grammatical accuracy on performing the target structure on the different tests occasions. In addition, pairwise comparisons were carried out to address Hypotheses 6 and 7 so as to investigate where the discrepancy was greater and in which tests the results were

more inconsistent, if between the first and the second tests, or if between the second and the third, for example.

3.6.2 Assessment of WM capacity, Noticing, and L2 Oral Performance

This section reports on a battery of parameters used in order to score the participants' results to assess their working memory capacity, noticing of L2 linguistic aspects, and the grammatical accuracy of the target structure in their three L2 oral performance tasks.

The parameters to measure working memory capacity and grammatical accuracy in the oral production tasks were established by this researcher in agreement with a native speaker (NS) of English, an American, and this researcher's colleague, who was a graduate candidate of the Second Language Studies Department at the University of Hawai'i at Manoa, when this researcher was completing her third year of doctoral studies as a visiting graduate student on a grant from CAPES[23].

The native speaker's interest area of research is in *Testing and Assessment in L2*, which led me to believe that his background in defining measurements and his familiarity with judgment tasks and tests might bring helpful contribution for establishing the subsequent parameters as posed below.

Even though the native speaker of American English was an expert in the area of L2 Testing and Assessment, I tried to balance some of the decisions we made together based on the grammaticality and pragmatics of the sentence in

[23] Bergsleithner received a grant from CAPES (process number 1120/05-0) to carry out her Ph.D. research (2005-2006) with her co-advisor Dr. Richard Schmidt at the *National Foreign Language Resource Center* (NFLRC), at the *University of Hawaiì at Manoa*, in Honolulu, HI, USA.

order to measure grammatical accuracy in the sentences produced. In other words, I tried to observe whether the sentences produced presented some kind of an acceptable pragmatic value. Thus, the sentences had to be accurate and make sense when they were used in isolation.

I acknowledge that it was important for me as a researcher to see the NS's native-like or naturalness. However, I have not strictly taken this factor into account to calculate the subjects' spans in the Speaking Span Test. I tried to see grammatical accuracy in indirect questions with some naturalness and native likeness. In other words, the indirect questions should have presented the formal aspects of the target structure and made sense in sentences out of a context.

The constructs of native-like or naturalness are very complex to measure in the participants' spans, since naturalness involves not only accuracy, as was proposed in the current study, but also pragmatics, fluency, complexity, and lexical density. These are complex language aspects that should be analyzed during language processing and that require a more advanced L2 knowledge and proficiency from L2 speakers.

First, the *Speaking Span Test* was administered in this study with the aim of measuring the participants' WM capacity under L2 speech production. As it was previously explained in Section 3.5.1.3, the participants were asked to store the words from the SST in the same form and order of presentation and then to produce accurate utterances by using the words. Therefore, the most important factor to take into consideration in this test was to assess the participants' ability for storage and processing at the same time, and not to assess how complex or native-like the sentences seemed to be. Thus, the sentences were scored according to the grammatical accuracy they presented within two different judgments: WM-

strict and WM-lenient scores, as explained in Section 3.6.3 below.

Regarding the measurement of grammatical accuracy in the three oral performance tasks and in the brief task of oral performance in the oral protocol, the crucial point taken into account to measure this dependent variable concerned the accurate use of the target structure, Indirect Questions. Other mistakes, if not related to the formal aspects of the target structure, were not taken into consideration, since the participants were not instructed on other grammatical aspects. See more details in assessments used in this study in the following subsection.

3.6.3 Assessment of accuracy of the sentences produced in the Speaking Span Test

(i) *Strict* – Scores were considered strict if the sentences were grammatically accurate with some pragmatic competence and some naturalness or native-likeness. In other words, the sentences must have sounded well for native speakers and should have made sense when not contextualized.

Examples:

e.g.: I wash my clothes every weekend.

e.g.: I play ball games.

(ii) *Lenient* – Scores were considered lenient if the sentences were grammatically correct, although they were not properly used as native speakers would do, that is,

if the sentences did not sound native-like. In other words, lenient scores would be given to the sentences that would only make sense if contextualized.

Example:

e.g.: I love to sing the song.

In this example, the use of the definite article *the* in this statement is very specific to a particular song, thus this sentence only makes sense if it is in a context, not in isolation.

3.6.4 Assessment of noticing through the oral protocol

In this study, I used an indirect measure to assess noticing since I believe that noticing may be retrieved from the episodic memory when learners recall any linguistic aspect from the instructional treatment they were taught. This recall of noticing, or of what was noticed during treatment, is what I call here (based on Ericsson & Simon, 1980, 1987; Gass & Mackey, 2000) as *retrospective accounts.*

Thus, noticing was measured by means of the oral protocol, which elicited the participants' uptake, that is, what they think they learned, the verbalization of the target rule, and also their awareness of how they processed their speech. Furthermore, noticing was also assessed by means of the accuracy in the two indirect questions that the participants were asked to perform in the oral protocol task.

The assessment of noticing was operationalized by me and my co-advisor,

who is an expert in noticing. According to our decision, noticing was indirectly measured *off-line* by means of uptake in the oral protocol, which was applied immediately after the instructional treatment of the target grammar structure for this study. See the scores below for noticing 1 and noticing 2.

(i) Scores ranged from 0 to 10 for Noticing 1 (N1) or from 0 to 11 for Noticing 2 (N2)

1. Do you notice any rules when the teacher explains?

0 - no

1 - sometimes

2 - yes

2. Do you look for rules before speaking?

0 - no

1 - sometimes

2 - yes

3. Do you remember the rule the teacher explained today?

0 - no

1 - yes

4. Can you verbalize the target rule? Talk about the rule.

0 - cannot verbalize the target structure

1 - yes, but limited understanding

2 - yes, seem to understand

5. Give two examples using the rule.

a) 0 - no example

1 - example, but not really correct

2 - good example

b) 0 - no example

1 - example, but not really correct

2 - good example

3.6.5 Assessment of the participants' accuracy in the performance of Indirect Questions in the three oral tasks

This section presents some parameters used to judge whether the sentences produced by the participants of this research -- by means of elicitation of L2 oral production tasks -- were accurate or inaccurate. The concept of accuracy here concerns form although with a different feature from complexity[24].

My definition of accuracy in this study concerns the formal correctness in terms of the specific formal aspects of the L2 target structure which was adopted for this particular study. Thus, my concept is in line with Brumfit's (2000) view that accuracy is related to some linguistic items, particularly in this study with the

[24] *Complexity* of speech involves subordination of sentences, which are linked by conjunctions (Foster & Skehan, 1996; Skehan, 1998).

specific items of the target grammar structure. And, it is also in line with Skehan and Foster's (1996) claim that accuracy is different from complexity.

Thus, having in mind these concepts and the target grammar structure that the participants had to orally produce during the task – *The Indirect Questions* -, some parameters for scoring the participants' oral performance were established by this researcher and the same colleague, the native speaker, who also helped this researcher to judge the accuracy of the participants in the *Speaking Span Test* scores.

In order to decide which sentences should be considered accurate or not, I took into consideration the adequate use of the target grammatical structure mentioned above and the coherence of the sentence. My understanding on coherence in this study concerns a clear and comprehensible meaning on an utterance, even if it presents some grammatical mistakes (see the set of parameters below).

Some formal mistakes in the sentence of other L2 linguistic aspects that do not regard the target structure were not considered inaccurate in the present study, since the participants were not instructed about any other grammatical foci. Thus, I could not consider inaccurate the linguistic aspects that the participants were not instructed in the treatment, only the formal aspects regarding the target grammar structure were taken into consideration.

In other words, I had no parameters to evaluate the accuracy of other linguistic aspects since the participants had not received any treatment of these aspects. Thus, mistakes such as a word choice, wrong prepositions or articles, or the omission of some formal aspects, even when they were necessary in the

sentence, were not considered inaccurate, provided that the participants used the target structure accurately.

Therefore, for a sentence to be considered accurate, the participants should have used the target grammar structure being coherent. In addition, there were other kinds of mistakes which were not taken into account and that can be checked on the list of parameters below which was established by this researcher and the NS for evaluating the oral production tasks. All decisions I made to establish these parameters had been discussed with the NS before I decided to give the scores to the participants.

Then, after I applied the parameters to score the sentences, some doubts still appeared when I was deciding whether some sentences would be considered either accurate or inaccurate. At that time, I tested out my doubts with two more native speakers, who were also from the SLA teaching and research area, to assure that my judgment fitted with theirs.

The parameters were divided into three different general categories:

(1) Errors – sentences were considered totally inaccurate when they presented problems with the target structure;

(2) Small mistakes – sentences which were not considered as errors since the participants used the target grammatical structure properly;

(3) Very accurate sentences – which were those accurate and coherent sentences that contained the target structure and did not have any kind of mistakes.

All the three categories are posed below and consist of several subcategories. Each one of the subcategories explains a reason for considering the utterances either accurate or inaccurate in order to follow the parameters of each of the three general categories previously mentioned.

In order to consider errors totally inaccurate some formal aspects were taken into account when:

(a) the verb *to be* is in the middle and at the end of a sentence, that is, it appears twice in the sentence;

(b) the grammatical construction or organization of the sentence is totally wrong, incomprehensible or incoherent;

(c) the structure of the sentence still shows aspects of direct questions;

(d) the structure of the sentence still shows aspects of direct questions and problems of verb agreement;

(e) the structure of the sentence presents problems of subject and verb agreement, since this formal aspect makes part of the target structure, and because of that it cannot be considered just as a word choice;

(f) it is missing any word in the target structure, for example, *could you tell*…instead of *could you tell me?* In this case, the question is not being considered correct because it presents a grammatical structure problem in the target structure and lack of knowledge about it;

(g) the participants use the verb *to have* instead of *to be (is or are)*, since it is not possible to know how if they would use the correct order of the verb *there to be*;

(h) the verb tense used in the sentence should be *The Present Continuous Tense* instead of *The Simple Present Tense*, because they should use the verb to be, and

it is difficult to evaluate whether they would know how to accurately use it or not;

(i) the relative pronoun is changed for another one, when this changing affects the target structure or the coherence of the whole question;

(j) the indirect questions are incomplete, that is, they are missing an important word;

(l) the subject is missing in the sentence, since it is difficult to judge if the participant would use the verb to be of the target structure in the correct or incorrect place;

(m) the verb to be is missing, since it interferes with the target structure;

(n) the interrogative pronoun *where* is missing, so it interferes with the target structure;

(o) the verb to be and *The Simple Past* are used together, since this structure shows aspects of direct form; and,

(p) the questions with the modals *can* and *could* are not indirect questions, they are direct. In this sense, it is missing one question since indirect questions have two embedded questions, that is, one question embedded into the other.

See Appendix J for more details and examples for each subcategory for any kind of error.

On the other hand, some small mistakes present in the Indirect Questions were not considered errors. The indirect questions were considered correct when the participants used the target grammatical structure in the following conditions:

(a) the definite or indefinite article is missing in the sentence, or if it is used when it is not necessary;

(b) the lexical choice is inadequate;

(c) the preposition use is inadequate, or used when is not necessary, or omitted when necessary;

(d) the word choice or lexical choice is inadequate, but the word does not interfere on the meaning of the whole question; in contrast, it must keep the question coherent;

(e) a word is missing in the question, since this word does not make part of the target structure;

(f) the word agreement is not between subject and verb, but it is between singular and plural, and countable and uncountable nouns;

(g) the use of *it* is used after a relative pronoun; this is not considered an error because the participants were not taught this grammar aspect;

(h) the verb tense is changed by another verb tense without any interference in the structure of the verb to be, as for example, *The Simple Present Tense* changed by *The Simple Past Tense*, or vice-versa;

(i) the relative pronoun choice is inadequate, although it does not interfere with the target structure or with coherence of the whole question; also, when the relative pronoun presents some agreement problems with the following word;

(j) missing of a word in the sentence that does not interfere with the meaning of the whole sentence and does not make part of the target structure; and,

(l) inadequate adjective choice, if the adjective is ended with gerund (*-ing*) and changed by another adjective ended with a participle form (*-ed*), and vice-versa, since it does not interfere with the target structure.

See Appendix J for more details and examples for each kind of small mistake that was not considered as error, but as accurate questions as well.

Finally, the following parameters considered the accurate indirect questions when:

(a) sentences were considered correct sentences since they were accurate and coherent, and correctly presented the target structure. See Appendix J for more details and examples.

Last but not least, the next section reports on the pilot study carried out when this researcher was completing her second year of doctoral studies as a graduate student at the *English and Applied Linguistics Graduation Program* at CCE at the *Universidade Federal de Santa Catarina* – UFSC, in Florianópolis, SC, Brazil.

3.7 Pilot Study

In a pilot study (Bergsleithner, 2005), I analyzed the oral production of 18 low-intermediate learners of English within a study with a similar design: a pretest, a treatment, and two posttests. This study was comparable to the study conducted here, in that, first, it investigated whether there were relationships among working memory capacity, noticing, and L2 oral performance, and, second, it involved the assessment of accuracy in oral performance of the target structure before and after treatment in order to see whether the difference in

grammatical accuracy of the performance of the target structure was related to working memory capacity and noticing.

However, the pilot study differed from the present study, in that, first, (a) it investigated L2 oral performance of two target structures - *The Simple Present Tense* – and *the use of "need" + gerund or participle*, while here the focus was on *Indirect Questions*; second, (b) the oral tasks were picture descriptions, whereas here the participants were required to perform twelve oral indirect questions. In the pilot study, the participants were instructed twice, in different moments, and they were required to describe pictures during two minutes by using the target rules without words or sentences limitations, while in the current study they were limited to perform 12 Indirect Questions, only.

The pilot study was particularly important to me since it made me aware of many problems I faced in conducting a previous research study. First, the measure of accuracy was very problematic in the pilot study, since I assessed grammatical accuracy on the basis of the total number of words produced. I counted the number of errors per 100 words and I also counted errors concerning syntax, morphology, and lexical choice. In each participant's speech, the number of errors was divided by the number of words they produced. This kind of assessment was very vague, since I did not take into consideration the other aspects of speech production, such as fluency and complexity, for example. In addition, I had not defined solid criteria to define what was accurate or not. Therefore, it was very difficult for me to assess grammatical accuracy of the target structure when I analyzed each participant's speech.

For the reason above, I decided to define a more specific task in order to assess grammatical accuracy of *Indirect Questions* with a more specific

measurement, by following the parameters I established with an American English native speaker, since all the participants were asked to orally perform the same number of questions by using only one target structure, which was very positive to assess grammatical accuracy of the target structure in the pretest and posttests, as well as to assess noticing of the target structure during the oral protocol. The procedures adopted to apply the oral protocol in the two studies were the same, and Robinson's (1995) framework was used. However, in this study Robinson's framework was adapted by this researcher.

The data analysis design in the pilot study presented several problems since my knowledge on Statistics was very limited at that time. I used an inadequate design for analyzing data (ANOVA for correlations, and Pearson correlations for analyzing the accuracy of oral performance in the three test occasions), and because of that, neither did I obtain evidence of the relationships among working memory capacity, noticing, and L2 oral performance, nor could I support my hypotheses, due to the mistaken statistical design.

The analyses in terms of measures of grammatical accuracy in the pilot study showed results which were not consistent with those of Fortkamp (1999, 2000), that working memory is statistically related to L2 oral production. Moreover, the results do not corroborate with Schmidt's (1990, 1995), and Robinson's (1995, 1996a, 1997, 2001, 2002a) claims that working memory capacity is closely related to noticing, and that noticing could be constrained by working memory capacity.

In addition, the results were not consistent with the results of Mackey et al. (2002), who found a relationship between noticing and working memory capacity, and of Mackey et al. (2006) who found that noticing is related to language

performance and language development. I acknowledged that, in the pilot study, there was a methodological flaw regarding the statistical design for data analysis.

In contrast, the current study presents a suitable data analysis under the supervision of an expert in Statistics and Language Assessment, Dr. Norris[25], from the University of Hawai'i, where I was carrying out my PhD sandwich program when I was assessing the variables and analyzing the data. Within this new statistical design, I could obtain statistically significant results for the relationships among the variables of this study, and thus confirm my research hypotheses this time. Thus, my results are consistent with Schmidt's claims (1990, 1995) on the Noticing Hypothesis, with those of Robinson (1995, 1996a, 1997, 2001, 2002a), who found that noticing is constrained by working memory capacity, and with those of Fortkamp (1999, 2000), who claimed that working memory capacity, as measured by the SST, is related to L2 oral production.

Furthermore, I acknowledge another flaw regarding the concept of noticing in my pilot study. I was misinterpreting the Noticing Hypothesis, as claimed by Schmidt (1990). In addition, I could not find a proper statistical measure for assessing noticing at that time. In the pilot study, I was provoking noticing in participants through explicit teaching. However, Schmidt does not accept this idea of noticing by means of explicit grammar teaching, since he claims that noticing is a cognitive process that happens naturally in the input without any teachers' grammatical explanation. This concept of noticing formal aspects through explicit teaching comes from Rod Ellis (1993, 1994, 1999). Thus, in the current study, I could rearrange my concept of the Noticing Hypothesis, and

[25] Dr. Norris clarified many doubts for this researcher, especially in the data analysis, and greatly contributed to this study. However, any flaw or mistake is my responsibility.

I proposed my particular concept of noticing based on my belief on Schmidt's and Ellis' claims (see Section 2.2).

In order to assess noticing, a quantitative measure of noticing was proposed here by me and my co-advisor, Dr. Schmidt[26], according to the parameters we established together to assess noticing (see section 3.6.4 above). The assessment of noticing we proposed here is suggested for further studies which will take the issue of noticing into account.

In sum, the pilot study opened paths and avenues for me to seek a much more condensed academic research.

The following chapter presents the results and discussion of the data analysis.

[26] Dr. Schmidt greatly contributed to this study. His contribution to the criteria to assess noticing was fundamental. However, any flaw or mistake is totally my responsibility.

CHAPTER 4

RESULTS AND DISCUSSION

Introduction

This chapter presents the results and discussion of the current study. The first part shows (1) the Descriptive Statistics for each particular research question investigated in this research; and reports (2) the Inferential Statistical Results. The second part presents the discussion of the results by addressing each particular research question that motivated this research.

4.1 Descriptive statistics

Table 1 reports the descriptive statistics for the variables of the study: Oral production, noticing, and working memory capacity.

Table 1. Descriptive statistics for the variables of the study: Oral production, noticing and working memory capacity

	N	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
OP1	30	0	3	0.97	1.12	0.83	-0.69
OP2	30	1	12	7.27	2.79	-0.28	-0.32
OP3	30	0	12	7.17	3.35	-0.76	-0.18
WMST	30	5	34	18.50	5.93	0.10	0.69
WMLE	30	6	35	19.46	6.08	0.16	0.56
N1	30	2	9	6.40	2.04	-0.66	-0.70
N2	30	2	10	7.50	2.31	-0.96	0.008

The descriptive statistics in Table 1 indicate that in the three oral production (OP) tasks (here called *tests*) there was a sizeable difference in the mean learner performance between OP1 and OP2, and OP1 and OP3, that is, before and after treatment. However, as can be seen in Table 1, there is a similarity in the mean learner performance between OP2 and OP3, both tests after treatment, although the first was immediate and the second delayed.

In addition to the oral production tests, the descriptive statistics in Table 1 point to the two scores for the measures of working memory capacity (WM-strict and WM-lenient), and the two scores obtained for noticing 1 (N1) and noticing 2 (N2), through the oral protocol. The correlation between the scores of these variables will be better explained in Table 2, which displays the results for working memory capacity and noticing.

As regards Table 1, the scores in the OP1 departed from a minimum range of 0 to a maximum range of 3 points out of 12. These scores (from 0 to 3) represent the participants' initial limitation or lack of knowledge in relation to the target grammar structure adopted for the current study. As shown in Table 1, while OP1 shows the mean performance of 0.97 and a standard deviation (*SD*) of 1.12, these scores are minimal to negligible. However, performances in OP2 and OP3 show a considerable difference in the mean scores of participants, OP2 with a mean of 7.27, and a *SD* of 2.79, and OP3 with a mean of 7.17 and a *SD* of 3.35. These results indicate that there was a large change in the mean scores of this test, from the pretest to the posttests. There was also considerable variability in performance within the group.

As can be seen in Table 1, there are participants who scored from 0 (no sentence was considered accurate) to 12 (all sentences considered accurate). In

other words, the participants scored from the minimum range to the maximum range established by this researcher. Despite individual variability, it can be seen that there was a large overall difference between performance with the target structure before and after treatment. This finding suggests that there was some language development and learning of the target rule within the treatment, since participants could accurately produce oral sentences using the rule.

Finally, kurtosis[27] and skewness[28] for the participants' scores on all measures are also reported in Table 1. These two descriptive statistics lead us to reflect upon the distribution of scores that the tests created. As can be seen in Table 1, these statistics indicate somewhat non-normal distributions for all of the measures. However, none is drastic enough to instigate against further inferential statistical tests.

Moving on to Table 2, correlation findings are displayed among the measures of all variables: (a) oral production (dependent variable); (b) working memory (independent variable); and (c) noticing (moderator variable). Pearson correlations were calculated among the two measures of working memory (WM-strict and WM-lenient), the two measures of noticing (N1 and N2), and oral production scores on the three testing occasions (OP1, OP2, OP3). A two-tailed alpha decision level of $p < .05$ was set for all inferential decisions of statistical significance for the correlations. Table 2, as follows, displays the correlation findings.

[27] *Kurtosis* means the degree of peaking in a distribution curve data (Brown, 2005, p. 293).
[28] *Skewness* means a distribution pattern of scores that does not have the prototypical symmetrical "bell" shape (Brown, 2005, p. 293).

Table 2. Pearson correlations between oral production scores, working memory capacity, and noticing

	Oral P 1	Oral P 2	Oral P 3	WM-strict	WM-lenient	N1	N2
WM-strict	0.15	*0.61	*0.64	-	-	-	-
WM-lenient	0.17	*0.61	*0.63	*0.99	-	-	-
N1	0.26	*0.60	*0.70	*0.41	*0.42	-	-
N2	*0.38	*0.59	*0.72	*0.42	*0.43	*0.95	-

*p<.05, two-tailed.

Several findings are apparent in Table 2. First, for these correlational comparisons, the choice of strict versus lenient WM measures makes little difference. The two measures are very highly correlated (r = .99), and correlations with the oral tests change by only a few decimal points if at all, based on the strict versus lenient WM scoring. Second, the choice of N1 versus N2 as the measure of noticing does not make much difference for comparisons with measures of WM capacity, nor for comparisons with either the immediate posttest or the delayed posttest. However, there is a larger difference between the N1 and N2 correlations with the pretest (r = .26 versus r = .38, respectively). Notice also that, although there is some degree of relationship between N and WM capacity, it is not particularly strong (around r = .42), suggesting that these two measures are tapping distinct constructs.

In response to the question of whether working memory and/or noticing seem to be related to oral performance on the three different testing occasions, the correlations suggest that there are indeed relationships, and the strength of these relationships changes from one test to the next. Thus, very low correlations between WM capacity and the pretest suggest almost no relationship there,

although this finding is probably primarily attributable to the fact that there was less variability among the pretest scores (everyone scored low). However, correlations were higher (if still very low) between the noticing measures and the pretest scores.

Moving to the immediate posttests, where working memory capacity and noticing would be presumed to exhibit some kind of influence (if they are indeed related to oral test performance), there is a clear, if moderate, relationship between both the WM capacity and noticing variables and the oral tests performance, ranging almost imperceptibly for each between r = .59 to r = .61. Perhaps of most interest, moving to the delayed test, the strength of relationships increases for both the WM and N variables. However, a much larger increase is apparent for noticing (for N1, from r = .60 on the post-test to r = .70 on the delayed test). These findings suggest that, while both working memory and noticing are moderately related to immediate test performance (and by extension, perhaps, to the learning that was required to perform well), noticing is slightly more strongly related to sustained performance on the delayed test.

Next, the following figures further illustrate the results reported in Tables 1 and 2, for all individual participants. Figure 1 shows the results of the oral production tests, in which the participants were required to elaborate twelve Indirect Questions (the target rule of this study) when looking at a picture at the laboratory.

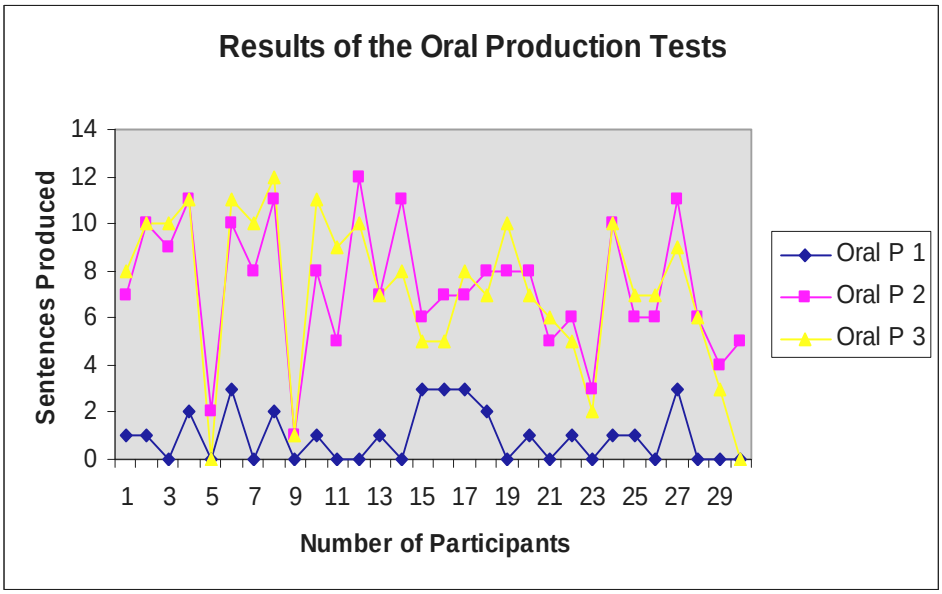

Figure 1. Results of the oral production tests.

As can be noticed, the gains in terms of accuracy in OP2 and OP3 tests were very high after treatment, while the scores obtained in the pretest before treatment were much smaller for nearly all the participants. As an exception of the whole group of participants, notice what happened with participants 5 and 23. Both of them departed from no knowledge of the target rule (0 points). They had a little improvement in language performance from OP1 to OP2, 2 and 3 points, respectively. However, in the delayed test (OP3), Participant 5 did not show performance maintenance, and Participant 23 showed a slight indication of maintenance, performing from 3 to 2 out of 12 points. These findings suggest that both participants poorly performed in the two occasion tests after treatment probably because of their limitation in WM capacity and noticing. In other words, the participant's limitation in WM capacity may have constrained their attentional resources to notice the target structure, and because of the lack of noticing or the very low level of awareness (perhaps what Schmidt (1995) named as detection,

and not noticing) they could not sustain such rule or at least they could not orally report it. Thus, the results indicate that Participant 23 presented a better maintenance of accuracy from the immediate posttest to the delayed posttest, possibly because he was better at noticing than Participant 5, resulting in a decrease from 4 to 2 points in Noticing 1, and from 5 to 2 points in Noticing 2. The same happened to Participant 30, although he had a better performance in the immediate oral production task than Participants 5 and 23. However, he did not present performance maintenance or any information about the target rule in the delayed test probably due to constraint of noticing commanded WM capacity.

Figure 2 depicts the correlation of working memory capacity, as measured by the speaking span test (SST), between the two measures adopted to measure WM in this study: WM-strict and WM-lenient scores.

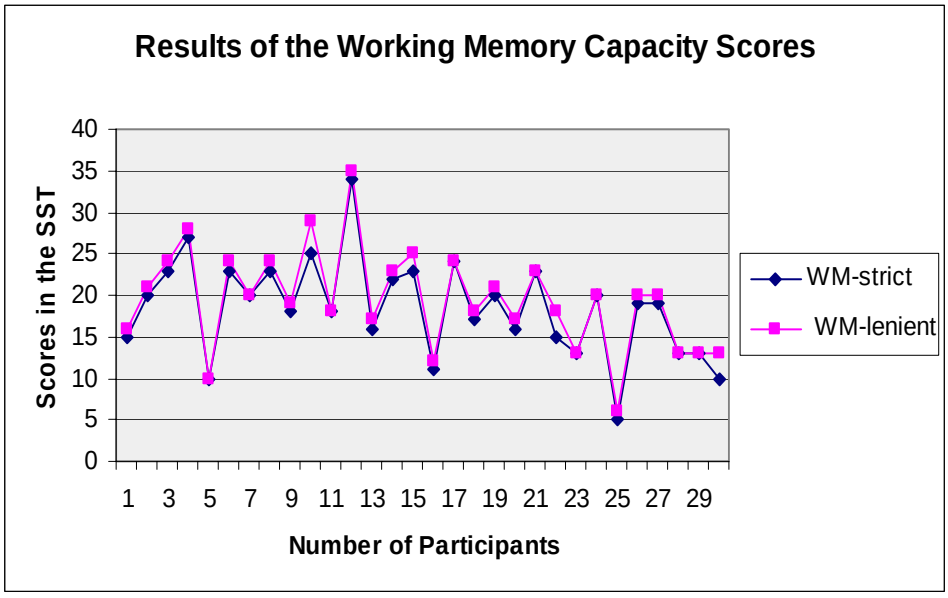

Figure 2. WM-strict and WM-lenient results.

As can be seen in Figure 2, there was little variation between the two measures of WM within the results of all the 30 participants of the study. Notice that the highest WM-strict score was 34 while the lowest was 5. Thus, there is a reasonable distribution on the scores of WM capacity between the minimum range of 5 points to a maximum range of 34 points.

Figure 3 displays the results for noticing. It is to be remembered here that an oral protocol was applied, immediately after treatment, to measure indirect noticing by means of uptake. As posed in Section 3.6.4, the participants' responses to the four yes/no questions and to the additional task ranged from 0 to 10 for measuring noticing 1, in which the second question of Robinson's framework was not considered (*Do you look for rules?*), and from 0 to 11 for measuring noticing 2, in which such question was considered and included in the oral protocol as well as in the scores. Although the two measures of noticing were conducted in the current study, this researcher acknowledges that "looking for rules" (in N2) is a weak measure of noticing because looking for rules is not the same as finding them. The results point to a slight difference between the two measures of noticing (N1 and N2). Although the difference between these two measures is not statistically significant, the result indicates that the question *Do you look for rules?* makes a difference in the outcomes. This entails that if participants respond *yes* to this question it is not clear whether they locate the accurate grammar rule information in their episodic memory. Thus, based on this assumption, this researcher assumes that Noticing 1 is the most appropriate measure of noticing, since this measure is more strict and trustworthy.

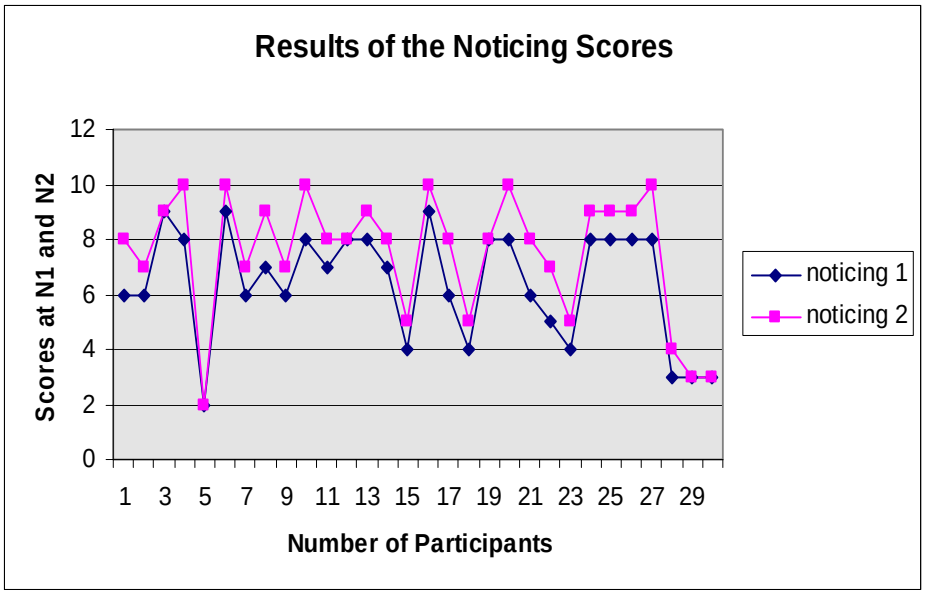

Figure 3. Results of noticing 1 and noticing 2.

4.2 Inferential statistics

4.2.1. Oral performance results

The descriptive findings presented above suggest apparent patterns in the participants' oral performance before and after treatment. However, in order to examine the statistical trustworthiness of apparent observed differences between the three testing occasions (see Table 2 above for measures), one repeated measures analysis of variance (ANOVA) was performed with pretest, posttest, and delayed test as the three levels of the within-subjects variable (called "test" here). The alpha level was set at $p < .05$ for the inferential decision of statistical significance. As reported on Table 3, the differences between OP1 and OP2, and OP1 and OP3 are all statistically significant since they show a considerable

progress in the mean performance regarding the scores of grammatical accuracy in the sentences produced by the participants, while using the specific target structure in the three testing occasions.

As shown in Table 3, an overall statistically significant effect was found for “test”, Wilks’ lambda $F(2, 28) = 86.09$, $p = .000$. A very high eta-squared effect size (0.86) indicated that “test” accounted for a very large proportion of the overall difference between the three sets of scores (i.e., overall, there was considerable magnitude of difference between the three testing occasions).

Table 3. Overall statistical effect observed for “test”

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Wilks' lambda	0.14	86.086	2	28	0.000	0.86

From the overall statistically significant effect for “test”, subsequent pairwise comparisons were also conducted between each of the three pairs of tests (OP1, OP2, OP3). Statistically significant differences were found between the pretest and the immediate posttest ($p = .000$), and between the pretest and the delayed posttest ($p = .000$), but not between the two posttests ($p = .766$). Apparently, the learners changed in substantially and statistically trustworthy degrees from the pretest to the posttest, but there was little perceptible change from posttest to delayed test.

As follows, Table 4 shows the Pairwise Comparisons among the 3 testing occasions.

Table 4. Pairwise Comparisons among the 3 testing occasions

(I) TEST	(J) TEST	Mean Difference (I-J)	Std. Error	Sig.(a)	95% Confidence Interval for Difference(a) Lower Bound	Upper Bound
OP 1	OP 2	-6.300(*)	0.473	0	-7.501	-5.099
	OP 3	-6.200(*)	0.588	0	-7.694	-4.706
OP 2	OP 1	6.300(*)	0.473	0	5.099	7.501
OP 3	0.1	0.333	1	-0.747	0.947	
OP 3	OP 1	6.200(*)	0.588	0	4.706	7.694
OP 2	-0.1	0.333	1	-0.947	0.747	

Based on estimated marginal means
* The mean difference is significant at the .05 level. a. Adjustment for multiple comparisons: Bonferroni.

These results suggest that there was a statistically significant improvement in grammatical accuracy between tests. Specifically, there is a significant difference between tests 1 and 2, and tests 1 and tests 3, while the difference between tests 2 and 3 was not statistically significant because accuracy remained relatively constant in both tests. This finding in the mean learner performance between OP2 and OP3 consistently indicates maintenance in the accuracy scores for two weeks after treatment.

4.3 Discussion

This chapter discusses the results of the current study, which are in line with the theoretical literature in the fields of working memory (WM) capacity, noticing (N), and L2 oral production (OP). Each research question is addressed and followed by discussion.

Summary of the Research Questions and evidence for the Research Hypotheses

RQ 1: Are there relationships among individual differences in working memory (WM) capacity, noticing (N) of L2 forms, and L2 oral production (OP)?

Hypothesis 1: There are statistically significant relationships in working memory capacity, noticing of L2 forms, and L2 oral performance. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, notice more L2 formal aspects and demonstrate more accuracy in performing the L2 oral tasks using the target structure, while individuals with smaller working memory capacity, as measured by the Speaking Span Test, notice fewer L2 formal aspects and make more inaccuracies in using the target structure and performing the oral tasks.

The results suggest that there are statistically significant relationships among WM capacity, noticing of L2 linguistic aspects, and L2 oral production. Table 2 showed the results obtained by means of the Pearson Product Moment Coefficient of correlation and displayed the correlation findings. For all inferential decisions of statistical significance it was placed a two-tailed alpha decision level of $p < .05$, which is a widely used and acceptable level in studies in the SLA research area.

Thus, based on these findings, Hypothesis 1 was supported with the claim that most of the higher processors (the ones who obtained higher WM scores in the Speaking Span Test, SST) when compared to the lower processors (the ones

who obtained lower WM scores in the SST) showed themselves to be better at noticing L2 linguistic aspects, specifically at the target grammar structure chosen for this study: *The Indirect Questions*. Moreover, the same individuals, who were considered to be higher processors or higher spans, also performed more accurately when they orally produced sentences using the target grammar rule. On the other hand, most of the lower processors or lower spans could neither notice nor orally produce language using the target rule with the same performance in terms of accuracy.

The results, thus, corroborate Schmidt's (1990, 1995, 2001) and Robinson's (1995, 1996b, 1997, 2001, 2002) suggestions that WM is closely related to noticing, and that noticing could be constrained by WM capacity (Robinson, 1997, 2001). Cowan (1988), in his model of working memory, also assumes that working memory is closely related to attention and awareness. In addition, these results corroborate Daneman and Green's (1986), and Daneman's (1991) findings that WM correlates with oral production, although these researchers investigated the relationship between working memory and oral production in L1 only.

In addition, the results also corroborate Fortkamp's (1999), Payne and Ross's (2005), and Payne and Whitney's (2002) findings that WM correlates with L2 oral production. Still, the results show rationale with other researchers' proposals, as for example, with R. Ellis's (1993, 1994, 1999) idea that noticing L2 forms during instruction may facilitate L2 learning and thus enhance accuracy in the L2 oral production, and improve language development (Bergsleithner & Mota, 2005; Doughty, 2001; Robinson, 1995, 1996, 2001; Skehan, 1998).

Regarding this underlying principle within the idea that awareness at the level of noticing in the input of some L2 linguistic aspects may improve or facilitate second language learning (L2), other processes involved in L2 learning, such as intake, should also be taken into consideration. Gass and Selinker (1994) point out specifically to the intake process of assimilating linguistic aspects after input, and they claim that the intake process is the component in which psycholinguistic processing takes place. For these researchers, it is in the intake "where information is matched up against prior knowledge and where, in general, processing takes place against the backdrop of the existing internalized grammatical rules" (p. 303).

Based on this assumption, on how the process of assimilation of linguistic aspects occurs, a better understanding of noticing is needed. As mentioned in Chapter 2, noticing is a psychological construct that cognitively works simultaneously with working memory (Schmidt, 1990, 1995). Both cognitive psychological processes (noticing and working memory) are crucial and correlate for "a range of L2 learning processes, which have become prevalent in the instructed SLA literature" (Doughty, 2001, p. 206) in the last decades.

RQ2. Is working memory capacity related to noticing?

Hypothesis 2: There is a statistically significant relationship between working memory capacity and noticing. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, have more attentional resources available to notice L2 formal aspects when receiving L2 linguistic input.

Hypothesis 3: There is a statistically significant relationship between working memory capacity and noticing. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, have more ability to filter what was noticed -- *the targeted structure* -- in their episodic memory as well as to activate this information in their long-term memory.

As regards the relationship between working memory capacity and noticing, the answer is *yes*, working memory capacity is related to noticing although noticing is not related to working memory capacity only. This finding is in agreement with Mackey et al.'s (2002) study, when these researchers mention that noticing is not related to working memory capacity alone, but to other factors.

Although some of the results obtained in this study and in Mackey's study were relatively similar regarding relationships between noticing and working memory capacity, these researchers' and my measures of noticing are dissimilar and present different constructs of measuring noticing as well as different measures of noticing per se.

The other distinction between these two studies is that in the current study working memory capacity was measured, by means of the Speaking Span Test, only in L2, and not in L1 and L2, as in Mackey et al.'s study. This is a limitation that this researcher acknowledges since the efficiency in the information processing can be one of the points to be considered when the tests that measure working memory capacity are applied. Thus, such processing was tested in L2 only (and all the research was conducted in L2); however, it is probably different in L1 and L2. Therefore, a further study replicating this study by measuring WM

capacity in L1 and L2 is needed in order to see if results correlate with WM in both languages.

In Mackey et al.'s study, after the participants received feedback by means of recasts, the researchers measured noticing in two distinct ways, through: (a) the answers of the questionnaire in the delayed posttest, and (b) the recall protocols with 11 out of 30 participants who did not take the delayed posttest. In the former, they were required to answer specific questions while in the latter, they were required to provide verbal reports of noticing while they watched their own videotaped interaction with native speakers (NS) when the participants were receiving feedback from the NS by means of recasts.

The process of recalling noticing through the questionnaire (way 'a' above) is what I call here as *retrospective accounts* (based on Ericsson & Simon, 1980; Gass & Mackey, 2000), that is, in my view, an indirect assessment of noticing. The latter way of measuring noticing (option 'b') requires noticing the gap as an on-line process, through a direct way of assessing noticing, as proposed by Schmidt (1990, 1995) in his claim on the Noticing Hypothesis.

In the current study, the assessment of noticing was inquired via uptake, in a yes-no question interview, which requires learners' awareness of a specific rule or awareness of what they learned in a specific class session or what they think they learned (Slimani, 1989, 1992; Palmeira, 1995). This is an indirect measure of noticing through an off-line process. In addition to the yes-no questions, noticing was also assessed through the accuracy of the sentences produced in the oral protocol, that is also in a very brief oral production task in which the participants were asked to produce two sentences by using the target rule structure. In the present study, noticing was not the same as wished-for the Noticing Hypothesis

(Schmidt, 1990; 1995), because noticing here was provoked by treatment, although this way chosen to recall noticing was acceptable by Schmidt (2006), in a personal communication, as an indirect way of assessing noticing.

In my point of view, this way of assessing noticing demands a greater WM effort from the participants, since they have to recall what they noticed, that is, what is already registered in their episodic memory, in the long-term memory. Such process of recalling noticing required in this study, thus, demands a process of retrieving information of what was noticed, which I named *retrospective accounts* (based on Ericsson & Simon, 1980, 1987; Gass & Mackey, 2000).

My reason for connecting retrospective accounts to WM capacity here is to highlight that not only does the process of consciously noticing on-line linguistic aspects work simultaneously with WM capacity, but also the process of recalling noticing concomitantly works with WM capacity. The difference between on-line and off-line processes is that the former requires storage of information for a short period of time in the short-term memory when the process of noticing takes place, while the latter requires storage plus processing of encoding and retrieving information that is registered in the episodic memory in order to produce language. First, activation of working memory in long-term memory is needed to retrieve the previous noticed information (Cowan, 1988). Secondly, the recalling of noticing takes place, that is, the process of retrospective accounts recalls the information maintained in individuals' episodic memory (Tulving, 1972, 2002), which was memorized because of noticing (Schmidt, 1990, 1995).

Thus, the construct of noticing in this study was built up with the combination of individuals' attentional resources and working memory capacity. This means that, both cognitive processes (noticing and working memory) operate

simultaneously when noticing goes on either through on-line or off-line processes, and they almost overlap when the mechanism of attention consciously takes place. In other words, when individuals receive input of linguistic aspects, their ability to notice such input is guided by some attentional resources carried out by their WM capacity. The attentional resources in WM overlap with the conscious attentional resources of noticing. In other words, these cognitive mechanisms have a similar construct under conscious processes, which are, consciously speaking, involved by the same process.

On the other hand, when working memory operates in coordination with unconscious processes, it does not operate with noticing, since noticing is a psychological construct that registers actions under conscious processes only. Through conscious processes, individuals maintain the information they notice in the input for a short period of time due to working memory capacity (Bergsleithner & Mota, 2005; Cowan, 1988, Engle, 1999; Fortkamp, 1999). The information noticed through linguistic input may be further transformed into intake (Schmidt, 1990), and intake may be transformed into output when practice and frequency effects take place (Ellis & Schmidt, 1997). Thus, language production may be evidence of noticing and may provide support for L2 learning and language development.

Moreover, in addition to Robinson's (1997, 2001) claim, Skehan (1998a) also states that WM capacity is a variable that may constrain noticing. I do agree with his assumption. However, I also believe that there are other factors that might contribute to such constraint, for example, "grammatical sensitivity and field independency, as well as socio-psychological factors" (Mackey et al., 2002, p. 202).

Harrington and Sawyer (1992) have also shown that grammatical sensitivity is closely related to WM. Besides grammatical sensitivity, other factors could have constrained noticing for the lower processors or lower spans in this study. This researcher admits that factors such as (a) the lack of familiarity with the task, since the task was carried out at the language lab; (b) the lack of motivation in doing the task as well as participating in the research; (c) the high degree of the participants' anxiety to be recorded (it was noticeable that some participants had a kind of resistance in recording their voice and also some anxiety to avoid making mistakes while performing the oral protocol in the three testing occasions); and also (d) the lack of interest in knowing the target structure or any other grammar structures.

These factors have probably some truth on them and make sense in explaining why one of the higher spans[29] did not notice the target rule (S15) or could not accurately produce it (as for example S15, S21). As can be seen, the same participants (S15 and S21) were exceptions among the higher spans. They were not successful as it was hypothesized by this researcher as well as reported in the findings of recent studies on the field of WM Literature. To this researcher's surprise, participant S15 said that he lived a year abroad, in the United States, and that he had been studying English for about 4 years, a longer period of time than most other participants.

As regards this particular case, some questions were raised on what happened to this high span. Why did the results show a huge discrepancy? As this participant has lived abroad for a year, he probably learned English in a very informal way by interacting with native speakers (NS) within interactional and

[29] *Higher spans*, in this study, are those participants who obtained WM-strict score at 20 up. The minimum WM-strict score was 5 and the maximum was 34 with the mean of 19.5.

contextualized situations more willingly than being instructed with rules in a classroom. Even if he were instructed by a teacher, he was living abroad and having more contact with the target language than L2 learners usually have while studying English as a foreign language. Because of that, he is possibly more inclined to notice on-line L2 linguistic aspects without instruction through interactional conversations, as proposed by Schmidt (1990), rather than to notice such aspects by means of a teacher's grammar instruction, as Ellis (1993, 1994, 1999) has proposed and this researcher as well. Therefore, his ability to recall and retrieve the target structure could have been constrained by the task in the lab as well as by the method of the instructional treatment.

Another possible explanation for this particular case is that, because this participant's knowledge of L2 aspects was already proceduralized, it is probably difficult for him to recognize this kind of discrepancy, since in several situations even native speakers make grammar mistakes. Some native speakers sometimes speak *Do you know where is the bank?* instead of *Do you know where the bank is?* Language use reality in an English speaking country is different from language in English grammar books. It is possible that this participant has made this mistake in the English speaking country where he lived regarding the target structure asked in this study, and he was not corrected by a NS and, perhaps, nobody gave him a negative feedback, because communication in terms of use of language or pragmatics is more important than grammatical accuracy per se when living abroad.

The other exception was Participant S21 who obtained a good score in the WM test (high processor/span) but could not accurately perform the oral tasks in the three testing occasions. This fact probably happens due to some psychological

factors, which probably may also constrain noticing or accurate oral performance, as suggested by Mackey, et al. (2002). Although S21 presented a good score at the Speaking Span Test, she seemed to be uncomfortable when performing the oral tasks at the language laboratory. Perhaps she had lack of familiarity with the task or with language lab tasks, or still lack of interest in knowing the specific targeted rule or any other grammatical rules. If we compare S21 to S15 (the first exception), both with the same WM-strict scores (23), we can see that S21 was better at noticing than S15, scoring respectively 6 and 4 in N1, and 8 and 5 in N2. A feasible explanation for that is that Participant S21 is more inclined to notice linguistic features through treatment because this participant is more familiarized to noticing linguistic aspects within grammar instruction/treatment in EFL/L2 classrooms since S21 has never lived abroad. In contrast, as previously mentioned, S15 was more inclined to on-line notice linguistic aspects within contextualized situations in real-life settings.

Regarding the oral production tasks, both of these participants scored very low performing an average of 5-6 with a parameter of 12 (the maximum of accurate sentences produced). Both exceptions of higher spans were probably limited by the kind of task. Therefore, these findings do not support the claim of Osaka and Osaka (1992) that working memory capacity is language independent. In contrast, these results strongly suggest that working memory capacity may be task-specific (Christoffels et al., 2006; Miyake & Friedman, 1998; Yoshimura, 2001, among many others; see also Watanabe & Bergsleithner's (2006) research synthesis of L2 WM studies).

On the other hand, the results showed some exception for some lower spans who had a significant score at noticing[30] (S1, S9, S11, S13, S16*, S20*, S25*[31]). One possible explanation for such cases is that they benefited from instructional treatment, which helped them to memorize the target rule structure. Thus, treatment might have forced some of the lower spans to notice the targeted rule.

Another explanation for such case is that they could have some kind of grammatical sensitivity and also familiarity with grammar and lab activities. Although Harrington and Sawyer (1992) found that cue preferences and grammatical sensitivity frequently occur with higher processors (higher spans), we cannot deny that individual differences do exist even within groups of higher spans and lower spans. A great community of researchers (Ellis & Sinclair, 1996; Fortkamp, 1999; Harrington & Sawyer, 1992; Miyake & Friedman, 1998; among many others) has shown a tendency to set some characteristics for higher processors (higher spans) and some for lower processors (lower spans). I agree with the hypothesis that there are some specific features quite typical for the first and the second distinguishable groups. However, as already mentioned, individuals vary among themselves, and we cannot generalize any assumptions, especially when the issue regards human beings and the L2 learning process. Some exceptions usually occur.

In the present research, for example, four lower spans (S1, S9, S11, S13) were quite good at noticing and three lower spans (S16*, S20*, S25*) were very

[30] *Significant score at noticing* means when the mean of the score between N1 (0-10=5) and N2 (0-11=5.5) was up to the mean of 5.25. Then, scores of 5 down were not good at noticing, and scores of 6 up were good at noticing.

[31] The asterisk (*) means that the scores of noticing were significant, i.e., 8 up (in a scale from 0-10).

successful at noticing. However, these participants got a low score in their WM-strict scores. A suggestive rather than conclusive explanation for the reason why they noticed the target linguistic aspects which they were instructed is that grammatical sensitivity and familiarity with lab activities might have helped them feel comfortable with the lab tasks, pushing them, thus, to allocate more attention to the tasks and to better focus on them. If participants are able to assign more attentional resources to form while performing a task because of task familiarity, they will probably be more accurate when focusing on form in order to produce language more accurately. Although a slight variation is perceived among some of the higher and the lower spans, the results have clearly shown that individuals who have higher WM capacity scores seemed to be better at noticing, since they might have more attentional resources available to notice and be aware of L2 formal aspects in the input (Cowan, 1988; Schmidt, 1990, 1995). Although the findings have shown that noticing is closely related to working memory capacity, Hypotheses 2 and 3 were partially supported because of the participants who could not notice even thought they have a large working memory capacity.

RQ3. Is working memory capacity related to L2 oral performance?

Hypothesis 4: There is a statistically significant relationship between working memory capacity and L2 oral performance. Individuals with a larger working memory capacity, as measured by the Speaking Span Test, demonstrate better accuracy in performance of L2 oral tasks.

As regards whether there is some relationship between WM and OP, the answer is also positive, y*es*, there is a statistically significant relationship between these two variables, WM and OP, as reported in Table 2. As can be seen, for these correlational comparisons between WM and the oral production tasks (the three test occasions), the choice of strict versus lenient scores for WM measures makes little difference compared to the oral tests. Correlations with the oral tests change by only a few decimal points if at all, based on the strict versus lenient WM scoring.

The results obtained in the oral tests were then correlated to individuals' WM capacity, showing that WM plays an important role in oral production, specifically here in L2 oral production. Once more, the results corroborated Daneman's (1991), and Daneman and Green's (1986) L1 findings, and Fortkamp's (1999), Payne and Ross's (2005), and Payne and Whitney's (2002) L2 findings and claims concerning correlations between working memory and oral production. As can be also seen in Table 2, WM correlates with the immediate and delayed posttests.

According to the results obtained in this study, my claim is that individual differences in WM capacity are closely related to the grammatical accuracy of L2 performance, that is, higher processors or higher spans have significantly shown better performance in grammatical accuracy in L2 oral performance. The participants' ability to perform accurate utterances is also related to cognitive mechanisms such as retrieval and recall in the language processing, and WM is also responsible for operating both mechanisms.

In the current investigation, this relationship between working memory and oral production can be seen in a large sample of participants. For the higher

spans, correlations between these two variables were apparent in Participants S2, S3, S4, S6, S7, S8, S10, S12, S14, S17, S19, S20, and S27, which can be considered a significant performance on the scores of thirteen participants. The only higher spans who were exceptions to this large group were participants S15 and S21. Participant S15 was the same participant who was not good at noticing, and presented reasonable scores for the oral performance in the posttests (6 for OP2, and 5 for OP3); however, these results are not considered significant scores for higher spans. Participant S21 was better at noticing (scores 6 and 8) than S15, as previously mentioned, and both of them had almost the same result for OP2 and OP3. There is a slight difference between both of them regarding the oral tasks 2 and 3. While S15 obtained the score 6 for OP2 and 5 for OP3, S21 did the opposite. S21 got score 5 and 6 for OP2 and OP3, respectively.

In contrast, some lower spans were good at oral production (S1, S11 (especially in OP3), S13, S16 (especially in OP2), S18, S20, and S25 (especially in OP3)). The lowest span performed relatively well in OP2 and OP3, and the same happened with noticing (see the findings for RQ1). Possible conclusions can be made based on the hypothesis that the lower spans not only benefited from treatment but also from frequency and task repetition. Although the pictures were different at each task time, both the task and the target structure were exactly the same. Thus, frequency and practice may be profitable for lower spans and are helpful to proceduralize declarative knowledge and accurately improve the learners' oral performance (Ellis, 2000; Ellis & Schmidt, 1997).

Following this line of thought, Levelt and De Bot (1992) speech production models are related to Anderson's (1982) idea of declarative and procedural knowledge. This implies the fact that for knowledge to be

proceduralized and automatized practice and frequency needs to take place, since these two factors are indeed important for the declarative knowledge to be transformed into procedural knowledge (Ellis & Schmidt, 1997). Following these researchers' idea, frequency may be helpful and related to working memory and noticing. In addition, frequency is important not only regarding the number of times the linguistic aspects are presented to L2 learners, but particularly how recently it is presented to them as well as how important those aspects are for learners, and also how motivated they are to receive information. This combination of factors in the input indeed contributes to the output processing in the second language acquisition process and development.

Although De Bot (1992) is in line with Anderson's (1983) ACT model, which suggests that knowledge is first controlled (declarative knowledge) and then automatized processing (procedural knowledge), his claim has some limited discussion on lexical access and on how it moves from declarative to procedural knowledge, which De Bot (1992) calls restructuring process (Payne & Whitney, 2002). For De Bot (1992, as cited in Payne & Whitney, 2002), output does not play a role in the acquisition of declarative knowledge itself. However, output plays an essential role in the restructuring of linguistic forms into procedural forms, which are allowed for automatic and efficient second language performance. This restructuring process is possibly carried out by working memory capacity (Payne & Whitney, 2002).

Therefore, working memory plays a crucial role in output, since it is responsible for retrieving some information from long-term memory, for accessing lexical and grammatical information for language to be processed and produced, and then, for communication to take place. Although working memory

plays an essential role in language restructuring and production it could be a constraint for both processes. This assumption is in line with Fortkamp's (1999) claim that "working memory is the human limited capacity cognitive system responsible for the temporary storage and processing of information retrieved from long-term memory in the performance of complex cognitive tasks" (p. 260).

In sum, Hypothesis 4 was partially supported once more because of the variability within the group. Most participants, who had a larger working memory capacity, as measured by the Speaking Span Test, demonstrate better accuracy in performance of L2 oral tasks. However, because of some exceptions of a few participants, Hypothesis 4 could not be totally supported.

RQ4. Is noticing related to L2 oral performance?

Hypothesis 5: There is a statistically significant relationship between noticing and oral performance. Individuals who notice more L2 linguistic aspects demonstrate better performance in the target structure in the L2 oral tasks in the two posttests.

Hypothesis 5 was supported, since there is a statistically significant relationship between noticing and oral performance. The participants who noticed the L2 linguistic aspects of the target structure demonstrated superior performance in using the target structure in the two posttests.

According to Skehan (2002), noticing is one of the SLA processing stages. He claims that at the second language acquisition stage, the "learner directs attention to some aspects of the language system, or is led to direct attention in

this way" (p. 88). This implies that there are other stages which make part of the language acquisition process such as input, intake and output.

Based on this assumption, noticing is a cognitive mechanism that registers what comes in the input processing stage and facilitates mediation of knowledge between the input and the output processes. The mechanism of noticing facilitates the process of intake since noticing leads to recognizing L2 features in the input, thus what was input is transformed into intake.

Noticing may also facilitate L2 speech production by supplying retrieval of linguistic information from individuals' episodic memory (Tulving, 1972, 1985, 2002). In other words, any linguistic information may be retrieved from episodic memory because of noticing and also awareness of linguistic aspects of the language (Cowan, 1988).

Based on this assumption, noticing does in fact relate to oral production. However, I am not claiming that noticing happens in the output process, as Swain (1995, 1998) claimed in her Output Hypothesis. In the output, the allocated attention dispensed to oral production is related to awareness of some wrong linguistic aspects rather than noticing. In other words, noticing the gap in the output does not have the same level of awareness than noticing it in the incoming linguistic input, which is essential for language learning to take place. The level of awareness does not imply awareness at the level of noticing, which is the level that is crucial for second language acquisition or learning to take place, as suggested by Schmidt (1990, 1993, 1995). The level of awareness implies some kind of restructuring of the language.

Following this rationale, noticing the gap in the output might be related to other factors such as to: (a) recognition of an error or mistake; (b) restructuring;

and (c) system learning. First, recognizing wrong linguistic aspects or wrong grammatical structures in utterances in the oral production demands an effort on awareness and working memory at the level of understanding, which Schmidt considers a deeper level of awareness than noticing. Through error recognition, speakers compare the way they orally produced the L2 to the way they should have produced it. Throughout this process, the long-term memory is activated in order to detect wrong or inaccurate aspects in speech (Anderson, 1983; Cowan, 1988; Norman, 1968).

Secondly, restructuring in speech processing is necessary to take place in order to organize any linguistic information in long-term memory. Finally, the system learning is prepared to make changes in someone's interlanguage. However, that does not imply assurance that if one notices the gap in the output he will restructure his speech and make changes in his interlanguage. Understanding something does not entail that restructuring and changes in interlanguage will take place. Most individuals are quite advantaged from awareness of linguistic aspects; however, some individuals cannot have changes in their interlanguage as a result of the awareness they had in the output. Changes in interlanguage certainly require a more complex process. Yet other processes such as rehearsal and frequency are involved in this process (N. Ellis, 1996a). Therefore, what Swain (1995, 1998) called noticing in the output, in her *Output Hypothesis*, I would call understanding - the *Understanding Hypothesis* - which involves awareness at the same level that Schmidt (1995) proposed.

On the other hand, the cognitive mechanism of noticing in the input comes before any kind of learning. It comes as the previous and crucial process for any kind of L2 learning to take place. Particularly in this study, noticing was

registered within an on-line process and measured through off-line process. The former was related to input encoding and learning a new topic which individuals had never studied before, while the latter was related to an indirect way to recall noticing by means of uptake in the oral production. In the latter, noticing was indeed related to oral production, since participants had to recall noticing, that is, retrieve information from the long-term memory on what was noticed during instruction, or in some cases without any instruction within natural settings.

Although Schmidt (1990) proposed that noticing is a non-instructed subjective experience that supplies "the necessary and sufficient condition for the conversion of input to intake" (p. 209), the process of noticing in the input in this study involved noticing of incoming information during instruction, as assumed by this researcher, plus further recall of noticing in the oral performance tasks.

Thus, there are two ways in which noticing may be related to OP. The first is that noticing happens in the input through on-line process and it helps feed intake, while the second happens indirectly when the recall of noticing takes place through uptake, in the oral protocol.

RQ5. Is accuracy in oral performance of the target structure – Indirect Questions – statistically different in the pretest phase and in the posttest phases? If so, is this difference related to working memory capacity and/or noticing?

Hypothesis 6: There is a statistically significant difference in accuracy in oral performance of the target structure in the pretest compared to the accuracy in the posttests. This difference in accuracy of oral performance of the target structure in the three test conditions (one pretest phase, and two posttest phases) is related to

working memory capacity and noticing. Thus, individuals with a larger working memory capacity, as measured by the Speaking Span Test, notice more L2 linguistic aspects when receiving L2 linguistic input, and are more accurate in performing oral tasks.

Hypothesis 7: There is a significant improvement in accuracy in the performance of the target structure in the pretest phase compared to the immediate posttest phase after treatment. However, there is some weakening of accuracy in oral performance of the target structure in the delayed posttest compared to the immediate posttest due to the difficulty of maintenance of the target structure. The maintenance is related to subjects' working memory capacity and noticing.

Norris and Ortega (2000) carried out a meta-analysis on the "Effectiveness of L2 Instruction" with 49 distinctive studies that focused on L2 instruction. Their findings across the comparisons average effect sizes within these studies showed that, although the studies present heterogeneous results, there is a consensus that instructional treatments are quite helpful for L2 learning and development to take place. At a general level, their meta-analysis findings have gotten a supportive consistency for treatment in the second language acquisition process by means of their investigation of whether instructional treatments should take place in second language classes. Treatment in this study is in line with the instructional effectiveness these researchers obtained in their 2000 meta-analysis. Based on these researchers' findings, treatment seems to be very helpful and beneficial for improving participants' L2 development and performance.

Concerning, thus, whether accuracy in oral production is better or not after

treatment, in the pretest phase and in the posttest phases, the answer is *yes*, there was a statistically significant difference after instructional treatment compared to the results between the mean performance of the pretest (*M*=.97 for OP1) and the posttests (*M*=7.27, 7.17 for OP2 and OP3, respectively).

Table 5 shows the results in the three test occasions.

Table 5. Descriptive statistics for "test"

	Mean	Std. Deviation	N
Pretest	0.97	1.13	30
Posttest	7.27	2.79	30
Delayed	7.17	3.35	30

However, treatment was not used in this study in order to check its gain or efficiency in language learning due to two reasons: (a) because this study did not have treatment as the main goal, and (b) because this study did not have a control group. Thus, treatment was used here as a way to make learners aware at the level of noticing of the targeted structure they were taught. Although I acknowledge that treatment was methodologically adopted for this study in order to provoke the participants' noticing of the target structure in the whole group (without control/comparison groups), I cannot deny that treatment was extremely helpful for leading the participants to notice the target structure, thus pushing them to produce the L2 more accurately while using the structure in the posttests (immediate and delayed), the two oral production tasks after treatment. See the distribution of scores on the frequency for noticing in the tasks Noticing 1 and Noticing 2 in Figures 4 and 5.

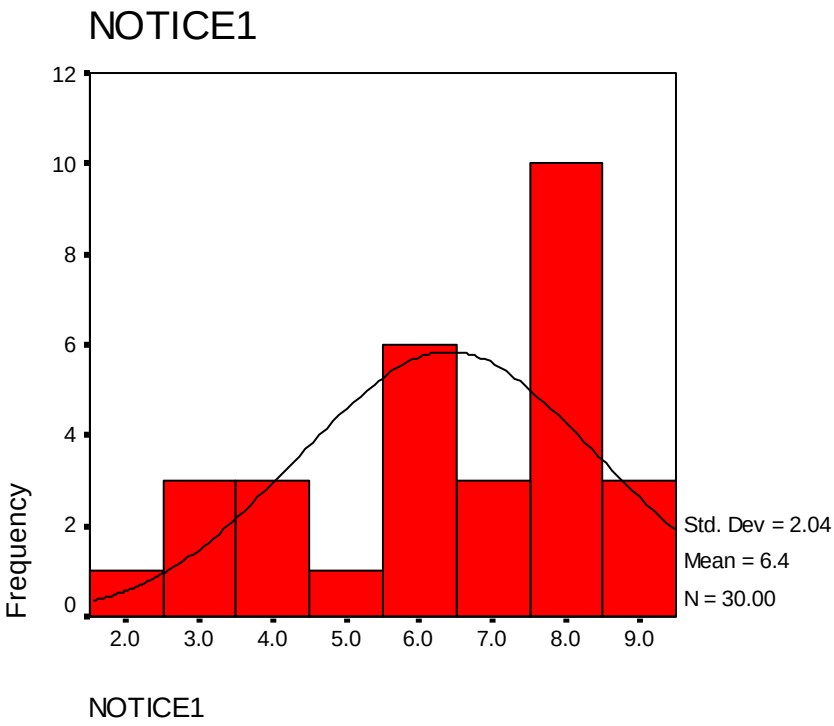

Figure 4. Frequency of noticing in the Noticing 1 task.

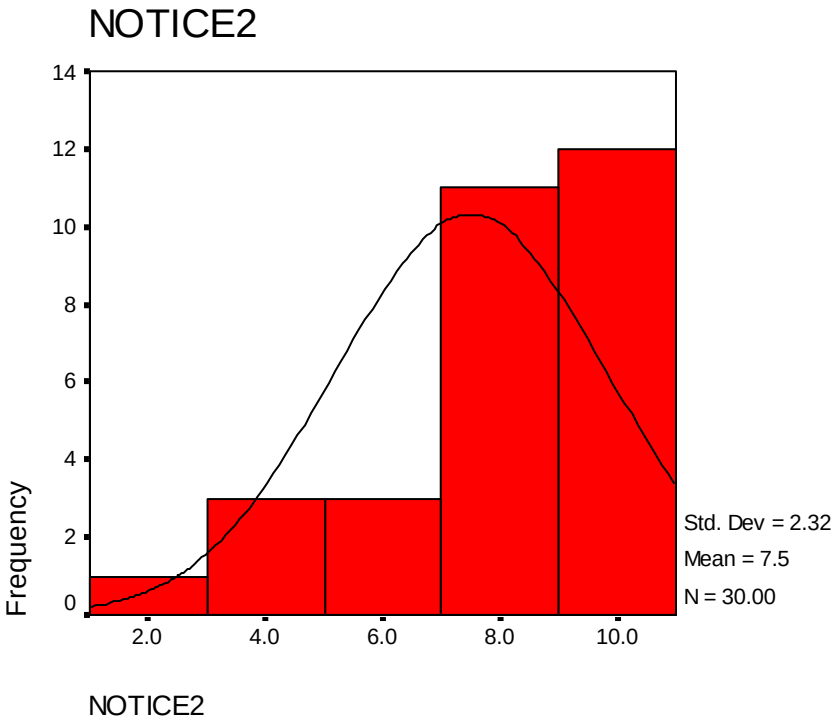

Figure 5. Frequency of noticing in the Noticing 2 task.

Regarding whether accuracy in oral production (OP) is better after treatme6nt or not, the results showed that accuracy of the utterances performed in of the oral production tasks had a significant improvement after treatment, comparing the pretest to the posttests. Tables 1 and 3 showed the means and standard deviation values for the pretest to the posttest. Noticeably, the results showed, through the mean score between the pretest (0.97) and the immediate posttest (7.27), that accuracy was steadily improved between both tests, and that it remained constant when comparing the mean of the immediate posttest (7.27) to the delayed posttest (7.17).

Thus, Hypothesis 6 was supported since oral performance was grammatically more accurate in the posttest phases, after treatment condition of the targeted rule. Figures 6, 7, and 8 illustrate the distribution of scores on the frequency of accuracy in the oral production tasks (OP1, OP2, OP3):

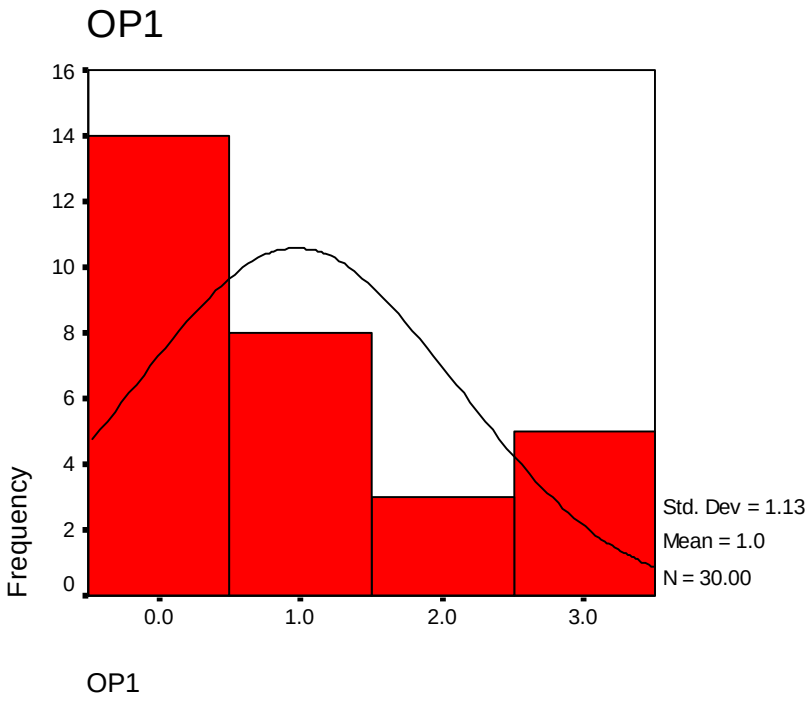

Figure 6. Frequency of accuracy in OP task 1 in the pretest.

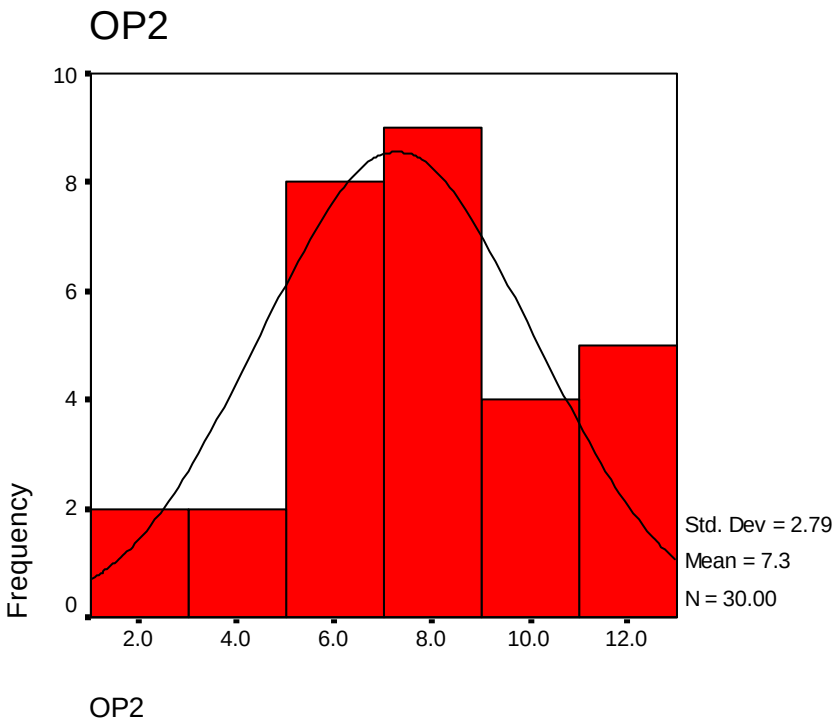

Figure 7. Frequency of accuracy in the Oral Production task 2 in the immediate posttest.

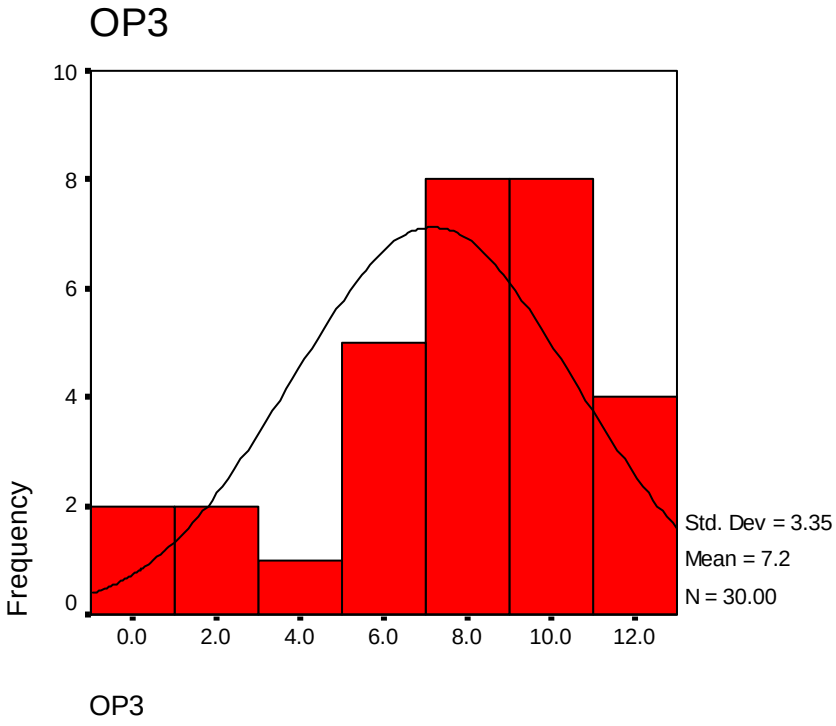

Figure 8. Frequency of accuracy in the Oral Production Task 3 in the delayed posttest.

Hypothesis 7 was also supported since the participants could verbalize the target structure and maintain it for two weeks. The verbalization of the target structure was also confirmatory, and it was obtained by means of uptake in the oral protocol. The production of uptake, that is, the verbalization of a rule or a specific linguistic aspect one learned, indicates that a linguistic form was noticed in the input of the treatment. That does not imply, however, that if a speaker is unsuccessful to produce uptake, the linguistic form was not noticed. In this case, other factors may be related to this fail, such as: (a) the language processing between input and output in language development; (b) the level of cognitive processing the participants had to engage in; and (c) the cognitive individual differences that the participants present in the process of acquiring a second language.

Loewen (2004, p. 158) advocates that ‘‘noticing/learning’’ is possible without the production of uptake. Nevertheless, the fact that the participants could produce utterances closely to the targeted structure (although not accurate as they should be) offers some reasons to believe that noticing occurred and that “learners are in a stage at least toward acquisition’’ (Lightbown, 1998, p. 193).

In this study, most participants were able to verbalize the target structure and give examples after treatment. Although they could verbalize the target structure, some participants demonstrated limited understanding about the structure, while others seemed to have understood more clearly how the structure is formed. As regards the indirect questions they produced by using the target structure in the oral tasks in the posttests, the participants who had a larger working memory capacity, as measured by the SST, performed more accurately than the lower spans.

Hypothesis 7 was also supported since there was some weakening of accuracy in oral performance of the target structure in the delayed posttest compared to the immediate posttest due to the difficulty of maintenance of the target structure, which is related to the constraints of working memory capacity and noticing in the participants' performance.

Gathercole and Baddeley (1993) claim that individual differences in working memory capacity are closely related to "maintaining a representation of language strings for "off-line" processing when language becomes too complex for "online" processing (p. 9)." Thus, the answer for the current question is yes, there is statistically significant difference in the pretest and the posttest phases. This finding supports Hypothesis 6, since the difference in grammatical accuracy of the target structure does exist. In addition, immediate differences after treatment lasted from the immediate posttest to the delayed posttest phase in the oral performance tasks. There is a non-significant decline from the immediate post-test (7.27) to the delayed test (7.17), which does not affect the mean performance of maintenance in this case. Thus maintenance of the target rule has occurred and sustained for two weeks. This entails that noticing occurred during on-line instructional treatment and then it was indirectly recalled two weeks later by means of uptake in the oral protocol.

I believe that this maintenance occurred because of noticing, which made learners aware of the target structure and also contributed to the process of retrieval of the structure by means of uptake. As mentioned in the findings for RQ1, noticing is closely related to sustained performance. This implies that it is due to this cognitive mechanism that accuracy is maintained in the oral performance tasks, as well as it is supported by the mechanism of retrieval, which

is carried out by working memory. Undoubtedly, working memory had the crucial role in the processing of retrieval and recall of noticing, especially when the participants had to use the target structure in oral tasks two weeks after the instructional treatment. Thus, this fact just validates my previous thought based on the idea that these two cognitive constructs and mechanisms, working memory and noticing, operated simultaneously during oral performance.

Finally, as previously mentioned in Chapter 2, pictures repetition was avoided in order not to affect the participants' elaboration of the indirect questions; however, task repetition was not avoided. Nevertheless, it seems that this kind of frequency effect of task repetition was quite positive to the participants' maintenance and retrieval of the target structure after two weeks. First of all, I believe that the occurrence of noticing was the main reason for maintenance to come about, although suggestive conclusion can be attributed to task repetition as an external factor. I acknowledge that task repetition has contributed to recall of noticing, and thus, to the participants' maintenance of the accurate use of the target structure for a long period of time (Bygate, 2001), as it happened in the delayed posttest.

4.4 Conclusion of the discussion of results

As the issue of individual differences in working memory capacity, noticing and L2 speech production was the departing point to enlighten ideas for carrying out this present study, I will discuss now how the relationship among these variables may happen in the speech process.

In order to encode a message, the speaker must have access to two kinds of knowledge: procedural and declarative. The former consists of procedural records, while the latter consists of conscious attention to the incoming information (Schmidt, 1992). According to Schmidt (2001), based on Logan's Instance Theory (Logan, 1988, as cited in Schmidt, 2001),

> encoding into memory is an obligatory consequence of attention (representations in memory are not complete and accurate snapshots, but only encode what subjects pay attention to), and retrieval is an obligatory consequence of attention at the time of attention" (p. 9).

This rationale accords with Schmidt's Noticing Hypothesis Theory (1990, 1995) and is consistent with his claim that, if individuals notice some linguistic aspects of input (here specifically formal or grammatical aspects), they can convert input into intake. Thus, if input is converted into intake, the latter may be, therefore, converted into output, oral or written.

The relationship between noticing and working memory capacity is in line with theoretical literature in the research area of both issues, which reports that learners who notice more are likely to have a higher working memory capacity. In contrast, those who notice less tend to have a smaller working memory capacity (Mackey, Philip, Egi, Fujii & Tatsumi, 2002; Robinson, 1995, 1996, 1997, 2001, 2002). Thus, working memory may facilitate noticing for higher spans while constrain noticing for lower spans (Robinson, 1995, 2001; Skehan, 1998; Schmidt, 1995, 2001). This assumption is in line with the claim that individual differences in WM capacity may reflect differences in controlled attention (Engle, Kane, & Tuholski, 1999).

Moreover, a number of researchers acknowledge that working memory is related to attention and consciousness (Cowan, 1988; Miyake & Shah, 1999; Robinson, 1995; Schmidt, 1990; Shah & Miyake, 1996). Baddeley (1993), for instance, claims that working memory could also be conceptualized as "working attention". In a similar fashion, Cowan (1988) says that to be aware of something implies the working memory functioning; however, "not everything in working memory can be consciously experienced – only elements in working memory under the 'focus of attention' or a 'spotlight' can" (Cowan, 1988, as cited in Miyake & Shah, 1999, p. 17). This supposition reminds us again of the concept of the *Noticing Hypothesis*, and also of Schmidt's (2001) claim that "short-term or working memory capacity is closely related to attention" (p. 10). Similarly, Miyake and Shah (1999, p. 17) cites Baars' Global Workspace theory on working memory that brings this idea with a metaphor of consciousness, by comparing it to a theater:

> [In the Global Workspace theory] conscious contents are limited to a brightly lit spot of attention onstage, while the rest of the stage corresponds to immediate working memory. Behind the scenes are executive processes, including a director, and a great variety of contextual operators that shape conscious experience without themselves becoming conscious. In the audience are a vast array of intelligent unconscious mechanisms...Elements of working memory – on stage, but not in the spotlight of attention – are also unconscious (Baars, 1997b, p. 43, cited in Miyake & Shah, 1999, p. 17).

Following the rationale of Baars' Global Workspace theory, some points need to be raised and clarified. This theory brings insights on the assumption that humans make constant use of their working memory capacity and their attentional resources, including when performing a new complex cognitive task such as

learning/acquiring an L2. Baars (1997b) claimed that "... Elements of working memory – on stage, but not in the spotlight of attention – are also unconscious" (p. 43). Thus, what does Baars mean by that? A modest tentative explanation, that is, suggestive rather than conclusive, can be personally offered following Schmidt's (1992) article, in which he brings a discussion based on Anderson's (1980, 1981, 1982, 1983, 1989, as cited in Schmidt, 1992) theory of the acquisition of cognitive skills by saying that the first step of skill development is concerned with declarative knowledge (propositional), which may be equivalent to consciousness and working memory functioning relationships, that is, working memory under the focus of attention (Baars, 1988; Cowan, 1988; Schmidt, 1990).

As regards the second stage of skill acquisition - the procedural knowledge, knowledge is related to the procedures of performing such skill, here the speaking language skill. In other words, this is related to automatic processing and to how this stage may be developed. According to Schmidt (1992), Anderson (1989) outlines two general processes concerning the development of procedural knowledge: 1) *knowledge compilation*, in which the skill moves from the declarative stage to the procedural stage in a linear way; and 2) *tuning*, in which production becomes more selective in its extent of applications.

Based on such general processes, according to Schmidt (1992, 2001), learners' attentional resources may be constrained by the degree of control (declarative knowledge) or automaticity (procedural knowledge) that learners have, while comprehending or producing the L2. Thus, this thought may be in line with what Baars (1997b, as cited in Miyake & Shah, 1998, p. 17) claims that not everything in working memory is conscious, therefore everything could be conscious or unconscious.

For Baars (1986, 1988), to be aware of something implies working memory functioning, whereas working memory functioning may imply conscious and unconscious processes. In my opinion, when working memory is dealing with new information, it probably needs some conscious support to control attention dispensed to the new information as well as to activate information in the long-term memory.

After this processing takes place, with a certain amount of practice, declarative knowledge (with conscious attention) feeds into a faster processing which demands less attention or lack of attention, that is, the declarative knowledge becomes procedural knowledge. Individuals' attentional resources may be used in both processes; however, in different degrees. Therefore, it is the degree of attention that will constrain or determine if the knowledge is still declarative or already procedural.

Schmidt (1990, p. 138) points out that conscious processes have "a limited capacity central processor, and are therefore slow, inefficient, mostly serial, and effortful", and that unconscious processes "are not limited by short-term memory capacity", since these processes "are not under voluntary control and are difficult to modify, but are fast, efficient, and accurate, and are responsible for skilled performance and most details of cognitive processing". In addition, Schmidt (1990, p. 138) claims that Baars' Theory emphasizes that "conscious experience is always informative". Moreover, he states that theoretical approaches to the understanding of consciousness are compatible with the idea that consciousness separates mental life into two different positions: conscious and unconscious (Baars, 1988, Carr, 1979; Gardner, 1985; Norman, 1986; Schneider, 1985, as cited in Schmidt 1990, p. 138). For Schmidt (1990), "all identify consciousness with

on-line phenomenological awareness" (p. 138), and "all theories of consciousness specify a crucial role for consciousness in dealing with novel information, novice behavior, and learning" (p. 138). Therefore, awareness (at the level of noticing) and consciousness are crucial during the second language acquisition process.

CHAPTER 5

CONCLUSION

The aim of the present study was to investigate the relationship among working memory capacity, noticing of L2 forms, and L2 oral production in the performance of indirect questions in oral tasks.

The organization of this study was as follows: Chapter 1 presented the introduction for the current study. Chapter 2 presented a review on theoretical issues in working memory capacity, noticing, and L2 oral production. Chapter 3 presented the method adopted to collect and analyze the data: the participants, the procedures for selecting participants, the instruments, the study design (the pretest and the posttests, the treatment, the oral protocol), and the procedures used to collect and to analyze the data. Chapter 4 presented the results and discussion concerning the analysis of the relationships among working memory capacity, noticing of linguistic aspects of the target grammar structure, and the grammatical accuracy of oral performance in oral tasks. Also, Chapter 4 presented a discussion of such relationships among the variables, which was offered by answering each particular research question and supporting the hypotheses as well. The present chapter, Chapter 5, presents the conclusion to the study, which suggests some pedagogical implications, acknowledges the limitations of this study, and finally presents suggestions for further research.

The results of this study indicated that there are statistically significant relationships among working memory capacity, noticing, and L2 oral

performance. In other words, individuals with a larger working memory capacity noticed more L2 linguistic aspects of the target structure and demonstrated more accurate performance in L2 oral tasks than individuals with smaller working memory capacity, who noticed fewer L2 formal aspects and demonstrated poorer performance of the target structure in L2 oral tasks.

These findings corroborated Schmidt's (1990, 1995) claims on his *Noticing Hypothesis*, as well as those of Robinson (1995, 1996a, 1996b 1997, 2001, 2002a) and Mackey et al. (2002), which convey the idea that noticing is closely related to working memory capacity and second language development. In addition, the findings corroborate those of Fortkamp (1999, 2000), which indicates that there is a statistically significant relationship between working memory capacity and L2 oral production.

Thus, the findings of the current study showed that higher processors noticed more the target structure selected to be taught in this study because they had a larger working memory capacity, although it also showed that lower processors benefited from instruction. This can be seen in the results of the participants' scores in grammatical accuracy during the L2 oral production tasks.

Based on the findings above, I propose some **pedagogical implications** for second/foreign language teachers. L2 teachers should: (1) prepare, elaborate and/or design different tasks that call learners' attention to the structures to be taught by means of such tasks, (2) provide learners with opportunities to notice the linguistic aspects in the input, and (3) make learners aware of such linguistic aspects they are learning.

In addition to **pedagogical implications**, I suggest that instruction in the input of linguistic aspects probably benefits second language learners. Instruction

also contributes to second language development and to the acquisition of formal aspects of a second language. Through instruction, learners may notice linguistic formal aspects, and thus, produce those aspects with more grammatical accuracy during performance of oral tasks. Furthermore, not only may instruction benefit learners, but it may also benefit lower processors or lower spans.

Although instruction should be explicit in some situations, it may be implicit in others, leading learners to find out what is implicit in the tasks or classroom activities. Several different kinds of tasks should be developed by second language educators according to their students' reality and needs. Thus, a needs analysis should be conducted by educators in their language classes in order to elaborate an authentic material to be worked with in language classes.

This study had some **limitations**. Due to the limited number of participants, it was not possible to do a regression analysis in order to see which variable predicted better in this study. Further research should replicate this study and do a regression analysis to verify whether it is noticing or working memory capacity the best accuracy predictor in oral performance.

Another **limitation** I acknowledge is that working memory capacity was not assessed in L1, only in L2 since this research was conducted in L2, only. The study was compared to Mackey et al.'s (2002) in the data discussion, although the comparison has limitations, since Mackey et al. (2002) assessed working memory capacity both in L1 and L2, in order to verify whether there was differences or similarities in working memory capacity in both languages, as measured by the Speaking Span Test.

The main reason why I should have assessed working memory in L1 was to check the way the participants processed the target structure in their first

language and in the second language. Then, a comparison should have been done with the participants' grammatical accuracy of the target structure by assessing their working memory capacity scores in L1 and in L2.

The other **limitation** to take into account is that the current study investigated noticing through an instructional treatment instance only. Further research is needed to check noticing in other occasions such as in on-line occasions through interaction in the input, and in instructed and non-instructed occasions, that is, with or without treatment in the input.

As **suggestions for further research,** future studies should replicate this experimental study with a larger sample of participants in order to statistically check, by means of a regression analysis, which variable predicts better, whether it is either working memory capacity or noticing.

As regards the noticing assessment, the present study provides a statistical measure of noticing that can be used by other researchers in studies on noticing. A new measure of noticing should be created in order to measure maintenance of some linguistic aspects in instructed and non-instructed conditions, since findings in this study showed that maintenance is a close construct related to noticing.

Moreover, this study provides a list of parameters to assess grammatical accuracy of *Indirect Questions* in utterances in isolation that can also be used by other researches in further studies on grammatical accuracy assessment. It also offers parameters to assess WM-strict and WM-lenient scores through the performance of the Speaking Span Test.

In addition, further studies should replicate this study by applying two delayed posttests, one two weeks after the treatment, and the other a month after the treatment in order to assess maintenance in a longer period of time. Besides,

future studies should also replicate this study by measuring other aspects of oral performance during participants' speech, such as fluency, complexity or lexical density.

Furthermore, in order to ameliorate the effects of the exceptions found in the discussion for Research Questions 2 and 3, I suggest a replication of this study with a larger sample, but with a similar method, in order to check the validity of Hypotheses 2, 3, and 4, since these hypotheses were partially supported.

In sum, this study can be taken as a contribution to better understand why humans show differences among themselves when dealing with a complex cognitive task, especially when individuals are learning a second language.

Thus, I have tried throughout this study to understand how working memory and noticing distinguish individuals' grammatical accuracy when they orally produce an L2. Bearing in mind this central aim, I believe I have strengthened the work conducted in the field of SLA in accomplishing the complex and fascinating task of understanding how humans acquire a second language, and how and why they vary in doing so.

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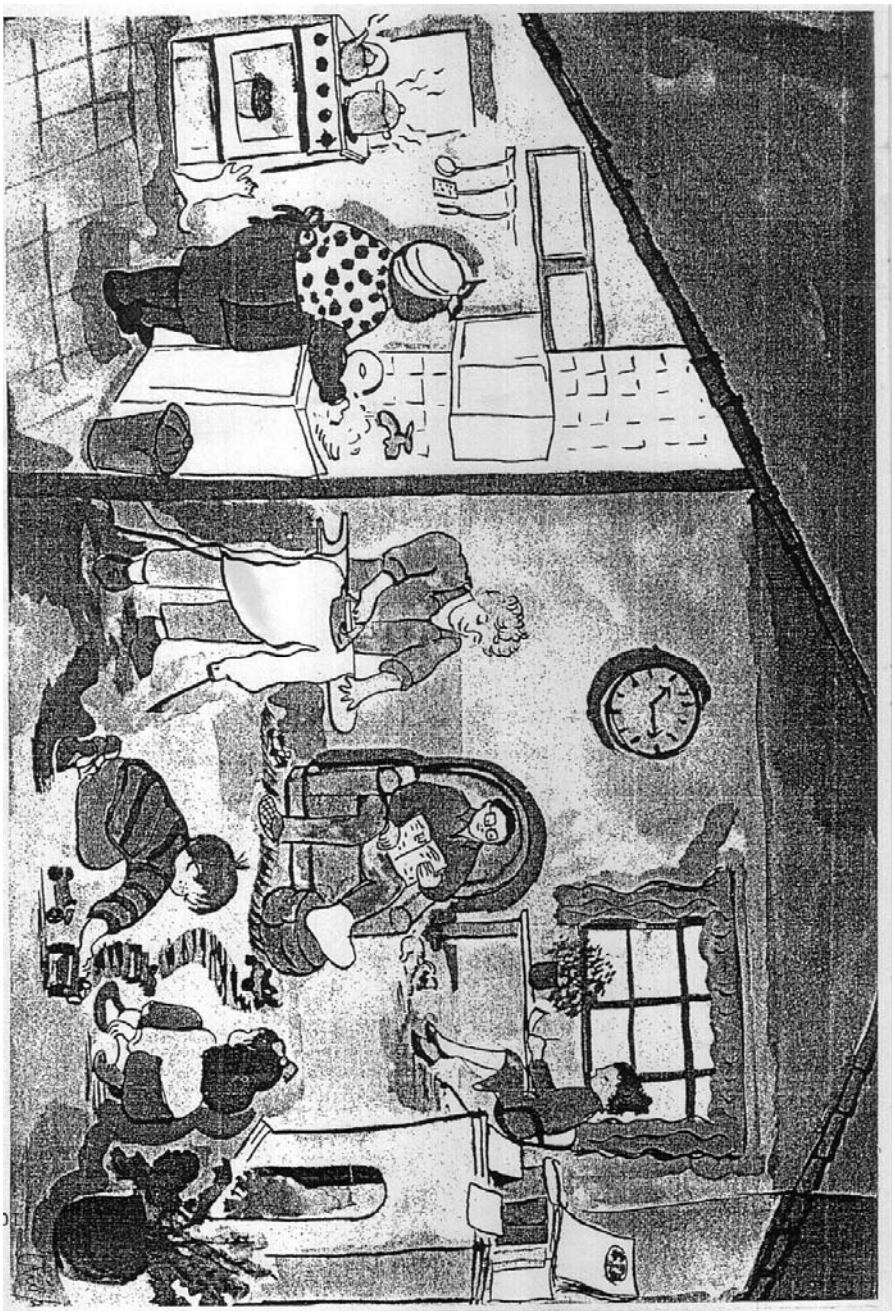
APPENDICES

APPENDIX A

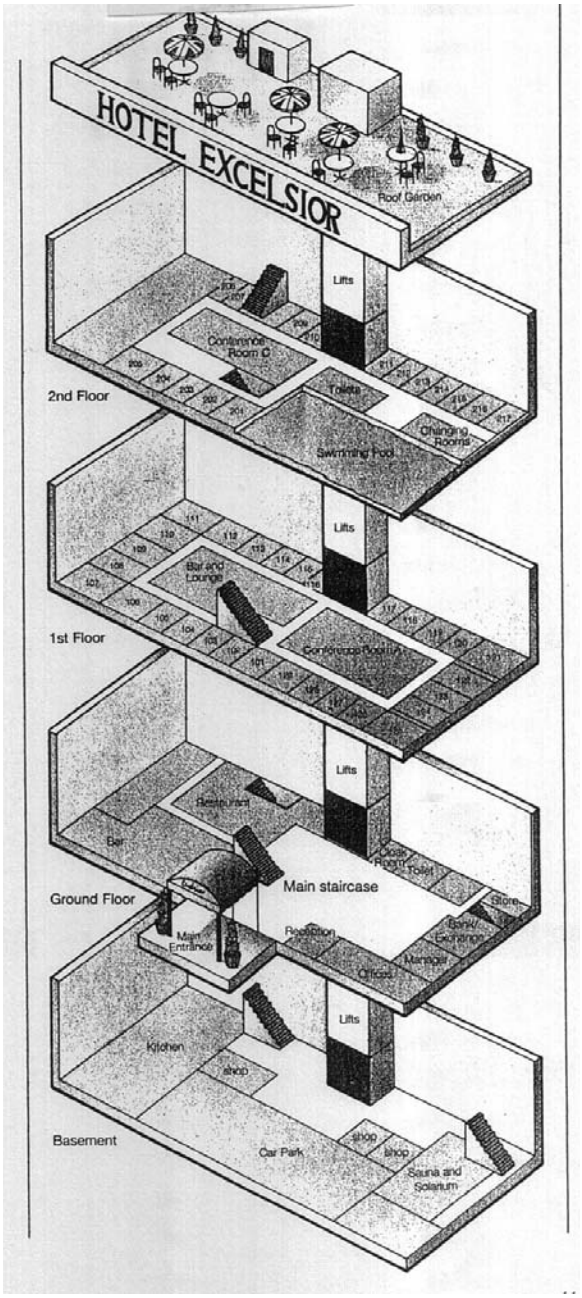


APPENDIX B

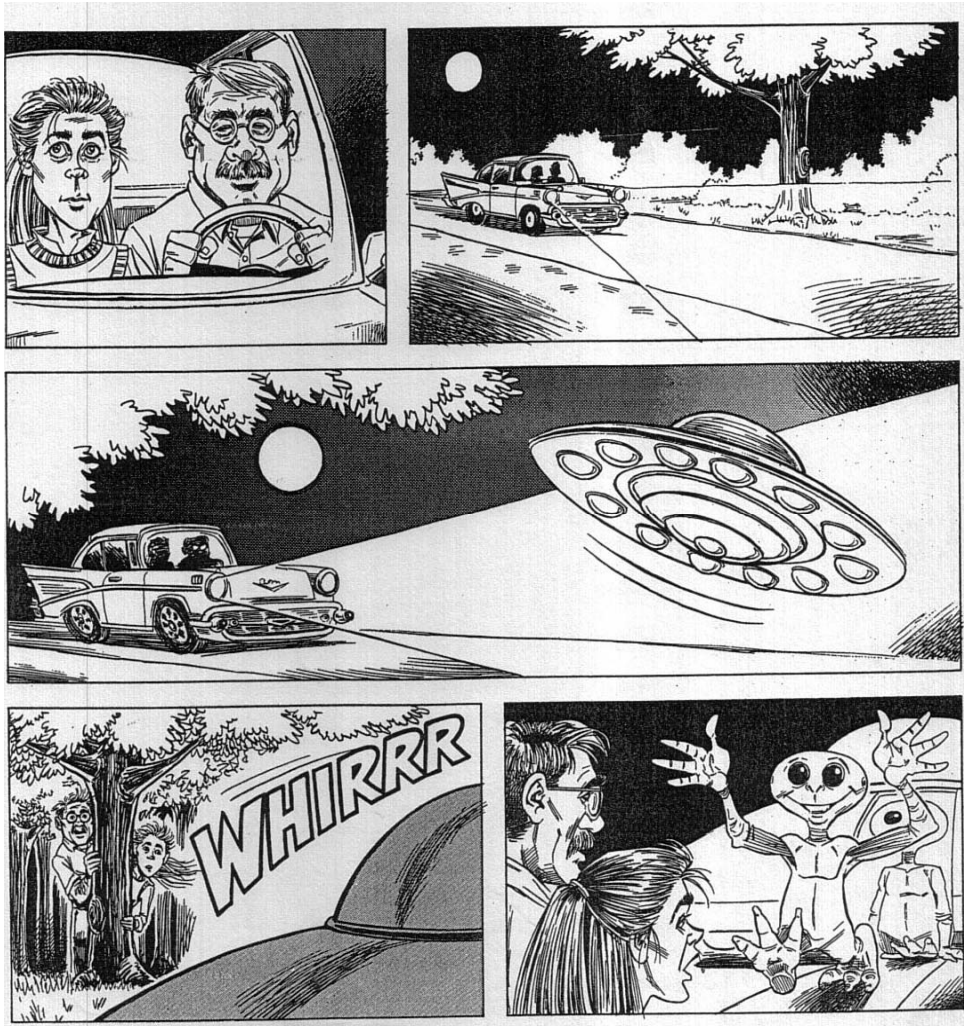
RATING SCALES – Adapted from FCE speaking test assessment scales (Cambridge Examination), and Iwashita, McNamara and Elder, 2001and the RSA test (in Hughes,1989) APPENDIX B

	0	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Grammar and Vocabulary • *Range* • *Accuracy* • *Appropriacy*	Insufficient sample of spoken language	• The range of grammatical forms and vocabulary is not adequate. • Grammar is insufficiently accurate to deal with the tasks, and errors obscure intended meanings. • Vocabulary is used inappropriately, or may be too limited to deal with the tasks. • Clear lack of linguistic control even of basic forms.	More features of 1.0 than 3.0	Some features of 3.0 and some features of 1.0 in approximately equal measure	More features of 3.0 than 1.0	• An adequate range of grammatical forms and vocabulary is used. • Grammar is sufficiently accurate to convey intended meanings. • Vocabulary is sufficiently appropriate to deal with the tasks. S/he is able to express herself/himself without overtly having to search for words. • Manages most common forms, with occasional errors; major errors present.	More features of 3.0 than 5.0	Some features of 3.0 and some features of 5.0 in approximately equal measure	More features of 5.0 than of 3.0	• A wide range of grammatical forms and vocabulary is attempted. • Grammar is mainly accurate, although minor errors may occur • Vocabulary is sufficiently appropriate to deal with the tasks effectively. • Errors are barely noticed.
Complexity and discourse management • *Coherence* • *Extent* • *relevance*		• Produces mostly sentences fragments and simple phrases. Little attempt to use any grammatical means to connect ideas across clauses. • Contributions lack relevance and/or coherence, and are inadequate in developing the discourse. • Contributions are of an inappropriate length.				• Mostly relies on simple verb forms, with some attempts to use a greater variety of forms (eg., passives, modals , more varied tense and aspect). Some attempt to use coordination and subordination to convey ideas that cannot be expressed in a single clause. • Contributions are mostly relevant and coherent, and are adequate in developing the discourse. • Contributions are usually of an appropriate length. Although some contributions may be short, there is some evidence of ability to produce more complex utterances.				• Confidently attempts a variety of verb forms (eg. Passives, modals , tense , and aspect), even if the use if not always correct. Regularly takes risks grammatically in the service of expressing complex meaning. Routinely attempts the use of coordination and subordination to convey ideas that cannot be expressed in a single clause, even if the result is occasionally awkward of incorrect. • Contributions are relevant and coherent, and are effective in developing the discourse. • Contributions are consistently of an appropriate length.
Fluency • *Stress and rhythm* • *Intonation* • *Individual sounds* • *Presence of hesitation and false starts* • *Pausing patterns*		• The use of stress, rhythm and intonations is inappropriate and puts a strain on the listener. • Poor articulation of individual sounds makes utterances difficult to understand. • Speech is quite disfluent due to frequent and lengthy hesitations or false starts. Too much use of filled and unfilled pauses within clauses.				• The use of stress, rhythm and intonations is sufficiently appropriate for most meanings to be conveyed effectively. • Individual sounds are articulated sufficiently clearly for utterances to be understood, although there may be occasional difficulty for the listener. • A reasonable degree of hesitation due to word-finding delays, relative ability to phrase utterances easily. • Reasonable use of filled and unfilled pauses within clauses. • Speaks fairly fluently with only occasional hesitation, false starts and modification of attempted utterance.				• The use of stress, rhythm and intonations is sufficiently appropriate for meanings to be conveyed effectively; • Individual sounds are articulated sufficiently clearly for utterances to be understood easily. • Speaks fluently, without any hesitation, false starts and modification of attempted utterances. Barely makes use of unfilled and filled pauses within clauses – filled and unfilled pauses occurring at the end of clause boundaries.

APPENDIX C


HOTEL EXCELSIOR
Roof Garden
Lifts
Conference Room C
Toilets
2nd Floor
Changing Rooms
Swimming Pool
Lifts
Bar and Lounge
1st Floor
Conference Room A
Lifts
Restaurant
Bar
Cloak Room
Toilet
Main staircase
Store
Ground Floor
Main Entrance
Reception
Bank/ Exchange
Manager
Offices
Lifts
Kitchen
shop
Basement
Car Park
shop
shop
Sauna and Solarium

APPENDIX D



APPENDIX E

1. Do you notice grammatical rules when the teacher explains? *(Você nota as regras gramaticais quando o professor explica?)*

( ) yes ( ) no ( ) sometimes

2. Do you look for rules before speaking? *(Você procura pelas regras antes de falar?)*

( ) yes ( ) no ( ) sometimes

3. Do you remember the rule the teacher explained today? *(Você lembra da regra que o professor explicou hoje?)*

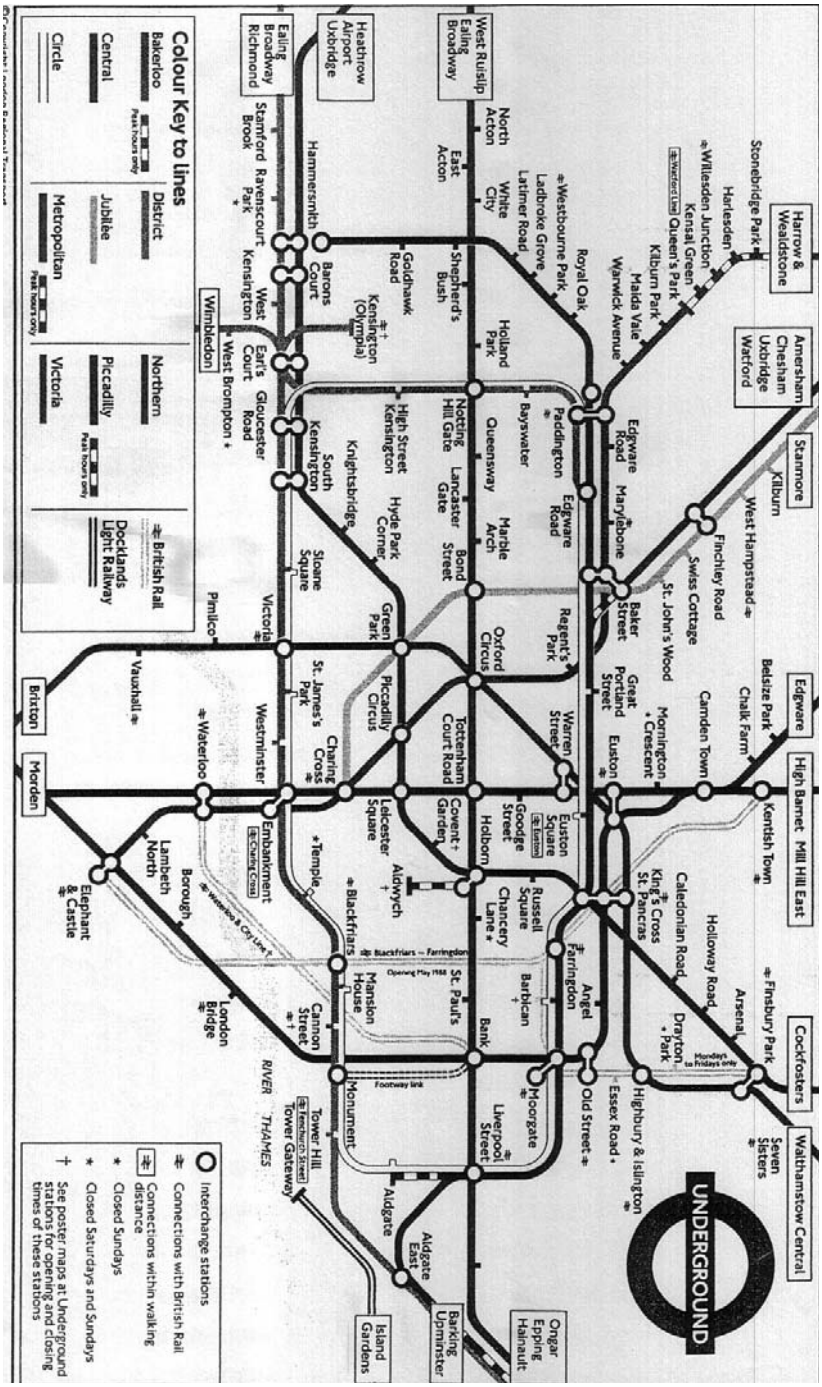
( ) yes ( ) no ( ) sometimes

4. Can you verbalize the target rule? Talk about the rule. *(Você pode verbalizar a regra? Fale sobre a regra com as suas próprias palavras)*

5. Give two examples using the rule. *(Dê dois exemplos usando a regra que o professor explicou hoje).*

P.S.: The oral protocol was administered in Portuguese in order to facilitate the participants' understanding of the questions in the interview.

APPENDIX F


Colour Key to lines
Bakerloo
Central
Circle
District
Jubilee
Metropolitan
Northern
Piccadilly
Victoria
Docklands Light Railway
British Rail
Interchange stations
Connections with British Rail
Connections within walking distance
Closed Sundays
Closed Saturdays and Sundays
See poster maps at Underground stations for opening and closing times of these stations
UNDERGROUND
RIVER THAMES
Harrow & Wealdstone
Stanmore
Edgware
High Barnet
Mill Hill East
Cockfosters
Amersham
Chesham
Uxbridge
Watford
Kilburn
West Hampstead
Finchley Road
Swiss Cottage
St. John's Wood
Baker Street
Great Portland Street
Euston
Camden Town
Chalk Farm
Belsize Park
Kentish Town
Caledonian Road
Holloway Road
Arsenal
Finsbury Park
Walthamstow Central
Seven Sisters
Highbury & Islington
Essex Road
Old Street
Moorgate
Liverpool Street
Aldgate
Aldgate East
Barking
Upminster
Ongar
Epping
Hainault
Island Gardens
Tower Hill
Tower Gateway
Monument
Mansion House
Cannon Street
London Bridge
Angel
Farringdon
Barbican
Bank
St. Paul's
Chancery Lane
Russell Square
Holborn
Goodge Street
Euston Square
Warren Street
Tottenham Court Road
Covent Garden
Leicester Square
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Embankment
Temple
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Piccadilly Circus
St. James's Park
Westminster
Victoria
Pimlico
Regent's Park
Oxford Circus
Green Park
Bond Street
Marble Arch
Lancaster Gate
Queensway
Bayswater
Paddington
Edgware Road
Marylebone
Warwick Avenue
Maida Vale
Kilburn Park
Queen's Park
Kensal Green
Willesden Junction
Harlesden
Stonebridge Park
Wembley Park
Neasden
Dollis Hill
Willesden Green
Kingsbury
Queensbury
Canons Park
Edgware
Hendon Central
Brent Cross
Golders Green
Hampstead
Belsize Park
Chalk Farm
Camden Town
Mornington Crescent
Euston
King's Cross St. Pancras
Caledonian Road
Holloway Road
Arsenal
Finsbury Park
Manor House
Turnpike Lane
Wood Green
Bounds Green
Arnos Grove
Southgate
Oakwood
Cockfosters
Seven Sisters
Tottenham Hale
Blackhorse Road
Walthamstow Central
Wood Green
Alexandra Palace
Ealing Broadway
Ealing Common
Acton Town
Chiswick Park
Turnham Green
Stamford Brook
Ravenscourt Park
Hammersmith
Barons Court
West Kensington
Earl's Court
Gloucester Road
South Kensington
Knightsbridge
Hyde Park Corner
Green Park
Victoria
Sloane Square
High Street Kensington
Notting Hill Gate
Queensway
Lancaster Gate
Marble Arch
Bond Street
Oxford Circus
Regent's Park
Great Portland Street
Euston
Warren Street
Goodge Street
Tottenham Court Road
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Piccadilly Circus
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Westminster
St. James's Park
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Waterloo
Lambeth North
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Borough
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Cannon Street
Mansion House
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Barbican
Farringdon
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Moorgate
Liverpool Street
Aldgate
Aldgate East
Tower Hill
Tower Gateway
Shepherd's Bush
Goldhawk Road
Kensington (Olympia)
Holland Park
Ladbroke Grove
Latimer Road
White City
North Acton
East Acton
West Ruislip
Ealing Broadway
Heathrow Airport
Uxbridge
Ealing Broadway
Richmond
Wimbledon
West Brompton
Paddington
Royal Oak
Westbourne Park
Edgware Road
Marylebone
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Finchley Road
Swiss Cottage
St. John's Wood
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Camden Town
Chalk Farm
Belsize Park
Kentish Town
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Finsbury Park
Highbury & Islington
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Liverpool Street
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Ladbroke Grove
Latimer Road
White City
North Acton
East Acton
West Ruislip
Ealing Broadway
Heathrow Airport
Uxbridge
Ealing Broadway
Richmond
Wimbledon
West Brompton
Paddington
Royal Oak
Westbourne Park
Edgware Road
Marylebone
Baker Street
Finchley Road
Swiss Cottage
St. John's Wood
Mornington Crescent
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Kentish Town
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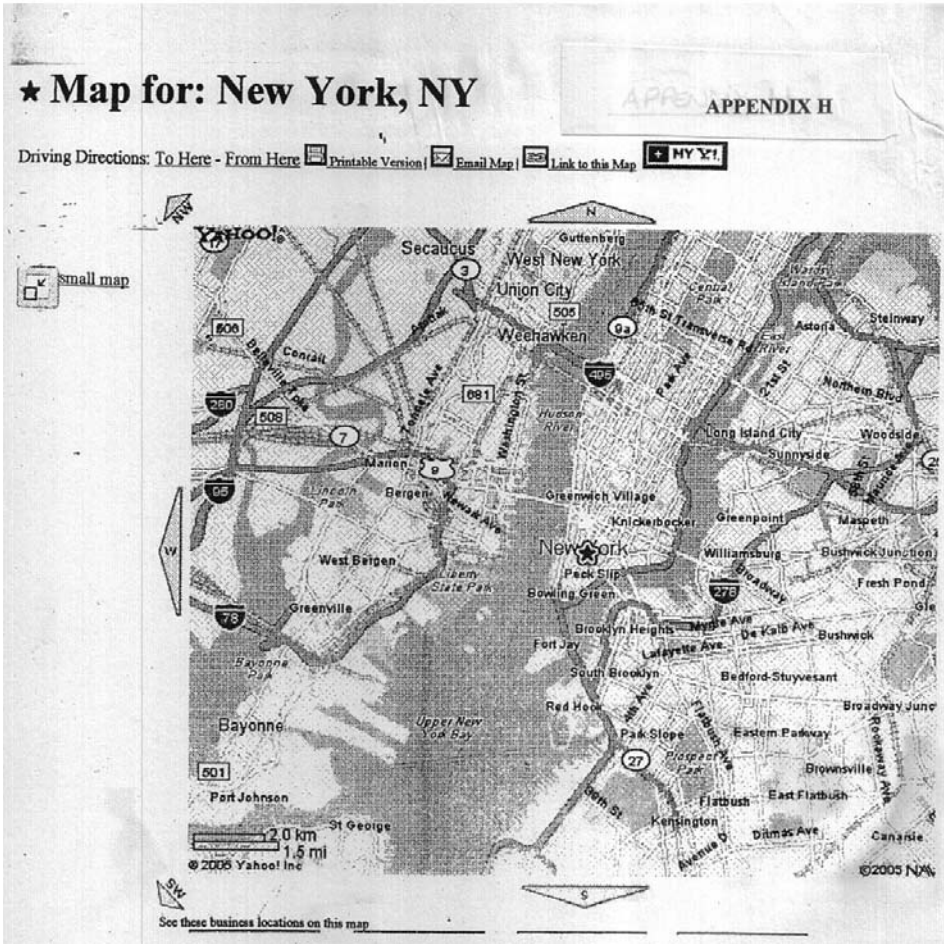
APPENDIX G

APPENDIX H


★ Map for: New York, NY
APPENDIX H
Driving Directions: To Here - From Here Printable Version | Email Map | Link to this Map
small map
Secaucus
West New York
Union City
Weehawken
Guttenberg
Astoria
Steinway
Long Island City
Woodside
Sunnyside
Greenwich Village
Knickerbocker
Greenpoint
Maspeth
New York
Williamsburg
Bushwick Junction
Fresh Pond
West Bergen
Bergen
Manen
Greenville
Bowling Green
Peck Slip
Brooklyn Heights
Fort Jay
Myrtle Ave
De Kalb Ave
Bushwick
Lafayette Ave
South Brooklyn
Bedford-Stuyvesant
Red Hook
Park Slope
Eastern Parkway
Broadway Junc
Bayonne
Upper New York Bay
Port Johnson
St George
Brownsville
Flatbush
East Flatbush
Kensington
Ditmas Ave
Canarsie
2.0 km
1.5 mi
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See these business locations on this map

APPENDIX I

APPENDIX J

Parameters to assess the participants' accuracy in the performance of *Indirect Questions* in the three oral production tasks

I) Errors considered totally inaccurate

1. When the verb *to be* is in the middle and at the end of a sentence, that is, it appears twice in the sentence:

e.g.: Can you tell me what's the bill is?

e.g.: Could you tell me where is the Port Johnson is?

2. When the grammatical construction or organization of the sentence is totally wrong, incomprehensible or incoherent:

e.g.: Could you tell stand up in the table and stop shout?

e.g.: Could you tell me the girl in that table is tell your friend about?

3. When the structure of the sentence still shows aspects of direct questions, such as:

e.g.: Could you tell me where's the Central park?

e.g.: Could you tell me where's the Park Avenue?

4. When the structure of the sentence still shows aspects of direct questions and problems of verb agreement together.

e.g.: Can you tell me where are 2nd Street?

e.g.: Could you please tell me where are Street 276?

P.S.: In these two examples, not only the position of the main verb is inappropriate, that indicates certain aspects of a direct sentence, but also the verb agreement presents problem with the rest verb of the sentence.

5. When the structure of the sentence presents problems of subject and verb agreement, since this formal aspect makes part of the target structure, and because of that it cannot be considered just as a word choice.

e.g.: Could you tell me how many peoples in the restaurant is?

P.S.: In this case, besides subject-verb agreement, there is a mistake with “people” instead of “peoples”.

6. When it is missing any word in the target structure, for example, *could you tell*…instead of *could you tell me*. It is not being considered correct because this shows a grammatical structure problem in the target structure and lack of knowledge about it.

e.g.: Could you tell (???) who put the frog in that meal?

e.g.: Could you tell (???) who ate that fish?

7. When participants use the verb *to have* instead of *to be (is or are)*, because it is not possible to know how they would use the correct order of the verb *there to be*. Because of that, it is considered inaccurate.

e.g.: Could you tell me what has in that soup?

8. When the verb tense used in the sentence should be *The Present Continuous Tense* instead of *The Simple Present Tense*, because they should use the verb to be, and it is difficult to evaluate if they would know how to accurately use it.

e.g.: Do you know what the couple talks? (instead of *is talking*)

e.g.: Do you know why the man cries? (instead of *is crying*)

P.S.: In the first example, there is another mistake besides the verb tense, that is, the lack of the preposition *about* after the verb, although lack of prepositions is consider a small mistake.

9. When the relative pronoun is changed for another one, when this changing affects with the target structure or with the coherence of the whole sentence.

e.g.: Could you tell me what the manager was?

e.g.: Can you tell me where the man is nice?

10. When the sentences are incomplete, that is, it is missing an important word.

e.g.: Could you tell me how much their (???) is?

11. When the subject is missing in the sentence, since it is difficult to judge if the participant would use the verb to be of the target structure in the correct or incorrect place.

e.g.: Could you tell me please what kind of soup (???) is? (*this* is missing).

e.g.: Could you confirm please what kind of steak (???) is? (*it* or *this* is missing).

12. When the verb to be is missing, since it interferes with the target structure.

e.g.: Could you tell me what the waitress (???) serving?

13. When the interrogative pronoun *where* is missing, so it interferes with the target structure.

e.g.: Do you know (???) the Bakerly Street is? (*where* is missing).

14. When they use verb to be and *The Simple Past* together.

e.g.: Do you know what is happened?

15. When they make sentences with the modals *can* and *could*, but the sentences are not indirect questions, that is, they are direct. In this case, it is missing one sentence since The Indirect Questions have two, one embedded into the other.

e.g.: Can you help me to find the Central Park? (*this question is direct, not indirect*).

II) Small mistakes that were not considered errors. The sentences were considered correct since the participants used the targeted grammatical structure

1. Definite or indefinite article (if it is missing in the sentence, or if it is used when it is not necessary).

e.g.: Could you tell me where (the) Hudson River is?

e.g.: Could you tell me where (the) Maison house is?

e.g.: Could you tell me what color (???) egg is? (*the* is missing)

2. Inadequate lexico.

2.1. Preposition use (inadequate preposition, or if it is missing in the sentence, or if it is used when it is not necessary).

e.g.: Could you tell me who is in the phone? (*in* instead of *on*)

2.2. Word choice (if they use an inadequate word or lexico, since it does not interfere on the meaning of the whole sentence, but it must keep coherent).

e.g.: Could you tell me what the woman is calling?

3. Word missing (since this word does not make part of the target structure).

e.g.: Could you tell me Northen Boulevard is near this Stain Way? ("if" is missing)

4. Word agreement (singular/plural/countable/uncountable).

e.g.: Do you know if there are much people in the restaurant? (many/much)

5. The use of "it" after a relative pronoun, since they were not taught this.

e.g.: Could you tell me what (it) is going on?

6. When the verb tense used in the sentence is changed by another verb tense without interfering in the structure of the verb to be, as for example, *The Simple Present Tense* changed by *The Simple Past* or vice-versa.

e.g.: Can you tell me what she lunch? (instead of *lunched*)

7. When the relative pronoun is changed for another one, since it does not interfere with the target structure or with coherence of the whole sentence. Or,

still, when the relative pronoun presents some problems of agreement with the following word, as for example:

e.g.: Could you tell me why that three people are going to the hotel? (*that* instead of *those*).

e.g.: Could you tell me what the woman is calling? (instead of *who* or *why*).

8. When there is a word missing in the sentence that does not interfere with the meaning of the whole sentence and does not make part of the target structure.

e.g.: Could you tell me who is the person she is talking? (talking to or about)

9. When there is a word choice of an adjective ended with gerund (*-ing*) by another one ended with a participle form (*-ed*), and vice-versa, since it does not interfere with the target structure.

e.g.: Can you tell me why he is sitted? (instead of *sitting*)

e.g.: Can you tell me why she is so exciting? (instead of *excited*)

III) Very accurate sentences (they were considered correct sentences since they were accurate and coherent, and correctly presented the target structure)

e.g.: Do you know what time the restaurant closes?

e.g.: Do you know what the waiter is doing?

e.g.: Could you tell me what time this restaurant closes?

e.g.: Do you happen to know how long the Park Evis is?

P.S.: All the indirect questions should have presented the following structures in the beginning of the questions to be considered accurate:

Can you tell me…?

Could you tell me…?

Would you tell me…?

Do you know…?

Do you happen to know…?

APPENDIX L

S1

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala ? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não
4) Qual é a regra? Indirect questions. It is you ask/ell about someone what other people did.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me who I am?
2) Could you tell me where the bank is?

S2

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala ou antes vc falar? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não
4) Qual é a regra? Indirect questions. Quando vai pedir educadamente, se inverte a ordem da frase.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me are that couple going to?
2) Could you tell me what time it is?

S3

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala ou antes de vc falar? ( ) sim (x) não ( ) às vezes
3) Você lembra da regra da aula passada? ? (x) sim ( ) não
4) Qual é a regra? Indirect questions. Indirect speech é qdo eu faço uma pergunta indiretamente para uma pessoa, eu não pergunto diretamente, antes eu uso uma maneira educada, polite de falar com a pessoa.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me what time it is?
2) Can you tell me who he kissed?

S4

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula passada? ? (x) sim ( ) não
4) Qual é a regra? Indirect question and formal questions. Fazer uma pergunta mais Formal onde o verbo vai pro final.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me where he is?
2) Could you tell me what time it is?

S5

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala ou escreve? ( ) sim (x) não ( ) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Direct speech
5)Dê-me dois exemplos. Elabore duas frase orais:
1) What time it is?
2) ???

S6

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala ? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula passada? ? (x) sim ( ) não
4) Qual é a regra? Indirect questions. É uma forma de pedir aos outros...uma forma mais educada.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Can you tell me what time it is?
2) Can you tell me where it is?

S7

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Indirect questions.
5)Dê-me dois exemplos. Elabore duas frase orais:

1) I don’t know what time it is.
2) Can you tell me where the hospital is?

S8

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não
4) Qual é a regra? Indirect questions. É como se você fosse contar para alguém o que outra pessoa fala.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Can you tell me what time it is?
2) I don’t know where Mr. Green lives.

S9

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não
4) Qual é a regra? Indirect speech
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me where the bank is?
2) Could you tell me what her name is?

S10

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não
4) Qual é a regra? Indirect speech. Eu não sei explicar.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Can you tell me what time it is?
2) Can you tell me where the bank is?

S11

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não

4) Qual é a regra? Indirect questions, indirect speech. Existe a pergunta direta, quando você faz diretamente, por exemplo what time is it? E tem aquela pergunta que você faz indiretamente, que é a que a gente estudou: could you tell me what time it is?
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me what time it is?
2) ???

S12

1) Você nota as regras quando o professor explica? ( ) sim (x) não ( ) às vezes
2) Você procura pelas regras quando você fala? ( ) sim (x) não ( ) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Mais ou menos ... não lembrou! ...é quando você vai perguntar para uma pessoa sobre a ação de outra pessoa. Quando você tem que mudar o verbo...
5)Dê-me dois exemplos. Elabore duas frase orais:
1) What time is it? Can you tell me what time it is?
2) Can you tell me what he's doing?

S13

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não
4) Qual é a regra? Indirect speech, indirect question. Você tem que perguntar indiretamente pra pessoa e mudar a ordem dos verbos.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Can you tell me what time it is?
2) Can you tell me where the bank is?

S14

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não
4) Qual é a regra? Inverteu o is e o it.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Can you tell me what time it is?
2) Can you tell me where he lives?

S15

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Inverter as ordens da palavra na pergunta. É indirect speech, é transformar uma frase direta em indireta

5)Dê-me dois exemplos. Elabore duas frase orais:
1) What time is it? What time it is?
2) Where is the bank? Where the bank is?

S16

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Quando a gente faz uma pergunta indireta a gente coloca o verbo it is em vez de is it. É indirect speech, significa que quando você faz uma pergunta indireta, você troca a ordem do verbo e você diz: Could you tell me where the bank is?
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Please, could you tell me where the bank is?
2) Please, can you tell me what time it is?

S17

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala ? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula de hoje ? (x) sim ( ) não
4) Qual é a regra? Inverter o verbo – indirect speech. In Wh-questions vc inverte a ordem da preposição.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me what time it is?
2) Could you tell me how old is?

S18

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não

4) Qual é a regra? Ele explicou que depois que a gente fala uma pergunta pela segunda vez pode mudar um pouco. Conversar com uma pessoa de uma maneira formal e informal, direta e indireta.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) What time is it? What time it is?
2) What is his name? What his name is?

S19

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim (x) não ( ) às vezes
3) Você lembra da regra da aula de hoje? ? ( ) sim ( ) não
4) Qual é a regra? Indirect questions. Uma mesma pergunta não se pode ter dois verbos auxiliares, é...por exemplo a pergunta: do you know where the bank is? O verbo "to be" está como o verbo conjugado, no papel de ser e estar, o verbo auxiliar nesta pergunta é o do.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Do you know where the bank is?
2) Do you know where the church is?

S20

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Indirect questions. Não é possível usar dois auxiliares para formar uma pergunta, eu preciso usar o verbo "to be" no final da frase indicando é...por exemplo: Where is the bank? forma direta, do you know where is the bank? é a forma errada, porque o is está sendo usado como auxiliar. A forma correta é "do you know where the bank is"? O is está sendo usado no final da frase como verbo.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Do you know where the university is?
2) Do you know what the couple is going to do?

S21

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não

4) Qual é a regra? Indirect questions. Que o verbo “to be” mesmo sendo principal, vc não usa a pergunta com ele, por exemplo, o verbo do e o verbo to be não vem como sendo interrogação.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Do you know where the bank is?
2) Could you tell where the park is?

S22

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula de hoje ? (x) sim ( ) não
4) Qual é a regra? Indirect questions, seria uma forma de você fazer um questionamento, uma forma mais educada e mais formal de você se posicionar. E para você fazer pergunta, você precisa do verbo modal, no caso can, could, may como auxiliar, daí o verbo to be vai para o final como o verbo principal da frase.
5)Dê-me dois exemplos. Elabore duas frase orais:
1)Can you tell me where is the hospital?
2) Could you help me where the bus stop is?

S23

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje ? (x) sim ( ) não
4) Qual é a regra? Indirect questions. Põe uma pergunta ja na frente como sujeito, já vai ta ali, tu tem que tirar o verbo dali, e tira o does, daí põe o s, quando e do fica igual. Quando era o is, toca pro fim da pergunta.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Where is the restroom, could you tell me where restroom is
2) Where is...

S24

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? ? (x) sim ( ) não
4) Qual é a regra? Indirect questions. Quando se faz uma primeira pergunta em inglês e existe uma próxima pergunta na mesma frase, a próxima pergunta não precisa estar em forma de pergunta na frase. Na segunda pergunta não precisa estar com o is na frente do sujeito.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you say where the bank is?

2) Can you tell what the woman's name is?

S25

1) Você nota as regras quando o professor explica? (x) sim ( ) não ( ) às vezes
2) Você procura pelas regras quando você fala ou escreve? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Indirect questions. Esta regra é usada quando a pergunta é mais política e educada e vai ter duas perguntas e a primeira que iniciou, por exemplo o verbo já está na frente da pessoa.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me what time it is?
2) Do you know where the bank is?

S26

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Pergunta indireta. Pra fazer perguntas indiretas, como a gente vai colocar uma pergunta dentro de outra eu não preciso colocar o verbo auxiliar anterior, por exemplo prá falar could you tell me, se a frase tem does eu só vou colocar o verbo no final do outro verbo, ou por exemplo, do you know what time it is e não what time is it, porque eu já tou usando o could, então eu não preciso colocar o verbo is anterior, eu posso colocar no final da frase, agora se já tem o do, eu tiro o do.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Do you know what time it is?
2) Could you tell me where the bank is?

S27

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? (x) sim ( ) não ( ) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Indirect questions. A primeira pergunta se faz a pergunta normalmente, botando o verbo auxiliar na frente e a segunda pergunta se faz como se fosse uma afirmativa, se tiver verbo auxiliar fica lá no final, se for um verbo normal ele fica lá no final conjugado, se for a terceira pessoa tem um s, se for passado fica na forma do passado.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Please, could you tell me where she went?

2) Do you happen to know where the bank is?

S28

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim ( ) não (x) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Could you tell me. Para fazer perguntas mais informais, educadas, junto a uma outra pergunta, uma pergunta com outra pergunta na frente. Ex: Where is the bank e ficaria do you know where the bank is?
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Do you know what the bank is?
2) Do you know what time is?

S29

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim (x) não ( ) às vezes
3) Você lembra da regra da aula de hoje? ( ) sim (x) não muito pouco
4) Qual é a regra? Embedded questions. Uma frase vem da outra. Quando tem duas frases, a frase que faz uma pergunta direta na frente, a frase que faz a pergunta ‘e indireta.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me what time it is?
2) Could you tell me were what time he does?

S30

1) Você nota as regras quando o professor explica? ( ) sim ( ) não (x) às vezes
2) Você procura pelas regras quando você fala? ( ) sim (x) não ( ) às vezes
3) Você lembra da regra da aula de hoje? (x) sim ( ) não
4) Qual é a regra? Perguntas polidas. E usada para fazer uma pergunta de forma polida, principalmente quando se interrompe uma pessoa desconhecida e se pede uma informacao, entao voce deve usar ao inves de uma pergunta direta, vc faz uma pergunta indireta. A forma disso ‘e quando se usa o auxiliar do se tira o do, quando se usa o verbo auxiliar does se tira o does. A pergunta fica acrescentando o s no final e se for o to be fica no final.
5)Dê-me dois exemplos. Elabore duas frase orais:
1) Could you tell me where’s the bank is?
2) Could you tell me where’s the restaurant is?

APPENDIX M

OP1 Task

S1

1. Do you know where the restaurant?
2. Could you tell where the conference room?
3. Please, one more question...where I found the toilet?
4. And...where the roof garden..how can I arrive in the roof garden? Are there an lift
5. Could you tell if are there an office here?
6. Do you know if are there in a bar ...in the second floor/

1. Do you know something about them?
2. Please, could you know to tell if what are they doing?
3. One more think...would you know to tell why they ???? drive at night?
4. Do you know anything about it?
5. Could you tell why they all of time together?
6. Just more question, is..are there are they your relatives?

S2

1. Excuse me, could you tell me where is the office?
2. Sorry...I wanna swim where is the swimming pool, could you help me?
3. Excuse me, could you help me? Where is the roof garden?
4. Sorry guy, I need to take the lift. Do you know where is it?
5. Excuse me, I need some help, where the restaurant is?
6. Sorry, I wanna know where the car park, do you know?

1. Do you know where are that couple going?
2. Excuse me could you tell me what are the couple doing here right now?
3. Sorry guy, could you tell me what are that woman and that man doing behind the tree?
4. Sorry, may you help me? I wanna know what are they doing in this street right now.
5. Excuse me guy, I need an information. Do you know what are the couple doing here right now?
6. Excuse guy I wannna know what that couple talking with that Ets.

S3

1. Excuse me please, could you tell me where is the conference A?
2. Could you tell me where is the conference B?
3. Please, could you tell me where is the bar?
4. Could you tell me where is the restaurant?

5. Could you tell me where are the toilets?
6. Please, where can I find a swimming pool?

1. Please, can you tell me what do you think what that man and that woman are doing?
2. Why are they going by car?
3. What are they looking for?
4. Why are they hiding back of the tree?
5. What they find their way?
6. Do you think the story is true?

S4

1. Could you tell me in what floor is the kitchen?
2. Could you show me where is the restaurant?
3. Could you tell me where is the bar and the luggage?
4. May you help me, where is the swimming pool?
5. Could you tell in what floor is the roof garden?
6. Could you tell me where there is a bank?

1. Could you explain me where the couple was going tonight?
2. Can you explain me what happened with the couple?
3. Could you say me that the couple saw last night?
4. Would you tell me why the couple was so afraid?
5. Could you tell me what was reaction of the couple?
6. Could you tell me at what hour the couple saw them?

S5

1. Would you tell me where are the kitchen.
2. Can you help me? I don't know where are the shopping?
3. Can you help me, I don't know where are the roof garden.
4. ??????
5. ??????
6. ??????

1. Where are the car?
2.???
3. ???
4. ???
5. ???
6. ???

S6

1. Excuse me, can you tell me where is the conference room C?
2. Could you tell me where is the bar?
3. Hi, excuse me, can you tell me where the restaurant is?
4. Excuse me sir, can you tell me where the swimming pool is?
5. Hi, can you tell me where the reception is?

6. Hi sir, could you tell me where is the roof garden in this hotel?

1. Excuse me, can you tell me where is the couple...where the couple are going to?
2. Why he stopped the car?
3. Could you tell me why they are behind the tree?
4. Excuse me, could you tell me why they are talking to the ET?
5. Can you tell me what they are talking with the ET?
6. Can you tell me what's happening in this story?

S7

1. Could you help me sir, where is the restaurant?
2. Could you help me sir, which floor is the swimming pool?
3. Where is the bar?
4. I'd like to go to the conference A. Where is it?
5. Where is the toilet?
6. I must to go to the changing rooms.

1. Have you seen there?
2. What's happened now?
3. It's very dark.
4. Did you see that?
5. What this is here?
6. Should I stop now?

S8

1. Could you tell me where is the swimming pool?
2. Can you show me where is the bar and lounge?
3. Hi, may I help you? I want to go to the roof garden. Do you know where it is?
4. Could you tell me where is the restaurant?
5. Can you show me where is the main staircase?
6. Please, can you show me where is the car park?

1. Can you tell me where was the couple going?
2. Could you tell me why the ET chose that couple?
3. Can you tell me what day was that?
4. Hi, may you help me? What time was that?
5. May you tell me was the couple happy?
6. May you tell me what time was that?

S9

1. Can you tell me where is the conference room, please?
2. Excuse, can you tell me where is the swimming pool?
3. Excuse miss, please tell me where is the conference room A.
4. I wanna know where is the restaurant, in which floor?
5. Excuse me, the sauna is in the basement, please?
6. Hi, I wanna know where is this light?

1. Where is the couple is going?
2. Excuse me where those little people?
3. Hi, do know where is the spaceship?
4. Excuse me, could you inform me what model is the car?
5. Where are they going
6. I wanna know where they come from, can you inform me of this?

S10

1. Excuse me, could you tell me where is the swimming pool?
2. Do you know where is the bank?
3. Excuse me, do you know where is the kitchen?
4. Excuse me. Could you tell me where is the reception?
5. Do you know where is the restaurant?
6. Please, where can I park my car?

1. Excuse me, do you know where the couple going to?
2. And why are they driving late night?
3. Do you know if they found something strange?
4. Did they saw a spaceship?
5. What are they doing at the end of the tree?
6. Do you if they really saw alliens?

S11

1. Could you confirm where is the kitchens?
2. Could you tell me sir, please, where is the car park?
3. Could you confirm me sir, where is the restaurant?
4. Could you confirm sir, where is the conferent room?
5. Could you confirm sir, where is the swimming pool?
6. Could you tell me where is the changing rooms?

1. Could you tell me what happened?
2. Could you tell me where is it?
3. Could you tell me what is this?
4. Could you tell me what is this object?
5. Could you tell me where is this?
6. What happened?

S12

1. Excuse me, can you tell where is the restaurant?
2. Please, can you tell me where is the swimming pool in the hotel?
3. I'm looking for the room 011.
4. Please, can you help me? I'm looking for the conference room.
5. Please, the bar and lounge is in the first floor?
6. Please, where is the manager office?

1. They told home and lamps was in the oven.
2. They was going to where?

3. Can you tell me what do the alliens did with them?
4. What they are doing on that time?
5. The alliens was ugly?
6. Did they get hurt?

S13

1. Could you tell me where is the restaurant?
2. Can you show me where is the toilet?
3. Would you know where is car park?
4. Do you know where is the shop?
5. May you show me the bar in this floor?
6. Please, would you know where is the roof garden?

1. Could you tell me what is going on?
2. Would you know where are they going?
3. Please, can you explain me what's happened?
4. Could you tell me what are they think?
5. Can you show me what are they speaking with?
6. Would you know where are they going?

S14

1. Can you tell me where is the swimming pool?
2. Do you know where is the conference room A?
3. Could you tell me where is the kitchen?
4. Excuse me, I wanna know where is the office?
5. Please, can you tell me where is the restaurant?
6. ???????????

1. Where they are going?
2. Can you tell me where did they come from?
3. What they are looking for?
4. What they are behind the tree?
5. Could you tell me if they are fast?
6. They are their friends?

S15

1. Would you tell me where is the bar?
2. And how about the swimming pool? I heard that you have one here.
3. Can you tell me where the swimming pool is?
4. Could you tell me where the bar is?
5. Hi, is there a sauna in the hotel?
6. Excuse me, could you tell me if there is a restaurant right here in the first floor?

1. Could you tell me why did you stopped?
2. Excuse me, can you tell me if the UFO was very bright?
3. Were the ETs friendly?
4. What did they do to you?

5. Would you tell me if they look like the ones that ET movie, right?
6. Are you driving at night?

S16

1. Please, where the swimming pool is?
2. Could you tell me where the bar is?
3. Could you tell me where is the restaurant is?
4. Please man, do you know where the kitchen is?
5. Can you tell me where the shopping is in the basement is?
6. Where the car park is?

1. Do you know where they are going?
2. Do you know who is the oven?
3. Can you tell me where is that place?
4. Can you imagine what doing?
5. ???
6. ???

S17

1. Excuse me sir, could you help me find the bar?
2. Could you help me to find the directions to the swimming pool?
3. Hello, could you inform me where the toilet is?
4. Do you know where could I find the restaurant at the first floor?
5. Could you tell me the direction to the swimming pool at the second floor?
6. Which floor is the conference room?

1. Could you help me understand what is going on?
2. Who are they? What are they doing?
3. Could you help me try to understand what is going on?
4. Did you see what is going one?
5. What are those things?
6. Did you see what is going on?

S18

1. Sorry, can you give me an information? Where is the main entrance?
2. Can you help me to find the swimming pool?
3. Can you tell me where is one of the toilets in the hotel?
4. Oh! I'm sorry! I don't know where is the restaurant.
5. Can you help me to find the conference room?
6. Where is the changing room?

1. Can you tell me what these people are doing?
2. Hi, can you inform me what are they doing?
3. Hello. Do you know about these two persons?
4. ?????
5.?????????
6.?????????

S19

1. Sir please, could you tell me how were is the swimming pool?
2. Please, can you tell me where is the bar and lounge?
3. Please man, could you tell me in how floor is the changing rooms?
4. Can you tell me where is the restaurant?
5. Sir, please, could you tell me in how floor is the bar?
6. Can you tell me how floor is the car park?

1. Can you tell me where the couple it going?
2. Could you tell me what's the couple having seeing in the street?
3. Could you tell me if the Mr. it's wearing glasses?
4. Can you tell me who is the persons in the spaceship?
5. Could you tell me who is the woman next to man with glasses?
6. ???

S20

1. Please, could you tell me where is the swimming pool?
2. Do you know where is the roof garden?
3. Could you tell me where are the lifts?
4. Could you tell me where is the reception?
5. Do you know where are the toilets?
6. Please, could you tell me where are the offices?

1. Do you know where are the couple going to?
2. Do you know what are they seeing?
3. Could you tell me what's having here?
4. Do you know what clock are when this is having?
5. Could you tell me what they see?
6. Do you know how that things end?

S21

1. Could you tell me where is the kitchen?
2. Excuse me, could you tell me where is the car park?
3. Could you tell me where is the swimming pool?
4. Could you tell where is the restaurant?
5. Excuse me, could you tell me where is the garden?
6. Could you tell me where is the lifts?

1. Could you tell me what couple are doing?
2. Would you know where are they going?
3. Could you tell why are they behind the tree?
4. Could you tell what are they seeing?
5. Could you tell what is this in front of the car?
6. Could you tell who is driving?

S22

1. Can you tell me where is the bar?
2. Could you tell me where is the swimming pool?
3. Could you tell me where is the kitchen?
4. Could you tell me where is the bar and the lounge?
5. Could you tell me where is the toilets?
6. Could you tell me where is the reception?

1. Can you tell me what is the disco?
2. Could you tell me what happening?
3. Can you tell me what is his ETs?
4. Could you tell me where is the disc going to?
5. Can you tell me what the ET wants to see...wants to talk?
6. Can you tell me what's happened with the dico?

S23

1. I like to go to the bathroom, where is?
2. I can't swim in the swimming pool?
3. Where is the office?
4. I need to eat now, where is the restaurant?
5. ---
6.Where is the roof garden?

1. Who is the driver car?
2. This is a UFO?
3. This man of the picture like call of my father
4. What's o'clock of the driver room in the road?
5. What's the velocity of the driver' room?
6. ---

S24

1. Could you say where is the main entrance?
2. Can you say where is the conference room C?
3. Do you know where is the roof garden?
4. Could you say where is the toilet?
5. Do you know where is the bar?
6. Could you say where is the bank?

1. Do you know where the woman are going?
2. Can you say why they are in this way?
3. Could you say where is they?
4. Do you know what will ET do with them?
5. Do you know why is they behind the three?
6. Do you know what' the woman's name?

S25

1. Excuse me, could you help me please, where is the kitchen?
2. Could you help me please, where is the restaurant?
3. Could you help me, please? Where is the swimming pool?
4. Could you tell me where is the conference, please?
5. Excuse me, could you help me please, where is the roof garden?
6. Excuse me, could you tell me the changing rooms?

1. Excuse me, could you tell me about the couple where did they go?
2. Could you tell me about the couple, where the travel to from?
3. Could you tell me what happened in the forest?
4. Could you tell me about the couple why they ...esconder?
5. Could you tell me the monsters? The couple saw the monsters?
6. Could you tell me about the car of the monsters?

S26

1. Excuse me, where is they car park?
2. Do you know where is the restaurant?
3. I have a conference, do you know where is the room A?
4. Excuse me, where is the swimming pool?
5. I want the room C, where is the room C?
6. Excuse me, where is the reception?

1. What's the happened?
2. What's the wife think?
3. Why the ET is visiting the Terra?
4. Why the husband is worried?
5. What is ET doing?
6. Excuse me, what is the noise?

S27

1. Could you tell me how far is the conference room from here?
2. Excuse me, could you tell where is the swimming pool?
3. Please, call the lift for me.
4. Can I go by this taxi?
5. What's happened the main entrance?
6. Excuse me, when the restaurant will open?

1. What is the ET saying?
2. Please, could you say me where the ET is from?
3. Excuse me, do you know what the ET is doing?
4. Hey man, do you know where is from this navy?
5. Excuse me, could you tell me if are you really from this planet?
6. Could you tell me why the man and the woman are behind the tree?

S28

1. Excuse me, can you tell me where is the toilet?
2. Can you tell me where is the bar?
3. Excuse me, can you tell me where is the restaurant?
4. Can you tell me where is the reception?
5. Can you tell me where is the car park?
6. Can you tell me where is the bank?

1. Excuse me, can you tell me what's the couple happened?
2. Excuse me, can you tell me what's the ET do?
3. Excuse me, please happened of couple?
4. Excuse me, where the casal do?
5. Excuse me what happened with the casal?
6. Where's did happened this?

S29

1. Excuse me you can say me where is the conference room?
2. Excuse me sir, please, I want know stay their swimmimpool?
3. Excuse me where is the bar and lounge?
4. I want know where stay the restaurant?
5. Excuse me, can you say where is the bar, please?
6. You could me say where is the kitchen?

1. You could me say what's happening there, please?
2. You could me say what's that?
3. Excuse sir, I see a mouse different, what's that?
4. You could me say what day do there?
5. What is that thing?
6. You could me say please why they there?

S30

1. Excuse, you tell me about where's swimming pool?
2. Excuse me you tell me about the restaurant?
3. Excuse me I have a car, where is the car park?
4. Excuse me you may tell me where's the conference room C?
5. Excuse me, you may tell me where is the kitchen?
6. ???

1. What's happened one man and one woman in the car?
2. What's the one woman and your wife watch in the night?
3. What's the man and the woman listen in the forest?
4. Who is in the nave space?
5. ???
6. ???

OP2 Task

S1

1. Could you tell me if there are any bank on the Live Street?
2. Could you tell me where the Oxford Circus is?
3. Could you tell me where the London bridge is?
4. Could you say where the Holland Park is on the Liverpool street?
5. Could you tell me where the waterloo is in the city/
6. Could you say where the Queens way is around here?

1. Could you tell what they are talking?
2. Could you tell me what she arrived?
3. Could you tell me who he's calling?
4. Could you say where they are going?
5. Could you tell me what happened is with us?
6. Could you tell me where the man felt?

S2

1. Could you tell me where Green Park is?
2. Could you tell me where Swiss Cottage is?
3. Could you help me? I wanna go to Barbican. Could you tell me how can I go there?
4. Could you tell me how can I go to Aldwych?
5. Could you tell me where Bill Park is?
6. Could you tell me where Ondonbright is/

1. Could you tell me what that woman is doing there?
2. Could you tell me why that woman is screaming?
3. Could you tell me who that guy is calling for?
4. Could you tell me why that three people are going to the hotel?
5. Could you tell me what happened with that man?
6. Could you tell me what that woman is doing there?

S3

1. Can you tell me where Old Street is?
2. Can you tell me how far Moorgate is from Liverpool street?
3. Can you tell me what's the nearest city from the East action is?
4. Can you tell me if Essex Road is closed on Sundays?
5. Can you tell me if that girl is going to the bank?
6. Can you tell me where Old street is?
7. Can you tell Marylebone is?

1. Can you what the lady is showing to the man?
2. Can you tell me what that woman is seeing?
3. Can you tell me who the guy is phoning?
4. Can you tell me where they are carrying that man?
5. Can you tell me what's happening?

6. Can you tell me what happening to the knee of the old man?

S4

1. Could you tell me where White city is?
2. Could you tell me where Baker Street is?
3. Could you tell me where Liverpool Street is?
4. Could you tell me where Maison House is?
5. Could you tell me where Water Street is?
6. Could you tell me where Green Park is?

1. Could you tell me where the bathroom is?
2. Could you tell me where the meeting is?
3. Could you tell who he's calling to/
4. Could you tell me what he did?
5. Could you tell me when he felled?
6. Could you tell me how he felt?

S5

1. Could you tell me where are Hallen's day?
2. xxx
3. xxx
4. Could you tell me why where are the White city?
5. Could you tell me where are North Acton?
6. Can you tell me where are East Acton?

1. Could you tell me if the woman in the beach has a sunglasses?
2. Could you tell me how many womans has in the picture?
3. Could you tell me how many men has in the picture?
4. Where are they going?
5. What happened with him?
6. Could you tell me what happened with him?

S6

1. Can you tell me where the Temple is?
2. Can you tell me where the Maison House is?
3. Can you tell me where the Canon Street is?
4. Can you tell where the Holland Park is?
5. Can you tell me where the retro Airport is?
6. Can you tell me where the Stamford Brook is?

1. Can you tell me what they are talking about?
2. Can you tell me why the lady went twenty?
3. Can you tell me where they are?
4. Can you tell me why they arehug?
5. Can you tell me why the man is hurt?
6. Can you tell me what they are talking about?

S7

1. Can you tell me where the bank is?
2. Can you tell me what it is in front of the monument?
3. Can you tell where the Maison House is?
4. Can you tell me what the Maison House has?
5. Can you tell me if you always go to the temple?
6. Can you tell me where the Barons Court is?

1. Could you help me where my apartment is?
2. Could you tell me what's happen is?
3. Can you tell me what the number is?
4. Can you tell me where the sofa is?
5. Can you tell me where the medicine is?
6. Can you where her room, please?

S8

1. Can you tell me where the Eduard Road is?
2. Could you tell me how I can go to Cantwish town.
3. Can you tell me where the East Acton is?
4. Could you tell me what she is going to do on Holland park?
5. Can you tell me how far from here the Drayton Park is?
6. Can you tell me how I can go to Waterloo?

1. Can you tell me where this boys is?
2. Can you tell me if you can go with me now?
3. Can you tell me if you can wait a minute?
4. Can you tell me what it's going on?
5. Can you tell me where you did it?
6. Can you tell me if it's dangerous?

S9

1. Can you tell me where the Camden Town is?
2. Can you tell me where is the Easten is?
3. Can you tell me where is Green Park is?
4. Can you tell where is the Old Street is?
5. Can you tell me where is the Liverpool Street is?
6. Can you tell where the Saint Paul Street is?
1. Can you tell me where is the bathroom is?
2. Can you help me outside of here?
3. Can you call the 911?
4. Mr., can you walk with the right leg?
5. Excuse me, can you move your feet?
6. Excuse me, can you walk to the hospital?

S10

1. Could you tell me where is Warren Street?
2. Do you know how I can get to the Regent's Park?
3. Do you know how can I get enough U gate?
4. Can you tell me where is Moore gate?
5. Can you tell me where is the Old Street?
6. Can you tell me how I can get to the temple?

1. Can you tell me what they are talking about?
2. Can you tell me what's going on?
3. Can you tell me who he is calling to?
4. Can you tell me what happened to the man?
5. Can you tell me why he is holding his leg?
6. Can you tell me if he broke his leg?

S11

1. Could you tell please where Busis Park is?
2. Could you tell where Candom town is?
3. Could you tell me where King cross is?
4. Could you tell me where Holand Park is?
5. Could you confirm, please, Would you like to go to East Action. Could you tell where East action is?
6. Could you tell me please where Arsenal is?

1. Could you tell me where the bathroom is?
2. What happened?
3. Is it ok man?
4. ???
5.
6. ???

S12

1. Can you tell me where Baker Street is?
2. Can you tell me where Great Park Street is?
3. Can you tell me where Old Street is?
4. Can you tell me where Liverpool Street is?
5. Can you tell me where Saint James park is?
6. Can you tell me where Green park is?

1. Can you tell me what they are talking about?
2. Can you tell me why she is so exciting?
3. Can you tell me why are they running?
4. Can you tell me why they are helping him?
5. Can you tell me why he is sitted?
6. Can you tell me why he's with the leg hurted?

S13

1. Can you tell me where Warren Street is?
2. I wonder if you tell me where Barbican is.
3. Could you tell me where the bank is?
4. Can you tell me where Green park is?
5. Could you tell me where canon Street is?
6. Can you tell where Marylebone is?

1. What's happened?
2. Can you tell me what she wants?
3. Can you tell me what's happening?
4. Can you tell me what they will do?
5. I wonder if you tell me what are happening with they.
6. Can you tell me what happening with his leg?

S14

1. Can you tell me where the London bridge is?
2. Could you tell me where the Bond Street is?
3. Can you tell me where the Old Street is?
4. Could you tell me where the West Hampstead is?
5. Can you tell me where the Baker Street is?
6. Can you tell me where the white Street is?

1. Excuse me, can you tell me what they are talking about?
2. Could you tell me who came?
3. Can you tell me who is he calling?
4. Can you tell me where they are going?
5. Could you tell me what happened to this man?
6. Can you tell me if he is sick?

S15

1. Can you tell me where the CartRoad is?
2. Can you tell me where the Cross Station is?
3. Can you tell me how can I go to the Early Square?
4. Can you tell me how I can go to Victoria's Station?
5. Can you tell me where is the Tower Hill?
6. Can you tell me where Old gate is?

1. Can you tell me who wrote this letter?
2. Can you tell me what's going on?
3. Can you call a doctor please?
4. Can you help me up the stairs?
5. Can you tell me where does it hurts?
6. Do you want me to call a doctor?

S16

1. Please, do you know where the Holland park is?
2. Could you tell me where the temple is?
3. Please, do you know where the Green park is?
4. Can you tell me where the Oxford Circus is?
5. Can you tell me where is the Gold Harbor?
6. Please, do you know where Liverpool Street is?

1. Please, can you tell me when Picadilli's Circus is?
2. Could you tell me who is the woman wearing glasses?
3. Do you know what is happened?
4. Could you tell me where the man broken his leg?
5. Could you tell me who is the man on the phone?
6. Can you tell me where is that police?

S17

1. Hello, can you tell me where Green Park is?
2. Hi, can you tell me how do I get to Camden Street?
3. Hey, can you tell me where is Candem Town?
4. Can you tell me how do I get to temple?
5. Can you tell me where is White City?
6. Could you tell me where is Weshampstead?

1. Can you tell me what they are talking about?
2. Can you tell me what she's yelling about?
3. Can you tell me what telephone number he's dialing?
4. Could you tell me where they are taking him?
5. Could you tell me what happened to him?
6. Could you tell me what happened to his leg?

S18

1. Can you help me to find where the east Acton is?
2. Can you tell me where the Green park is?
3. May you help me where Waterloo is?
4. ???
5. Can you inform me where the Elephant castle is?
6. Can you tell where the Tower Hill is?

1. Can you tell me what is happing there?
2. Can you tell me where my room is?
3. Can you tell me what's happening?
4. Can you tell me what happened with him?
5. Can you tell me if I could do something?
6. xxx (he repeated 4 and 6 exactly the same)

S19

1. Do you know where the Warrent Street is?
2. Do you know where the Liverpool Street is?
3. Do you know where the Western Kingstone is?
4. Can you tell me where the Queen's way is?
5. Could you tell me where the arsenal is?
6. Could you tell me where the Bakery Street is?

1. Do you know what the couple talks?
2. Can you tell me what the woman talk?
3. Do you know how number the man it's going to call?
4. Can you tell me who is the man the couple tell him?
5. Can you tell me who is the woman and the man is helping the old man?
6. Do you know what happened with the old man?

S20

1. Do you know where the airport is?
2. Could you tell me where Waterloo is?
3. Can you tell me where the Liverpool Street is?
4. Do you know where Green's park is?
5. Could you tell me where the Regent's Park is?
6. Can you tell me where the London Bridge is?
1. Do you know what the woman is doing?
2. Could you tell me what the woman is calling?
3. Can you tell me why the couple is running?
4. Do you know where is the man up the stairs?
5. Do you know who is the man sitting on the sofa?
6. Do you know what happened with the man's legs?

S21

1. Do you know where the Royal Park is?
2. Could you tell where the High Park Corner is?
3. Do you know where the Green Park is?
4. Could you tell where the Waterloo is?
5. Could you tell where Wine Street is?
6. Do you know where the Bakery Street is?

1. Could you tell what the people are talking?
2. Could you tell who the woman at the door is?
3. Could you tell who the man at the telephone number is?
4. Could you tell what is happening?
5. Do you know what happened with the woman or with the man?
6. Do you know who the woman sitting down on the couch is?

S22

1. Can you tell me where the Wimbledon is?
2.Could you tell me where the Liverpool Street is?
3. May you tell me where the Monument is?
4. Could you tell me where the Towel Hill is?
5. Can you tell me where the North Action is?
6. ???

1. Can you tell me where the bedroom is?
2. Can you tell me what's happened?
3. Can you tell me help the …?
4. Can you help me the hosts?
5. Can you call some doctor, please?
6. Can you bring some oitment?

S23

1. Could you tell me where the Old Street is?
2. Do you know where Tower Hill is?
3. Where is the White City?
4. Do you know where Holiday Road is?
5. Could you tell me where is the Holand park?
6. ---

1. Do you know where is the man is talk?
2. Do you have a problem?
3. Could you tell where is it?
4. Could you tell me why don't know open your umbrella?
5. ---
6. ---

S24

1. Could you say where Regency park is?
2. Could you tell me how I arrive to High Park corner?
3. Do you know where the bank is?
4. Could you sell where the airport is?
5. Can you say where the Canal Street is?
6. Could you tell me where the Stone Bridge Park is?

1. Do you know who these people are?
2. Can you say what the woman spoke?
3. Do you know where they are going?
4. Do you know what the hotel's name is?
5. Do you know what's happening?
6. Could you say who this man is?

S25

1. Could you tell me where the White city is?
2. Do you know where the Arsenal is?
3. Do you know the Siuis cottage is?
4. Do you know the Bakery street is?
5. Could you tell me the Waterloo is?
6. Do you happened to do where North Action is?

1. Could you tell me what clothes the woman wears?
2. Do you know what color the woman's blouse is?
3. Do you know what happened?
4. Do you know where they went?
5. Do you know what color the floor is?
6. Could you tell me what the man happened?

S26

1. Could you tell me where Liverpool Street is?
2. Excuse me, where is the Lounge Market?
3. Do you know where High Street is?
4. Could you tell me where Victory is?
5. Do you know where Chunk Farm is?
6. Could you tell me where Outdate S is?

1. Could you tell what happenes?
2. Excuse me, where is the man?
3. Do you know what's the happened?
4. Do you know where they goes?
5. Could you tell me where the hospital is?
6. Do you know why the man cries?

S27

1. Please, could you tell me where the Maison House station is?
2. Excuse me, do you happen to know where the airport is?
3. Do you know if the Temple is open today?
4. Do you know where the Waterloo Station is?
5. Excuse me, do you know what the Foot way leek is?
6. Excuse me, could you tell me how long the Tower Hill is from here?

1. Please, could you tell me what time it is?
2. Do you happen to know what the woman is saying?
3. Do you know what the woman is doing?
4. Do you know what is upstairs?
5. Could you tell me how old the man is?
6. Do you know what the woman is doing?

S28

1. Could you tell me where Oxford Circus is?
2. Could you tell me where Green Park is?
3. Could you tell me where Maison House is?
4. Could you tell me where High Street is?
5. Could you tell me where Waterloo is?
6. Could you tell me where Kingstown is?

1. Could you tell me what woman asks?
2. Could you tell me what the woman says?
3. Could you tell me what the man and the woman go?
4. Could you what happened woman?
5. Could you tell me what a leg of the man have?
6. Could you tell me what the woman do?

S29

1. Can you tell me where Hero Armstrong are?
2. Can you tell me where East Acton is?
3. Can you tell me can some Olympia is?
4. Can you tell me where West Cansan please?
5. Where can I march Pinlegol?
6. Can you tell were I can see high park corner?

1. Can you tell me what she lunch?
2. Can you tell me why she is assistant?
3. Can you tell me what he doing?
4. Can you tell me what happened with his?
5. Can you tell me why he is tired?
6. Man, he is broken his your money.

S30

1. Can you tell me where the Liverpool Street is?
2. Can you tell me where Riter Airport is?
3. Can you tell me where is Tom Square is?
4. Can you tell me where the Maiborne act is?
5. Can you tell me where the Mason House is?
6. Can you tell me where the Picadilly circus is?

1. Can you tell me what's happened are?
2. Can you tell me…
3. ???
4. ???
5. ???
6. ???

OP3 Task

S1

1. Could you tell me where the Greenville is?
2. Could you tell me where the Lincon Park is?
3. Would you know where the Greenwich village is?
4. Do you know where the Bedford is?
5. Could you tell me where the Park Slope is?
6. ???

1. Could you tell where the actress is?
2. Could you tell me what that man is liking?
3. Could you tell me why that man is calling the actress?
4. Could you tell me why that woman is sad?
5. Could you tell me what that man is calling for?
6. Could you tell me what that man is eating?

S2

1. Could you tell me where Fort Jay is?
2. Could you tell me where Green point is?
3. Could you tell me how I can arrive at Astoria?
4. Could you tell me where Steinway is?
5. Could you tell me where Ditmas Ave is?
6. Could you tell where West Bergen is?

1. Could you tell who put the frog in that meal?
2. Could you tell me who cleaned the dishes?
3. Could you tell me who that woman eating ice cream is?
4. Could you tell me how much the bill is?
5. Could you tell who ate that fish?
6. Could you tell me how much people there are in this restaurant?

S3

1. Miss, can you tell me where the Central park is?
2. Please, where the West New York is?
3. Please, can you tell me where Bushwick is?
4. Can you tell me where Greenville is?
5. Can you tell me where the Upper New York bay is?
6. Can you tell me where Bayonne is?

1. Please, can you tell me for whom the waiter is phoning to?
2. Can you tell me why those people are hanging their hands?
3. Can you tell me what the waiter is carrying?
4. Can you tell me what that girl is eating?
5. Can you tell me what is that man hanging?
6. Can you tell me what there is in the dish?

S4

1. Could you tell me where the Bayon Park is?
2. Could you tell me where the Lincon Park is?
3. Could you tell me where the Avenue D is?
4. Could you tell me where the Central Park is?
5. Could you tell me where the 21st Street is?
6. Could you tell me where the Hudson river is?

1. Could you tell me what the man using a tie is it?
2. Could you tell me what the people are asking?
3. Could you tell me what the waitress is doing?
4. Could you tell me what the girl is eating?
5. Could you tell me what the man is doing in the phone?
6. Could you tell me what the people are doing?

S5

1. Could you tell me where are Greenville?
2. Do you know where are West Garden?
3. Dou you know where are Greenville?
4. Could you tell me where are Hudson River?
5. Good evening, where are Forth Avenue?
6. Could you tell me where are Bayon park?

1. Waiter, could you see the strange object in my dish?
2. Waiter, where are my fish?
3. Hey, could you tell me where are my cake?
4. Where are the champagne?
5. Could you tell me where are the ice cream?
6. Could you tell me where are the telephone?

S6

1. Can you tell me where the Bayan Park is?
2. Please sir, can you tell me where the Lincon Park is?
3. Can you tell where the South Brookilyin is?
4. Can you tell me where the Greenwich village is?
5. Can you tell me where the sunny side is?
6. Please, can you tell me where the Stainway is?

1. Can you tell me what the man is complaining about?
2. Can you tell me what the woman is eating?
3. Can you tell me why the man is following down?
4. Please, can you tell me with whom the man is talking on the phone?
5. Can you tell me what the man is ordering?
6. Can you tell me why everybody in the restaurant is complaining?

S7

1. Do you know where the Central Park is?
2. Do you know where the Forth Avenue is?
3. Do you know where the Lincon Park is?
4. Do you know where the Road State Park is?
5. Do you know where the Park Avenue is?
6. Do you know where the Orland East Park is?

1. Could you tell me how much their ???is?
2. Can you tell me how much the egg is?
3. Can you tell me where my champagne is?
4. Can you tell me how much the steak is?
5. Could you tell me how much my bill is?
6. Could you tell me who that she is?

S8

1. Can you tell me where the Greenville is?
2. Can you tell me where the West Bargon is?
3. Can you tell me how I can get to Bargon?
4. Can you tell me where the West New York is?
5. Can you tell me where the Indian city is?
6. Can you tell me where the Long Island city is?

1. Can you tell me who put this frog in my soup?
2. Can you tell me what time it is?
3. Can you tell me where my champagne is?
4. Can you tell me what you want?
5. Can you tell me if you can bring me some fish?
6. Can you tell me if you can take my order?

S09

1. Can you tell me where the candle tall is?
2. Can you tell me where is the east is?
3. Can you tell me where is the driving park is?
4. Can you tell me where is the old street is?
5. Can you tell me where is the Liverpool street is?
6. Can you tell me where is the saint Paul street is

1. Hi, excuse me, can you tell me where is the bathroom is?
2. Excuse me, can you help me out side of here?
3. Can you call the 911?
4. Mr., can you walk with the right leg?
5. Excuse me, can you move your feet?
6. (long pause) Can you walk to the hospital?

S10

1. Can you tell me where the Central Park is?
2. Can you tell me where the Liberty Statue Park is?
3. Can you tell me where the Hudson river is?
4. Can you tell me where 4th Avenue is?
5. Could you tell me where Long island city is?
6. Could you tell me where Lincon park is?

1. Excuse me, can you tell me what the lady is eating?
2. Could you tell me what flavor that ice cream is?
3. Could you tell me what has in that soup?
4. Could you tell me what the barman is bringing?
5. Could you tell me why the food is late?
6. Could you tell me what happened to the bill?

S11

1. Can you tell me where the Central Park is?
2. Can you tell me where Lincon Park is?
3. Can you tell me where the Greenville is?
4. Could you confirm, please, where the Bank 1 park is?
5. Can you tell me where the Bayon is?
6. Can you tell me where the Greenwish Village is?

1. Could you tell me please what kind of soup is?
2. Could you tell me please where the manager is?
3. Could you tell me please where the menu is?
4. Could you confirm please what kind of steak is?
5. Could you tell me who the boss is?
6. Could you tell me what the manager was?

S12

1. Can you tell me where the Red Hook is?
2. Can you tell me where Brooklyn is?
3. Can you tell me where TK Avenue is?
4. Can you tell me where Eastern Pathway is?
5. Can you tell me where Ditmas Avenue is?
6. ???

1. Can you tell me why the guy is complaining about thee bill?
2. Can you tell me why the egg has legs?
3. Can you tell me there are in the soup?
4. Can you tell me who ate the fish?
5. Can you tell me why the guy is complaining about the time?
6. Can you tell me why the guy is sniffling the dish?

S13

1. Could you tell me where the Red Hook is?
2. Please, I wonder if you tell me where the Boling Green is.
3. May I ask you where the William's Burg is?
4. Would you tell me where the kimpston is?
5. Could you tell me where the Green Ville is?
6. I would love to know where the Marion is.

1. Waiter, can you tell me what it is in my dish?
2. Can I know what it is in my bill?
3. Could you tell me what is going on?
4. Can you tell me where my bill is?
5. My I know what it is in my ice cream?
6. Please, can you tell me what time it is?

S14

1. Can you tell me where the Lincon Park is?
2. Do you know where the Liberty State Park is?
3. Excuse me can you tell me where the Long Island is?
4. Do you know where the East River is?
5. Can you tell me where the Upper New York Bay is?
6. Could you tell me where the Broadway is?

1. Excuse me, can you tell me who is that guy on the telephone?
2. Can you tell me what is this in my plate?
3. Do you know if this is a party?
4. Do you know why my bill is so big?
5. Excuse me, who is that eyes in my soup?
6. Can you give me this fish, please?

S15

1. Excuse me, can you tell me how can I get to the 3rd street?
2. Can you tell me where the central park is?
3. Excuse me, can you tell me where Astoria is?
4. Excuse me, would you tell me which bus should I take to get back to Green Park?
5. Excuse me, can you tell me where the Liberty State park is?
6. Can you tell me what bus should I take to go to Greenfield?

1. Can you tell me where the kitchen is?
2. Can you tell me what I suppose to bring in this build?
3. Can you tell me where should I left the champagne?
4. Would you tell me where the food is?
5. Who made the soup?
6. ???

S16

1. Do you know where the Central park is?
2. Can you tell me where the Brodway is?
3. Can you tell me where the Park Slope is?
4. Could you tell me where the Fourth Avenue is?
5. Do you know where the Green Point is?
6. Please, can you tell me where the Bayon park is?

1. Please, could you tell me is this a party?
2.Could you tell me what the waitress serving?
3. Could you tell me who the man is talking on the phone?
4. Could you tell me what the man is talking?
5. Please, what the man with a bill is talking?
6. Could you tell me why the person is celebrating?

S17

1. Can you tell me where I can find Easter Parkway?
2. Can you tell me where I can get to Fresh Pond?
3. Can you tell me where I can get to Fort Jay?
4. Can you tell me where is Hudson River?
5. Can you tell me where is Park Avenue?
6. Can you tell me how I can get to Astoria?

1. Do you know with who he is talking to?
2. Do you know what they are having for dinner?
3. Do you know what champgne they are having?
4. Can you tell me how many people are there?
5. Can you tell me what her name is?
6. Can you tell me what are they drinking?

S18

1. Can you tell me where is the Washington Street?
2. Can you tell me where the Long island city is?
3. Can you help me to find the Central Park?
4. Can you help me to find the Steinway?
5. Would you tell me where the Marion Street is?
6. Would you tell me where the Bayonne Street is?

1. Can you tell me what that guy is eating?
2. Can you tell me... for Bill that I want to talk with him?
3. Can you tell me if I can use the telephone?
4. Can you help me to choose why I will eat today?
5. Can you tell me where the bathroom is?
6. Can you tell me what time it is?

S19

1.Could you tell me where the Tomel Avenue is?
2.Could you tell me where the Hudson River is?
3. Could you tell me where the Greenvillage is?
4. Could you tell me where the Willisburg is?
5. Could you tell me where the Westburgen is?
6. Could you tell me where is the Port Johnson is?
1. Could you tell me where the restaurant is?
2. Could you tell me how much the bill is?
3. Could you tell what the ice cream is?
4. Could you tell me how many peoples in the restaurant is?
5. Could you tell me who is in the telephone?
6. Could you tell me what name the matre is?

S20

1. Do you know where the Brownsville is?
2. Could you tell me where the Central park is?
3. Can you tell me where the Lincon Park is?
4. Could you tell me where the Hudson river is?
5. Do you know how far 4th Jay is Head hook?
6. Could you tell me where the East river is?

1. Do you know what are they doing?
2. Do you know how many peoples are there?
3. Can you tell me what the woman is looking for?
4. Do you know who is that woman?
5. Do you know what the man is calling?
6. Can you tell me what the man is talking about?

S21

1. Could you tell where the Central park is?
2. Do you know where the Hudson River is?
3. Can you tell me where the Long island city is?
4. Do you know where the Green point is?
5. Do you know where the Greenville is?
6. Do you know where the Four Jay is?

1. Do you know who the waiter are?
2. Could you tell where the cash is?
3. Could you what happened is?
4. Do you know where the beverage is?
5. Could you tell where the waiter is?
6. Could you tell what the man eating are?

S22

1. Can you tell me where the Central Park is?
2. Can you tell me where the Greenville is?
3. Do you know where the Long Island city is?
4. Can you tell me where the Broadway is?
5. Can you tell where the Lincon Park is?
6. Could you tell me where the Maryon is?
1.Can you tell me what's the bill is?
2. Can you tell me what has in this soup?
3. Could you bring some fish please?
4. Do you know what is this steak?
5. Do you know what time is it?
6. Can you bring this champagne please?

S23

1. Could you tell me where is the Broadway?
2. Could you tell where the World Trade center is?
3. Could you tell me how I go to the Park way?
4. ???
5. Could you tell me where Lincon Park is?
6. Could you tell this is a map for NY?

1. Could you tell me what's o'clock is?
2. Could you tell me take me some of your ice cream?
3. Could you tell stand up in the table and stop shout?
4. ???
5. ???
6. ???

S24

1. Do you know how I …could you tell me where Greenvillage is?
2. Do you know where Green point is?
3. Do you know if Prospective Park is a good park?
4. Do you know where the East river is?
5. Do you know where Worth Johson is?
6. Do you know why Soc Brooklyn is a good place to live?

1. Do you know what the restaurants main is?
2. Do you know if this soup is good?
3. Can you tell me why the restaurant is too much disorganized?
4. Do you know what time is it?
5. Do you know who the man is called on the telephone?
6. Do you know how much the bill is?

S25

1. Could you tell me where the Park Avenue is?
2. Could you tell me where Greenville is?
3. Do you know where the Central Park is?
4. Do you know where 4th Avenue is?
5. Could you tell me where the Bayon Park is?
6. Could you tell me where the Greenpoint is?

1. Do you know what's happened in the restaurant?
2. Do you know what time the restaurant closes?
3. Do you know what the man does?
4. Could you tell me how many people has in the restaurant?
5. Could you tell me how many mans are in the restaurant?
6. Could you tell me what color egg is?

S26

1. Could you tell me where the Central Park is?
2. Can you tell me where the Green Point is?
3. Do you know where the Greenville is?
4. Could you tell me where the Flatbush is?
5. Do you know where the Long island city is?
6. Can you tell me where the stain rain is?

1. Do you know what's the happened?
2. Could you tell me where they are?
3. Do you know what's the woman eats?
4. Do you know who the man talks?
5. Could you tell me what's the man eats?
6. Do you know why the woman talks?

S27

1. Do you happen to know how long the Park Evis is?
2. Could you tell me where the 95 Road is?
3. Do you happened to know where the Brush Week is?
4. Do you happened to know how long the Astoria is from here?
5. Please, could you tell me where the 4th Avenue is?
6. Do you happen to know where the Park Slow is?

1. Please, could you explain me about this bill?
2. Could you tell me what this button is?
3. Please, could you tell me what taste this ice cream is?
4. Do you know why the man is angry?
5. Do you know what the waiter is doing?
6. Could you tell me what time this restaurant closes?

S28

1. Could you tell me where the Greenville is?
2. Could you tell me where the Westbargon is?
3. Could you tell me where the Central Park is?
4. Could you tell me where the Bayon Park is?
5. Could you tell me where the Gotenberg is?
6. Could you tell me where the Stain Way is?

1. Could you tell me how many waiter have?
2. Could you tell me have a waiter in this floor?
3. Could you tell me what the woman eat?
4. Could you tell me have a woman eat a egg?
5. Could you tell me have a woman wait for waitress?
6. Could you tell me how the man falling?

S29

1. Can you tell me where are 2nd Street?
2. Can you tell me where Street 280?
3. Can you tell me where are Union City?
4. Could you tell me where are Park Avenue?
5. Could you tell me where are Fort day?
6. Could you please tell me where are Street 276?

1. Where the garcon to do?
2. Who eat the fish?
3. Can you tell me what is the soup?
4. Could you tell me where the man is nice?
5. Can you tell me what happened there?
6. Can you tell me why the garcon is talking on the telephone?

S30

1. Could you tell me where's the Central park?
2. Could you tell me where's Long Island city?
3. Could you tell me where's the Bakeslope?
4. Could you tell me where's the Lincon Park?
5. Could you tell me where's the Park Avenue?
6. Could you tell me Northen Boulevard is near this Stain Way?

1. Could you tell me where's hotten in this room?
2. Could you tell me the girl in that table is tell your friend about?
3. Could you tell me the that table near the door?
4. Tell me about…
5. ???
6. ???

APPENDIX N

1st part

People
Earth

Soccer
Wife
Power

World
Summer
Ocean
apple

Ball
Nurse
Truck
Actress
room

worker
dress
head
city
plant
moon

2nd part

Boss
Island

Tea
Mouth
Sport

baby
idea
movie
space

gift
clock
woman
taxi

fish

milk
problem
window
lunch
party
money

3rd

eyes
song

cup
game
ice

week
lover
crime
food

monkey
kiss
clothes
vase
novel

pig
book
day
police
sister
hair

S1

1st part

2
people are beautiful
I live in the earth

3
i don’t like soccer
i don’t have wife

4
---
i like summer
i live near the ocean

5
---
my sister is a nurse
my father have a truck

6
i worked (worker) at a drugstore (he had to use worker instead of worked)

2nd part

2
my boss was boring
I live in a island

3
I don't like tea

4
I don't like baby

I love a movie
I live in a big space

5

---
in my family there are a lot of woman
---
my father got a lot of fish

6
i don't like milk
---
there's a window in my room

3rd part

2
my eyes are brown
my favorite song is new age
3
I drink a cup of milk every day
I don't like ---(he forgot the word)
I usually did ice
4
my last week was funny
I don't have a lover

5

I have a lot of clothes

I like to read novel
6
I pig a lot

---
my father was a police

S2
1st part
2
I don't like many people
the earth is very big
3
i hate soccer
I don't have a wife
I like people with power
4
i love my world
the summer is very hot

5
i like volleyball balls (it should be ball)
I won't be a nurse

6
I work now (it should be worker)

I don’t like wear dress

I love full moon

2nd part

2
I like my boss
I live in an island
3
I like tea
I don’t have a big mouth
I love sport
4
I like take care of baby
I don’t have idea of I am going to do after the school

5
I love to receive a gift

I’m a woman

I don’t like fish
6
I like coffee with milk

I love party

I have no money

3rd part

2
I have brown eyes
I love to sing the song
3
I drunk a cup of tea
I love volleyball game
Ice is very cold
4
I spend all my week at UFSC

I love all kind of food

5
Monkey is small animal

6
Pig is very dirty

I don’t have a sister

S3

1st part
2
The people are very important
The Earth is being killed
3
I love soccer
I don’t wanna be a wife
I’ve got the power

4
The world is very important

5

The nurse are very important

6

The city is very big

The moon is very beautiful in the sky

2nd part

2
I have a boss

I don’t live in a island
3
I love tea
I kiss your mouth

4
I have a baby
I don’t have any idea
I love movie
I want space
5

I am a woman

I eat fish
6

I made a lunch
I don’t have money
I wanna go to a party (she inverted the order of money and party)

3rd part

2
My eyes are brown
I wrote a song
3
I drunk a cup of wine

I like ice
4
The week is starting
I don’t have a lover

5
The monkey is in the zoo
I gave you a kiss

6

My sister are special to me

The police is working very hard (she inverted the order of police and sister)

S4

1st part

2
There are many people in the room
The Earth is big
3
I don't play soccer
My father has a wife

4
I use a word (she should use world instead of word)
I eat apple (she inverted the order, this should be the last one)
I swim in the ocean

5
I don't play with ball
The nurse works in the hospital
The boys play with truck

6
My father is a worker
I have a beautiful dress

The moon appeared in the night

2nd part

2
My father has a boss
I know an island
3
I love to drink tea
She has a beautiful mouth
I like sport
4
The baby is beautiful
The idea is good
I watched the movie yesterday

5

I ate fish yesterday (it should be the last one)

The woman is beautiful
The clock is red (it should be the second, not the third one)

6
I love to drink milk
I don’t have any problem

I went to a party last Sunday
I spent much money yesterday

3rd part

2
He has blue eyes
I love that song
3
I drunk a cup of tea yesterday

I put the ice in the juice
4
I have a wonderful week

I saw a crime yesterday
Apple is a good food
5
I saw a monkey in the zoo
She gave him a kiss

The boy broke the vase

6
The pig is dirty

The police was there yesterday
My sister is a nice person

S5

1st part

2
I have many people
I live in a Earth
3
I don’t like soccer
---

power
4
The world is beautiful

5
The ball is ...

6
I like work (Incorrect word! He used work instead of worker)

2nd part

2
I have a boss
I live in a island
3
I like tea
I don’t practice any sport(s) (He used sports instead of sport)
I have a mouth (he changed order of sport and mouth)
4
I was a baby

5
gift

I don’t have a wife

6

I like party
I like money

3rd part

2
I have eyes
I like song
3
cup
I like game

4
I am weak (It’s incorrect! He used weak instead of week)

5

I don’t like novel
6

I have one sister
I have hair

S6

1st part

2
People live in the Earth
The Earth is big
3
I play soccer
My wife is beautiful
I got the power
4
The world is big

The ocean is blue
I like apple
5
I like to play with my ball
The nurse is beautiful

6

The worker left soon

The moon

2nd part

2
My boss is crazy
The island is beautiful
3
I like to drink tea
My mouth is beautiful

4

I like to watch movie
I need some space
5

The woman is beautiful
I drive a taxi

6

The window is open

The party yesterday was good

3rd part

2
Your eyes are blue
This song is beautiful
3
The cup is broken
The game yesterday was canceled

4
I'm weak (it's wrong! She used weak instead of week)

5

The monkey is brown

6

The police is good
My sister is pretty

S7

1st part

2
I don’t like to do anything to the people
The Earth is very beautiful
3
I don’t like soccer
My wife is very beautiful

4
The world is very big

I get the power
5
The ball is blue

The actress is very beautiful

6
The worker is high

The city is clean

The moon is full

2nd part
2
My boss is not calm

3
The tea is hot
My favorite month is March (he used month instead of mouth)

4
The baby is crying

I’ve never going to the space
5

This woman is a good driver
The gift was great (It should be the first one, the order has changed)

6

The window is open

The party was very funny

3rd part

2
The eyes are blue
The song is great
3
I have a cup of coffee

I don’t like the ice
4
The week has seven days

The crime is very violent

5

I didn’t see the novel
6

Today is a raining day
The pig is interesting animal (it should be the first one)

I don’t have any sister

S8

1st part

2
People aren’t work well
The Earth is big
3
I like to watch soccer game
My brother’s wife is cool

4
The world is big
I like the summer
the ocean is blue

5
I like to play ball
I don’t need a nurse

6

I don’t have any dress

The moon is beautiful

2nd part

2
I like my boss
I live in an island
3
I like tea
My mouth is small

4
I don’t have a baby yet
I have no idea now

5
I got a gift on my birthday

I don’t like to eat fish

6

Please, close the window

I don’t have much money

3rd part

2
My eyes are green
I like that song
3
I want a cup of tea

I need some ice
4
I work on the week

5
Look at that monkey

6
I don’t eat pig

The police is coming

S9

1st part

2
I love people
I love Earth
3
I play soccer
I don’t have a wife

4
I live in the world
I love summer

5
I don’t have ball
I don’t know any nurse

6
I’m not a worker

I don’t have any plant (Incorrect order!)
I don’t go to the moon (Incorrect order!)
I live in a city (Incorrect order!)

2nd part

2
I hate my boss
I live in a island
3
I drink tea
I have a mouth
I play a sport
4
I don’t have any baby
I don’t have a great idea

I need more space
5

I love woman
I don’t take a taxi
I eat fish
6
There is a window
I will take a lunch
Saturday I’ll go to a party

3rd part

2
I have two eyes
I don’t wrote any song
3
Give me a cup of tea
Let’s play the game!
Coke with ice

4
I hate the week
I don’t commit any crime (Incorrect order! Crime should be the third word)
I’m a lover (Incorrect order! Lover should be the second word)

5
I love monkey
I don’t watch novel (Incorrect order! Novel should be the last word)

I live to kiss (Incorrect order! Kiss should be the second word)

6

I go to read a book

I hate the police
I have a sister

S10

1st part

2
The people are great
Earth is big
3
I like soccer
His wife is beautiful
The power of life
4
The world is big
The summer was nice

5
The ball is orange
The nurse is taking care of him

The actress is beautiful

6
The worker was working

The city was full

The moon was clean
2nd part

2
The boss was a nice person
The island was empty
3
The tea was ice

I like sport(s) (She used sports instead of sports)
4
The baby was shouting
I had an idea
The movie was nice
5

The clock was late

6
The milk was good

The party was fun

3rd part

2
His eyes were green
I like to sing the song
3
Would you like to have a cup of coffee?

4
The week was full
He was her lover

5
The monkey was young

I like to see novel
6
The pig was small

I like my sister (She changed the order of police and sister)

The police was coming

S11

1st part

2
The Earth is nice
The people are very pleasure (He inverted the order of the two sentences)
3
The soccer team is beautiful
The wife is wonderful

4
The world is good

The ocean is big

5
The ball is big
The nurse is very beautiful

6

2nd part

2
The boss is very hard
The island is beautiful
3
The tea is good
The mouth is big

4
The baby is a little

5

The woman is beautiful
The gift is beautiful too (It should be the first)

6
I like milk

I don’t have money

3rd part

2
The eyes are green

3
The cup of coffee
The game was good

4
This week was wonderful

5

6

The sister is wonderful
The hair is black

S12

1st part

2
I like people
I live in the Earth
3
I like soccer

I don’t have a wife
I got the power
4
Save the world!

Swim in the ocean!
Eat some apple!
5
Kick the ball!
call the nurse!

Enter the room
6
I am a worker

I live in the city
I like the actress (this word should be used in number 5)
Look at the moon!

2nd part

2
I like my boss
I live in an island
3
I have some tea
Close your mouth
I like sport
4
I don’t have a baby
I have an idea

We need space
5
Please give me a gift
---
call the woman

Give me the fish
6
Have some milk
Solve the problem

Have some lunch

I don’t have money

3rd part

2
Close your eyes!
Sing your song!
3
Have a cup of tea
Watch the game
Give me some ice
4
In this week, don't make crime

Have some food
5
Give a banana to the monkey

Where are your clothes?

6
See the pig
Read the book

Call the police

Watch your hair

S13

1st part

2
I like to talk with people
I like to live in the Earth
3
I don't like soccer
My uncle likes his wife

4

I like summer
The ocean is strong
I like to eat apple
5

I like to watch movies with good actress
I like to stay in my room

5
I am a worker

I like to live in the city

2nd part

2
I don’t like my boss
I live in a island
3
I like to drink tea
I don’t like my mouth

4
I like to take care of baby

5
I like to give gift

She is a pretty woman

6

This window is big

I like to go to the party

3rd part

2
She has green eyes
I like to listen the song
3
The next cup is the next year

I like juice with ice
4

5
I love monkey(s) (it should be monkey instead of monkeys)
I like two kiss

6
The pig is white

The police is hard

S14

1st part
2
I like people
The Earth is very big
3
I don't like soccer very much

I want the power
4
There are many people in the world
I like very much the summer
I like apple to eat (she changed the order of apple and ocean)
The ocean is large
5
I like to play ball
Nurse work in a hospital
Truck is a big car
6
I'm a worker

Florianópolis is a city

There's just moon in the night

2nd part

2
I don't have a boss
I live in a island
3
I don't like tea
My mouth is not very big

4
I don’t have a baby
I like a good idea

We live in a big space
5

Here have a clock
I’m a woman

6
I like milk in the breakfast

I like a good party

3rd part

2
I have two eyes
I can sing a song
3
Here there is a cup
I like video game

4
There are seven days in a week
I’m a lover

5
Monkey live in a zoo

I have many clothes

6
Pig is pink

I have a sister

S15

1st part

2
I like people
The Earth is round
3
I don't like soccer
I don't have wife
It is like power
4
We are the world

The ocean is big
I like apple
5
I like to play ball
I don't wanna be a nurse

The room is blue
6

I like the city
Strawberry is red (he used red instead of head)

The moon is beautiful

2nd part

I like my boss
Florianópolis is an island
3
I like tea
I have a mouth
I don't like sport(s) (He should use sport instead of sports)
4
I was a baby
I have no idea
I like to go to the movie(s) (He should use movie instead of movie)
I want go to the space
5
I like to give gift(s)

I am not a woman

I like to fish

6

I want to have a lunch
I go to the party

3rd part

2
I have two eyes
I wrote the song
3
I would like a cup of coffee
I like ice

4
I have a good week
I am a practical lover

5
I don’t like monkey

I have a vase in my room (The order of vase and clothes has changed)
I wear clothes

6

Where are the police?
I have a sister
I have long hair

S16

1st part

2
I talk with nice people
My mother live in the Earth
3
My brother like to play soccer

4
I live in the world

Atlantic is a big ocean

5
I like to play with ball
I like to be a nurse

6

The man going to moon

2nd part

2
I have a nice boss

3
I love to drink tea

I used to play sport(s) (she should use sport instead of sports)
4

I don’t have a good idea

I like to go to space
5

My mother is a woman

6

I have a problem

I like to go a party

3rd part

2
My mother has a green eyes

3
I drink a cup of coffee
I have to play game
I used to put ice on my coke
4

---
there is no crime in my neighborhood

5

I have a red vase
I used to read a novel
6
My father have a red pig
I love to read a good book

There is no good police

S17

1st part

2
I like people
I live in the planet Earth
3
I don’t like soccer
I have a young wife
I have the power
4
I’m going to take over the world
The ocean is clean (He changed the order of ocean and summer)
We are not in the summer

5
I’m playing ball

She is a young actress

6
I am a young worker

I like the moon (he changed the order. Moon should be the last one)

I use to grow small plant(s) (He used plants instead of plant) *lenient*

2nd part

2
I hate my boss
I live in an island
3
I like apple tea
I don't play sport(s) (he added s to sport) *lenient*
I'm not closing my mouth
4
I was a baby
I have an idea

I live in the space
5
I have a gift

I don't use taxi(s) (He used taxis instead of taxi) *lenient*

6

I'm having a party
I don't have any money

3rd Part

2
I have green eyes
I don't have a favorite song
3
I drink a cup of coffee every day
I'm watching a game
I could use an ice
4
This has been a tough week

We are surrounded by crime

5
Monkey is a smart animal

I'm reading a novel
6
His husband is a pig

My father doesn't have hair anymore (He changed the order, hair should be the last one)

This is a hot day (he changed the order, day should be the third one)

S18

1st part

2
I see that people
Down to the Earth is a good disk
3
I don't like soccer
I don't have a wife

4

The ocean is beautiful

5

Julia Roberts is a good actress
My room is always dirty
6
I have a good work (he used work instead of worker)

2nd part

2
My boss is very energic

3
I like tea
My mouth is big
I don't like sport

4

I like movie(s) (he used movies instead of movie) *lenient*

5

I met many womans today

6

I will go to a party today

3rd part

2
I have blue eyes
I made a song today
3
It’s good to have a cup of water

It’s better if you have an ice
4
This week was good

5

I wash my clothes

I don’t like to see novel
6

I like police
I don’t have a sister
I have long hair

S19

1st part

2
The people is very nice
I live in the planet Earth
3
I like to play soccer
I live my life (he changed wife by life)
I like my mother (it's wrong, he changed the word mother by power)
4
The world is very dangerous
I don't have a wife (It's wrong! The word should be summer)
???
I don't like to eat apple
5
I play soccer with a ball
???
I don't have truck
I meet a famous actress
I don't like the cough in the room
6
???
???
???
I don't have plant in my house
I live in the city called Sao Jose
???

2nd part

2
I don't like my boss
Florianopolis is a island
3
I don't like tea
I hurt my mouth last week
I like to play any sport
4
I don't have a baby
???
I made a movie
???
5
I like to give gift
???
My mon is a woman
???
???

6
I like to drink milk
???
???
???
I like to go in the birthday party
I don’t have much money

3rd part

2
My eyes is brown
I like to sing the love song
3
I won the cup
???
???
4
My week is very busy
I’m a lover
???
???
5
I don’t have a monkey
???
???
I put a violet in the vase
???
6
My dad is a pig
???
???
???
I have a sister
???

S20

1st part

2
Here have so many people
I live in the Earth
3
I like to play soccer
I don’t have a wife

4
The world is very beautiful

I love eat apple
5
My brother have a ball
A nurse works in a hospital

6
She works in the hospital (she changed words, she wrote works instead of worker)

2nd part

2
My boss is very angry

3
I like to drink tea
My mouth is red

4
The baby is beautiful

Here have so many space
5

The woman is wearing glasses

The fish is yellow
6

I don’t have money

3rd part

2
My eyes are blue
I love the song

3
Brazil winner the world cup

4
I don’t work this week

I like this food
5
I don’t know where is the monkey

6

The book is on the table

My hair is blond

S21

1st part

2
How many peoples do you know? (she used peoples instead of people)
Our planet is Earth.
3
I like to play soccer
Who is your wife?
Do you have some power?
4
What do you know about world?
???
I like to stay seeing the ocean
Do you like apple
5
???
Who is the nurse?
???
I have a ball (it should be the first one)
???
In my apartment there is only one room
6
I am a worker
I like to see moon (it should be the last one)

I buy a plant (it should be the 5th one)
I am with headache (it should be the 3rd, and the word is head, not headache)
???
???

2nd part

2
Do you know who your boss are?
I live in an island
3
I like apple tea a lot
???
???
4
I like my baby
Do you like watch a movie with friends?
I have a good idea
I am wearing a dress
5
???
???
Do you know that woman
Do you know where the taxi stop is?
Do you like to eat fish?
6
Do you drink milk at breakfast?
Do you have a problem?
???
What time do you have lunch?
???
???

3rd part

2
My eyes are brown
Do you like that song?
3
I will like a cup of coffee
I like to watch soccer game
Do you like ice cream?
4
Did you go to travel last week?
I'm a lover
???
Do you like Italian food?
5
???
Do you like kisses? (Kiss, not kisses!) lenient

Did you see the crime? (Wrong, this word is not in this list!)
???
???
6
I don't like pig
I need to buy a new book
???
???
I see the police every day
???

S22

1st part

2
The people live in the Earth
The Earth is the bad situation
3
I like soccer

The people have the power
4
We live in the world
I like summer

5
I have the basket ball
Julia Roberts is a actress (she changed order, it should be the 4th)
My sister is a nurse (she changed order, it should be the 2nd)

6
I'm a worker

2nd part

2
Beth is my boss
We live in a island
3
I don't like tea
We have the mouth
Soccer is a sport

4
I was a baby

5
I gave the gift with woman

You are the woman

6
I drink milk every day

I like party

3rd part

2
My eyes is brown
I like the U2 song
3

The beer is ice (He changed order, ice should be the last one)
Soccer is a game
4
We are in the first week of September

5
Chimpazé is a monkey

The writer wrote a novel
6

The book is on the table

Your hair is blond

S23

1st part

2
Much people in here
I live in Earth
3
I play soccer
I don't have a wife

4
I live in a world

I like the ocean
I like apple
5
I like ball
I don't like nurse
I live in room (he changed the order, room should be the last one)
I like truck
I don't know actress
6
I don't know worker

I live in city (he changed order, it should be the 4th not the 3rd one)

I like the moon

2nd part

2
I don't have a boss
I live in the island
3
I like tea
This month I don't know (he changed words, it should be *mouth* instead of *month*)

4
I have a idea (he changed order, it should be the 1st)
I like space (he changed order, it should be the 4th)

I don't have a baby (he changed order, it should be the 1st)
5
I like a woman (he changed order, it should be the 3rd)

I like taxi (he changed order, it should be the 4th)
I don't know with a gift (he changed order, it should be the 1st)

6
I like money (he changed order, it should be the last one)

I like lunch (he changed order, it should be the 4th)
I like windows (he changed order, it should be the 3rd one)
I don't like a milk (he changed order, it should be the 1st one)

3rd part

2
I have two eyes
I have the song of Golden play
3
I play in the cup
I like the ice (he changed order, it should be the 3rd)
I like the game (he changed order, it should be the 2nd)
4

5
I have a monkey
I need a kiss
I don't have clothes
I don't have a vase

6
I don't have a pig
I don't like a police (he changed order, it should be the 4th)

I have a book (he changed order, it should be the 2nd)
I don't have a sister

S24

1st part

2
The people are happy
The Earth is big
3
I like to play soccer

4
The world is big

The ocean is blue

5
I have a ball
The nurse is beautiful
The truck is past

6

The city is small

The moon is light

2nd part

2
My boss is very good

3
I like tea
I like to practice various sport(s)

4
The baby is crying

I wanna go movie
I have a good idea
5

There is taxi in the city
I have a gift to you (he changed order, it should be the 4th)
Now is 7 o'clock (he changed order, it should be the 1st)
6
I don't like to drink milk

The window is opened

3rd part

2
Your eyes are beautiful
I can't stand up the song

3
The cup is gray

I like ice cream
4

I hate the crime
I like the Brazilian food
5

The clothes are in the jacket
The monkey is fun (he changed order, it should be the 1st)

6
The pig is dirty

S25

1st part
2
Floripa have very people
I live in the Earth
3
I don’t play soccer
Noemia is wife my father Carlos

4
I’d like to travel in world

I like apple
5

I’m not actress (she changed order, it should be the 4th)
I like the nurse (she changed order, it should be the 2nd)

6

The plant is green

I don’t know moon

2nd part

2
I don’t have boss
I live in the island
3
I like tea

I don’t play sport(s) (she added s to sport)
4

I don’t have idea

5

I’m a woman
I take the taxi

6

I go to the party
I don’t have money

3rd part

2
Your eyes is green

3
I don’t know cup
I play game

4

I don’t like crime (she changed order, it should be the third one)
I’m lover (she changed order, it should be the 2nd)

5
The monkey like the banana
I love kiss

6
Pig is big

S26

1st part

2
The people is friend
The earth is big
3
I play soccer
My sister is a wife
???
4
The world is difficult
I love summer
The ocean is blue
???
5
I have a ball
???
???
The actress is good
???
6
???
???
???
The city is beautiful
???
???

2nd part

2
The boss is big
The island is near to beach
3
I love a tea
My mouth is red
I love play to sports (it should be sport, not sports)

4
I don’t have a baby
I have a great idea
I love movie
???
5
???
???
???
I don’t take a taxi
???
6
I don’t like milk
???
???
???
???
???

3rd part

2
I like blue eyes
I don’t like song
3
???
I love game
???
4
My week is difficult
???
???
I love Chinese food
5
The monkey is black
???
???
???
???
6
The pig is pink
???
???
???
???
???

S27

1st part

2
The people live in the Earth
We have peace in the Earth
3
I like to play soccer
I don't have a wife
The power of God is good
4
We live at the world
I like to go beach at the summer

5
I don't have any ball
I have a friend who works like a nurse
I don't know how to drive a truck

6
I am a worker
I don't have any dress

I live in a city called Florianópolis

2nd part

2
My boss' name is Alexandre
Florianópolis is a island
3
I like to drink tea
I like to play some sport(s) (he added s to sport) *lenient*
This is my mouth (he changed order, it should be the 2nd)
4
I was a baby
I have no idea now

Here in Florianópolis we don't have enough space
5

Now it's 10 o'clock
She is a woman

6

Saturday night it's a good time to have a party
I have lunch at 12 o'clock (he changed order, it should be in the 3rd)
I have no problem (he changed order, it should be in the 2nd)

3rd part

2
My eyes are brown
I don't remember any song now
3
I don't want a cup of tea
I like to play game
Now we have any ice
4
This is a cold week
The rabbit is a great lover

5
The monkey is brown

I'm dressing some clothes

6
Some people like to eat pig

S28

2
The people is beautiful
The Earth is beautiful
3
I play soccer
My wife is beautiful
???
4
The world is big
???
The ocean is blue

???
5
I play soccer with ball
The nurse works in hospital
???
The actress working in film
???
6
???

2nd part

2
My boss is ugly
I live in a island
3
I like tea
My mouth is big
I like sport
4
I have a baby
I have a idea
I see the movie
???
5
???
???
???
???
???
6
I drink milk
???
???
???
???

3rd part
2
I have eyes
I like song
3
???
???
???
4
I have a nice week
???
???

???
5
The monkey is brown
???
???
???
???
6
The pig is fat
???
???
???
???
???

S29

1st part

2
I'm good people
Earth in
3
I like play soccer
I'm a good wife
???
4
I'm living in a big world
???
???
???
5
I have a ball
???
I drive a truck
???
I sleep in room
6
???
I have a dress
???
???
???
I like the moon

2nd part

2
???
I live in a island

3
I like tea
I am was born in month 7 (he changed mouth by month)
???
4
???
I like movie (it should be the third)
I have good idea (it should be the second)
I live in a big space
5
???
???
I like woman
???
I have a big fish
6
I like milk
???
???
???
I have money (it should be the last one)
I like go to party (it should be in the 5th)

3rd part

2
I have green eyes
I like song
3
???
I like play game
I like ice
4
???
I lover her (he changed love by lover)
???
???
5
I like monkey
I wear…
???
???
???
6
I have a pig
I have no…
???
???
???
???

S30

2
The people is ready
???
3
I play soccer
I haven't wife
???
4
???
The summer is hot
The poem is better (Wrong! There is not any word from the test)
???
5
The ball is blue
My favorite actress is Nicole Kidman (it should be the 3rd)
???
The nurse is in the hospital (it should be the 2nd)
???
6
???
???
My head is small
???
The plant is in the garden
???

2nd part

2
My boss is government federal
???
3
The tea is hot
That mouth is September (Wrong!!! He changed mouth by month!)
???
4
The idea is the better thing of the people
The baby is in the kitchen
???
???
5
The gift is beautiful
???
???
???
???
6

The cat eat milk
???
???
???
???
???

2nd part

2
My eyes is brown
My favorite music is Vida de Gado
3
My team winner the cup
I listened the music the name of the game
???
4
???
???
I like movie of crime
???
5
I see the monkey is old
???
???
???
???
6
???
I buy one book
???
???
My sister living in Livramento
???