# FORM-FOCUSED INSTRUCTION IN L2 FRENCH

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ABSTRACT

While substantial evidence lends support to an explicit focus on form in language programme design, there is a need for systematic investigation of the relative effectiveness of subtypes of explicit L2 instruction (Norris & Ortega, 2000). This study considers planned approaches to form-focused instruction, that is, focus-on-forms (Long, 1991). It contrasts grammar instruction that is deductive (i.e., involving rule presentation and metalinguistic information) with instruction that is inductive (i.e., instruction that focuses student attention on form but includes no rule presentation).

Language instruction traditionally focuses on giving students opportunities to produce the particular language forms that have been the focus of instruction. Recent research claims that instruction that gives students the opportunity to process language input is more effective (e.g.,VanPatten, 1996, 2002a). This study compares the relative effectiveness of structured input and output-based instruction.

Most research investigates the effectiveness of instruction in terms of overall group gains. A particular instructional method may not, however, benefit all learners uniformly. This study establishes whether there is any relationship between the effectiveness of the instructional methods investigated and learner aptitude.

The study was conducted in a New Zealand high school and the structure targeted was direct object pronouns in L2 French. Students (*N* = 92) were assigned to four groups: (a) structured input instruction; (b) output-based/deductive instruction; (c) inductive instruction (input/output-based); (d) control. They were assessed on listening comprehension, reading comprehension, written production and oral production tasks. All but one of these language measures required a pressured response. Students were also assessed on measures of language aptitude: (a) language analytic ability, (b) phonemic coding ability and (c) working memory.

Results reveal significantly greater gains for the Deductive instruction group than for the Inductive instruction group. The students who received output-based instruction also performed better overall than the students who received structured input instruction. There is some evidence to suggest that deductive instruction that gives students the opportunity to produce language output may level out individual differences in language aptitude.

With respect to the testing procedures used, the study highlights the difficulty of designing language measures that access implicit language knowledge.

To my father

who has always loved and supported me
and championed all my academic
endeavours.

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| | |
|---|---|
| SLA | Second Language Acquisition |
| L1 | First language |
| L2 | Second language |

# CHAPTER ONE

# INTRODUCTION

## 1.1 Overview

The importance of form-focused instruction in the L2 language curriculum has been a much debated issue in the last 30 years (R. Ellis, 1999b). A related issue which has also provoked discussion (e.g., N. Ellis, 2002; R. Ellis, 2002a; Hulstijn & de Graaff, 1994 etc.), is the extent to which form-focused instruction can facilitate the acquisition of implicit language knowledge. This chapter will firstly present a definition of relevant terms, that is, form-focused instruction, explicit and implicit language knowledge. It will then present a brief historical overview of the place that has been accorded to form-focused instruction in the language curriculum. The difficulty of specifying accurate measures of implicit language knowledge will also be addressed.

The chapter will conclude with information about second/foreign language teaching in the New Zealand context. The particular form-focused instructional approaches and options that the thesis will investigate will be presented.

## 1.2 Definition of terms

### 1.2.1 Form-focused instruction

R. Ellis (2001) defines form-focused instruction as instruction where there is some attempt to draw the learners' attention to linguistic form. The term has been employed to encompass a number of models of instructional types. A basic distinction is between "focus-on-forms" and "focus-on-form" (Long, 1991). The former refers to instruction that isolates linguistic forms in order to teach them one at a time within the context of a structural syllabus. It requires a planned approach to form-focused instruction. A “focus-on-form” however draws the learners’ attention to a particular linguistic structure in the context of a meaningful communicative activity. This focus can be planned (e.g., a text may be “seeded” with a preselected specific linguistic form) or incidental (R. Ellis, 2001).

### 1.2.2 Implicit/explicit language knowledge

Acquired or implicit knowledge is defined as knowledge that is intuitive and accessed in natural language use that does not require time for monitoring. It can be “formulaic knowledge” (i.e., whole chunks of language) or “rule-based knowledge” (i.e., generalized and abstract structures which have been internalized). It is commonly referred to as interlanguage and conceptualized as an internal system of rules[1] and items. The learner has acquired this implicit language knowledge for him/herself over time, incidentally and without awareness. It becomes more complex and closer to the target language system in question as learning proceeds (R. Ellis 1993, 1994a). N. Ellis (2002) describes the acquisition of implicit language knowledge as the piecemeal learning of many thousands of constructions and the frequency-biased abstraction of regularities within them.

Explicit knowledge is analyzed and available to the learner as a conscious representation (R.Ellis, 1994a). Schmidt (1994b) claims that explicit learning results from paying conscious attention to language in an attempt to understand the rules[2] or system according to which it is governed. Bialystok (1994) defines explicit knowledge

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[1] Here the term *rule* refers to a claim about the form in which knowledge of language is represented in the learners’ mind (i.e., linguistic rule). (Robinson, 1996).

[2] Pedagogic rules, in contrast to linguistic rules, are simplified versions of linguistic rules formulated as suitable means of presenting L2 information to learners (Robinson, 1996).

according to somewhat different criteria. She claims that it may be conscious or not and accessed automatically or not. Its distinguishing feature is the clarity with which it is represented; it is organised in known systems and includes precise boundaries. Rather than the idea of a strict separation between implicit and explicit knowledge, Schmidt (1994a) prefers the notion of a developmental continuum of language analysis. A continuum stresses, he believes, the ways in which linguistic representations change in the course of development. R. Ellis (1994b) points out that not all knowledge originates in an explicit form. L2 knowledge often begins as implicit knowledge. It may later become explicit as a result of, to give one example, form-focused classroom instruction.

### 1.3 A historical overview of form-focused instruction

Traditional methods of language teaching with their emphasis on grammar practice activities were based on the assumption that explicit knowledge could become implicit knowledge through practice (a strong interface position). The discovery that L2 learners, irrespective of language background, age and learning environment display a consistent order in their acquisition of some grammatical forms (Dulay & Burt, 1974; Dulay, Burt & Krashen, 1982) and, furthermore, that there is little or no effect from instruction on this route of acquisition, challenged this model and led to a critical re-evaluation of traditional methods of language instruction. The research evidence suggested that traditional instruction resulted in learned competence only and that the underlying developing language system remained unchanged. These findings led to a widely held assumption that L2 language acquisition was similar to L1 acquisition. It was thus claimed that a second language would be best learnt under environmental conditions that resembled those of L1 acquisition. Krashen (1981) advocates carefully examining “caretaker” speech, that is, the language addressed to young children learning their first language, to determine what best constitutes intake for language learning. He argues that input that contains structures just beyond the student's current level of competence most resembles caretaker speech. Comprehensible input will arise naturally from roughly tuned teacher and peer talk in a positive affective classroom climate. Krashen cautions that focusing students' attention on specific grammatical features may be the least important contribution that the second language classroom makes to language learning. The impact of such views on L2 pedagogy led to a "natural" approach to language teaching (Krashen & Terrell, 1983) which argued for the provision of comprehensible input with no attention to specific grammatical features. It was considered that it was not possible for explicit knowledge to become implicit knowledge: the "no interface position" (Krashen & Terrell, 1983).

### 1.4 The case for form-focused instruction

Research showing that L2 learners, particularly adults, fail to reach high levels of grammatical competence even when they have had ample opportunity to learn the language naturally has challenged the assumption that there is no need for form-focused instruction in L2 language curriculum design. Some of this research has studied the effectiveness of immersion programmes which have been in place in Canada since the 1970's. Whereas it would be expected that the students in these programmes, who have received large "doses" of native-language input in a communicative setting over an extended period of time, would achieve near-native-speaker levels of proficiency, they do not reach such levels in grammatical proficiency. Swain (1985) documents the failure of immersion students to have mastered a wide range of unmarked morphology and syntax after seven years. Harley (1994) reports the failure of children who had been in French immersion programmes for a period of several years to provide evidence of having noticed that French nouns have grammatical gender. Lightbown and Spada (1997) conclude that students in English immersion programmes, like other students in intensive ESL classes, have gaps in their knowledge and use of certain features of English. Skehan (1998) claims that language use in itself does not lead to the development of an underlying language system since processing for meaning detracts from attention to language form. Gains in communicative effectiveness may, furthermore, be made without any impact on the learner's interlanguage system. These researchers lend support to the incorporation of form-focused instruction in language programme design.

Williams (1995) suggests that form-based instruction may have a role to play in speeding the student's passage through developmental sequences and in destabilizing fossilized forms. Long (1991) also claims that instruction is capable of speeding up the rate of learning and raising the ultimate level of achievement, even if research does not show that it is capable of altering sequences of development. He refers to White (1989) in arguing that positive evidence (from naturalistic input) may not be enough to alert learners to inadmissible constructions in the target language. Form-focused instruction may not only be beneficial for second language acquisition, it may actually be essential in order for some linguistic features to be acquired. White (1991) points out that learners, in classrooms where much of the input comes from other learners, will be exposed to incorrect "positive evidence". It cannot be assumed that they will know how to distinguish "good" input from "poor" input. One of the roles of a language programme that includes form-focused instruction, would be, they claim, to help them make such distinctions. N. Ellis (1995), also in support of instructed learning, quotes studies that demonstrate that provision of negative evidence, which would not necessarily be available to adult learners in naturalistic learning situations, does facilitate L2 syntactic development.

In a recent meta-analysis, Norris and Ortega (2000) summarised findings from experimental and quasi-experimental investigations into the effectiveness of L2 instruction published between 1980 and 1998. They found that focused L2 instruction, in comparison with simple exposure or meaning-driven communication, makes a significant difference to language learning outcomes that is very unlikely to be attributable to chance.

The justifications presented thus far for form-focused instruction in L2 language programme design have been largely related to language acquisition theory (R.Ellis, 1999b). Ellis argues that there are also pedagogic reasons in favour of form-focused instruction in the language syllabus. A task-based or thematically-based syllabus does not, R. Ellis (1999b) argues, ensure systematic coverage of the grammar of the L2 that is being taught. Only a structural syllabus guarantees that all the main aspects of the grammar are taught.

It is now widely accepted among SLA researchers that form-focused instruction may have a beneficial effect on learners' interlanguage (Doughty & Williams, 1998). The weak-interface model of language development (R. Ellis, 1995) hypothesizes an indirect relationship between explicit and implicit knowledge, where explicit knowledge may help learners obtain subsequent "intake" for implicit knowledge (i.e., it functions as a prime for implicit learning processes). A key issue, however, has been the difficulty of specifying accurate measures of implicit language knowledge.

## 1.5 Assessing explicit and implicit language knowledge

Krashen (1981) considers that tests which provide evidence of the "natural" order of language development access "acquisition"/implicit knowledge. Such tests will almost always involve a time restriction. On the other hand, he claims that a discrete-point test provides evidence of "learning"/explicit knowledge. Other tests are, he believes, unreliable as tests of explicit knowledge as they may not oblige subjects to focus exclusively on linguistic form at the expense of communication.

Other researchers are more cautious with respect to the possibility of accessing implicit language knowledge. Salaberry (1997) maintains that evidence of implicit knowledge is not easily ascertained and that studies which investigate the effectiveness of form-focused instruction are unable to specify tests which would provide clear evidence of access to the interlanguage system. Hulstijn and de Graaff (1994) claim that implicit knowledge is a theoretical construct and caution that it is not directly accessible by means of language tests. They believe, however, that a L2 learner who can produce a target language structure correctly only at a slow pace is unlikely to have implicit knowledge of it. The behavioural correlate of implicit language knowledge is automaticity in language use. They refer to Schmidt (1994a) who states that fluent, spontaneous language performance is accomplished without the conscious retrieval of explicit knowledge that may have been used as an aid to production in earlier stages of development. Han and Ellis's study (1998) conducted a factor analysis on a series of language measures, all of which focused on learners' knowledge of verb complementation in English. They found that these tests loaded on two factors, indicating a clear distinction between those measures that incorporated a time constraint (hypothesized to reflect implicit knowledge) and those that did not. They conclude that the results suggest that implicit knowledge can be tapped by discrete-item tests if these require speeded responses. DeKeyser (forthcoming) presents another view, however. He argues that time pressure does not guarantee a measure of implicit knowledge. Students may be able to apply relatively automatized explicit knowledge under time pressure. De Graaff (1997a) points out that, even if it is possible to assess implicit knowledge through tasks that require speeded responses, it is problematic to determine just how much time pressure should be exerted in controlled experimental settings in order to eliminate reliance on explicit knowledge.

Bialystok (1994), Hulstijn and de Graaff (1994) and Schmidt (1994b) all highlight the importance of the processes the learner engages in for any discussion of how explicit and/or implicit language knowledge are accessed. Hulstijn and de Graaff (1994) state that in fluent language production parallel processing is involved, so that the language user is unaware of how the information is being processed and of how these processes are monitored. Bialystok (1994) believes that differences in automaticity of language use are irrelevant to distinctions in representational form although she does admit that implicit knowledge does appear to be more fluently accessed. She makes it clear, that what others may interpret as a move from explicit to implicit knowledge, she would interpret as a change in control of processing. Schmidt (1994b) argues that claims of evidence of implicit or explicit knowledge cannot be made without an investigation of student awareness since it is learner-internal processes that are involved.

Whilst there is some variation in opinion as to how implicit language knowledge may be accessed, it cannot be disputed that most research investigating the effectiveness of L2 instruction to date has been based on measures that require the application of explicit knowledge under controlled conditions (Norris and Ortega, 2000). There are relatively few studies that include language measures requiring the students to use spontaneous, fluent and contextualized language, thus reducing the likelihood that students have the opportunity to monitor their language performance using explicit knowledge. In a recent review, R.Ellis (2002a) looked at a number of studies that included a measure of acquisition based on communicative free production (i.e., an activity that calls for unplanned language use directed at fulfilling some communicative purpose). Seven out of the eleven studies that fell within this category showed that form-focused instruction led to gains on measures of free language production. There was some evidence to suggest that extended treatment of the target structure was more effective than limited treatment. However, as Ellis cautions, the studies provided no information about whether the learner's production was in fact "free" and thus it is impossible to be sure that learners had no opportunity to monitor their output.

## 1.6 Second language teaching within the New Zealand context

While the New Zealand government has supported specific aspects of language learning in New Zealand, for example, Te Reo Maori as a medium of instruction and the Second Language Learner Project in the last two years of primary school (Ministry of Education, 1993), New Zealand has no official language policy. Secondary school students (Years 9 to 15) are not required to experience learning another language as part of their education; they are given the opportunity to choose from a wide range of subject options, including foreign/second languages, at this level.

French is the most popular foreign/second language choice for New Zealand secondary school students. In the year 2000, 24,272 students studied French in New Zealand secondary schools (Years 9 to 15). Japanese was a strong second choice, 21,529 students, followed by Te Reo Maori, 20,720 students (Ministry of Education, 2001). A low percentage of the total number of students enrolled in New Zealand secondary schools study another language, however. The number of students taking French as a subject option, as given above, represented less than 13% of the total number of secondary students enrolled in New Zealand schools in 2000.

The French syllabus (Ministry of Education, 2002) is "functional" in that the language teaching content of each level of instruction is designed to allow students to perform different functions. Students at the end of level 3, for example, should be able to complete a number of objectives, one of which is to "give and follow directions". Each level of instruction, however, includes a section entitled "Suggested Language Focus" where a number of language structures are listed that are relevant to enabling students attain the given objectives. At level 3, for example, it is recommended that teachers focus on a variety of structures, amongst others, *er* verbs in the present tense and partitive articles.

Thus, in the New Zealand context, teachers of French are being encouraged to focus on forms as they work to enable students to perform different functions. In addition, as we have seen above, a strong case for form-focused instruction in the classroom language programme can be mounted from the perspective of language acquisition theory (R. Ellis, 1999b). Having established two reasons for form-focused instruction in the L2 classroom, one relating in particular to the New Zealand context, it would seem to be relevant to determine whether some types of form-focused instruction are more effective than others.

## 1.7 Form-focused instructional approaches

Within the category of form-focused instruction, two broad categories of instruction that have been the subject of a considerable research focus can be identified, that is, explicit instruction and implicit instruction. For the purposes of this study we will adopt the definitions of implicit/explicit instruction as used by DeKeyser (1995) and Norris & Ortega (2000). Instruction is considered to be explicit if rule explanation comprises any part of the instruction or if learners are directly asked to pay attention to particular forms in order to try to arrive at metalinguistic generalizations on their own. When neither rule presentation, nor directions to attend to particular forms are part of instruction, it is considered to be implicit.

There is now a significant amount of research evidence to suggest that treatments involving an explicit focus on the rule-governed nature of L2 structures are more effective than treatments that do not include such a focus (N. Ellis, 2002; Norris & Ortega, 2000; Spada, 1997). There are a number of individual studies that have addressed the relative effectiveness of these two forms of instruction, for example, Alanen, 1995; De Graaff, 1997a; DeKeyser, 1994, 1995; Doughty, 1991; N.Ellis, 1993 and Scott, 1989. In all but one of these studies (Doughty, 1991) the effect was greater for explicit instruction than for implicit instruction. Compelling evidence for the greater effectiveness of explicit instruction also comes from the meta-analysis conducted by Norris and Ortega (2000). They conclude, from the 49 studies that they retained as their research base, that explicit instruction is significantly more effective than implicit instruction. They caution, however, that the fact that implicit instruction was typically operationalized in restrictive ways in the studies looked at, may have contributed to the results that they obtained in favour of explicit instruction. They also note that in these studies most measurement of change was carried out by means of instruments that favour explicit learning (e.g., grammaticality judgement tests, discrete point tests).

This study investigates explicit, rather than implicit, approaches to form-focused instruction, because of the considerable research evidence that suggests that explicit forms of instruction are more effective than implicit. Two broad approaches to form-focused instruction, that is, "focus-on-form" and "focus-on-forms" have been distinguished (see 1.2.1). This study will consider instructional approaches that relate to a planned approach to form-focused instruction, that is, approaches relating to "focus-on-forms". It is interesting to note that Norris and Ortega (2000) conclude, from their meta-analysis, that research evidence indicates that a "focus-on-form" and a "focus-on-forms" are equally effective.

1.8 Thesis outline

This thesis will compare the relative effectiveness of four main approaches to form-focused instruction:

1. deductive and inductive approaches.
2. input-based and output-based approaches.

Within the "focus-on-forms" approach to form-focused instruction, R.Ellis (2002b) outlines a number of instructional options. These are: explicit instruction (didactic/discovery), implicit instruction (non-enhanced input/enhanced input), structured input, production practice (controlled/functional) and negative feedback (implicit/explicit). Ellis points out that most classroom lessons involve a combination of these various instructional options.

This study will compare the four approaches to instruction relating to "focus-on-forms" presented above, in combination with a number of instructional options as presented in Table 1.

Table 1: Approaches and Options Relating to the Form-focused Instructional Treatments Operationalised in this Study.

| Approach | Options |
|---|---|
| Deductive | Explicit instruction |
| | Production practice (controlled[3]) |
| | Explicit negative feedback |
| Inductive | Structured input instruction |
| | Production practice (controlled) |
| | Explicit negative feedback |
| Input-based | Explicit instruction |
| | Structured input instruction |
| | Explicit negative feedback |
| Output-based | Explicit instruction |
| | Production practice (controlled) |
| | Explicit negative feedback |

Most experimental research to date has investigated the effectiveness of instruction in terms of overall group gains. However, it cannot be assumed that various types of instruction will benefit all learners uniformly. Individual differences may mediate the relative effectiveness of different instructional methods. This study will therefore also investigate whether there is any relationship between the effectiveness of these instructional approaches and language aptitude.

[3] In production practice that is controlled students are given guidance in producing sentences containing the target form, for example, they may fill in blanks in sentences or transform sentences (R.Ellis, 2002b).

Chapters 2, 3 and 4 will review the literature pertaining to the instructional approaches that this study investigates and to language aptitude. Chapter 5 details the methodology of the present study. Chapters 6, 7 and 8 will present the results and discussion of research questions. Finally, Chapter 9 summarises the study, discusses its limitations and draws conclusions.

# CHAPTER TWO

# DEDUCTIVE AND INDUCTIVE INSTRUCTION

## 2.1 Overview

This chapter will firstly define deductive and inductive instruction. It will then present a review of the research that has investigated the effectiveness of these two types of instruction.

## 2.2 Definition of terms

Deduction is defined as a process that moves from the general to the specific. In language learning, a general rule is applied to particular instances of language use. Deductive instruction involves rule explanation (Norris & Ortega, 2000) at the beginning of a lesson, before students engage in language practice.

Robinson (1996) suggests that pedagogic rules may facilitate learning because they enable students to notice salient features of language that the rule is explaining or because understanding the rule, in conjunction with examples, may lead to an understanding of the structural regularities on which the rule is based. Sharwood Smith (1991) argues that learners do not 'take in' rules, rather they internalize examples of rules they are given and use these to create their own rule systems. According to this view pedagogic rules are useful as devices for focusing attention on structures to be learned, which are then noticed and learned as a consequence of inductive processes (Robinson, 1996).

Induction is a process that moves from the specific to the general. The language learner is first exposed to instances of language use, from which will emerge patterns and generalizations (Decoo, 1996; Gollin, 1998). In inductive instruction, learners directly attend to particular forms and try to arrive at metalinguistic generalizations on their own (Norris & Ortega, 2000).

Induction has, in the past, tended to be categorised as implicit instruction and deduction as explicit instruction (e.g., Scott, 1990). DeKeyser (1994) suggests that the reason why deductive instruction has been considered a form of explicit instruction and inductive, a form of implicit instruction, may be because explicit learning is almost always the result of deductive teaching. He observes, however, that the term "induction" has more commonly come to acquire the meaning of "explicit induction" in the field of applied linguistics. We will consider both inductive and deductive methods of instruction as fitting along what Norris and Ortega (2000) describe as a continuum of explicitness, that ranges from the more explicit (deductive) to the less explicit (inductive). Both approaches are examples of explicit instruction because they are clearly differentiated from Norris and Ortega's definition of implicit instruction as instruction for which there are neither rule presentations nor directions to attend to particular language forms.

## 2.3 Research in deductive and inductive instruction

Of the 49 studies that Norris and Ortega retained as the base for their research synthesis, only three (Herron & Tomasello, 1992; Robinson, 1996; Shaffer, 1989) investigated the relative effectiveness of deductive and inductive instruction. The lack of recent studies suggests that this is an under-researched area within the field of second language acquisition. A total of seven studies have been identified (Abraham, 1985; Hendrix, 2002; Herron & Tomasello, 1992; Robinson, 1996; Rosa & O'Neill, 1999; Seliger, 1975; Shaffer, 1989), conducted during the period from 1975 to 2002, that contrast the effectiveness of deductive and inductive instruction. Some studies (Robinson, 1996; Rosa & O'Neill, 1999) use the terms "instructed" and "rule search" instead of deductive/inductive.

### 2.3.1 Operationalisation of instructional treatments

The way that instruction has proceeded in these studies has varied considerably. The two key components of instruction that have been operationalised in different ways are rule explanation and use of practice activities. Table 2 (see below) shows that instructional treatments have either been made up of one of these components alone (Options 1 & 2), or in combination with the other (Options 3 & 4). Options 3 and 4 have differed only with respect to the order in which instruction has proceeded; in option 3, rule explanation preceded practice, whereas, in option 4, it came after practice (the figures in brackets indicate in which order instruction proceeded).

Table 2: Operationalisation of Instruction in Deductive/Inductive Research.

| Option | Rule explanation | Practice |
|---|---|---|
| 1 | * | |
| 2 | | * |
| 3 | *(1) | *(2) |
| 4 | *(2) | *(1) |

Only one of the seven studies that form the basis of this literature review can be considered as belonging to Option 1. Shaffer (1989) presented her students with example sentences but did not have them work at practice activities. Both her deductive and inductive instructional treatments fit with the criterion defining option one, in that rule explanation was an integral part of both. The two treatments were differentiated according to the directness of the rule presentation. Shaffer presented her Deductive group with the grammar rule and example sentences (i.e., direct) and asked her Inductive group to formulate the rule from the example sentences (i.e., indirect), excluding from posttesting those students in the Inductive group who were unable to do so.

Two studies (Hendrix, 2002; Seliger, 1975) compared deductive instruction where rule explanation preceded practice (Option 3) with inductive instruction where rule explanation was given at the end of practice (Option 4), as a sort of "summar[y] of what the student is observing or doing" (Seliger, p. 4). In Seliger's case the comparison between the two instructional approaches was intended as an investigation of the effectiveness of the audiolingual and grammar-translation methods of second language teaching. (Gollin [1998] and Hammerly [1975] observe that deductive approaches to language teaching have been associated with the grammar-translation method and inductive with the audiolingual method).

Given that the main difference between the way that instruction proceeded in these three studies (Hendrix, 2002; Seliger, 1975; Shaffer, 1989) is in the sequencing of the instructional components, it is perhaps not surprising that Hendrix (2002) and Shaffer (1989) found no significant difference between the two instructional methods, although

Shaffer does report a trend in favour of the inductive approach. It is interesting to note, on the other hand, that Seliger (1975) found that the Deductive group did better than the Inductive group on a delayed posttest (3 weeks post instruction); there was no difference between the two groups on the immediate posttest.

In this discussion we will focus on those studies that contrast deductive instruction, where rule explanation precedes practice activities (Option 3), with inductive instruction, where students are not given rule explanation at any stage of instruction but work only at practice activities (Option 2). We will differentiate this form of inductive instruction from implicit instruction according to Norris and Ortega's definition (2000), that is, instruction for which there are neither rule presentations nor directions to attend to particular language forms (see 2.2 above). While, in the studies we have chosen to review, students may not in all cases have been explicitly told to attend to particular language forms, the practice activities that they worked at were, nonetheless, designed to focus their attention on target language forms.

The decision has been taken to restrict further discussion in this chapter to studies that compared Options 3 and 2 (see Table 2) because these options correspond to the way the deductive and inductive instructional treatments were operationalised in the present study. There are four studies which fit within this category, Abraham, 1985; Herron & Tomasello, 1992; Robinson, 1996 and Rosa & O'Neill, 1999[4]. We will proceed to analyse these studies in greater detail below.

[4] Although there were five treatment groups in Rosa and O'Neill's study (1999), we will compare the group that received formal (grammar) instruction [+FI, - RS] and the rule search group [-FI, +RS], as these treatment conditions most clearly related to the definitions of deductive/inductive instruction as operationalised in this study (see 2.3.1).

### 2.3.2 Inductive instruction practice activities

Students in inductive instruction instructional treatments in the four studies named above (see 2.3.1) were either given instructions to look for rules (Robinson, 1996; Rosa & O'Neill, 1999) as they completed practice activities or not (Abraham, 1985; Herron & Tomasello, 1992). In the two studies where students were told to look for rules (Robinson, 1996; Rosa & O'Neill, 1999), they were not asked to verbalise them, nor were rules verbalised by the teacher.

The practice activities that students were given directed their attention to the target structure in different ways. Herron and Tomasello (1992) got students to participate in a contextualised oral drill that gave them practice in producing the target structure. Rosa and O'Neill (1999) had students complete a jigsaw task designed specifically to draw their attention to the targeted form. Abraham (1985) presented students with sentences where the target structure was highlighted and then asked them to reproduce the target form after it had been erased from the computer screen. Robinson simply presented students with sentences (40 in all) containing the target form and required students to answer a yes/no question after each sentence, for example, "are you still looking for the rules, have you identified the rules yet?" (Robinson, p. 36).

Herron and Tomasello (1992) gave students immediate feedback as they completed practice activities. Students in Abraham's study (1986) received feedback which was described as being similar to that which students in the Deductive group received. It thus appears that students in this group may have received some metalinguistic information, although they were never given rules nor told to look for them. The feedback that students in Rosa and O'Neill's study (1999) received was intrinsic to the task, that is, only the puzzle piece that contained the correct verb tense fitted correctly with the main clause puzzle piece. Only one study (Robinson, 1996) gave no corrective feedback.

### 2.3.3 Deductive instruction practice activities

In two studies (Abraham, 1985; Robinson, 1996), students in the Deductive group were given different types of practice activities from those that students in the Inductive group worked at. Abraham asked students in her Deductive group to complete a grammar task. Robinson asked students in the Deductive group to answer metalinguistic questions about the same sentences that were presented to students in the Inductive group. (It is interesting to note that the treatment sessions in both these studies were computer administered). In Herron and Tomasello (1992) and Rosa and O'Neill (1999), students in each group worked at the same practice activities.

### 2.3.4 Choice of target structure

Research to date has investigated the effectiveness of deductive and inductive instruction on students' acquisition of a variety of structures in L2 French (Herron & Tomasello, 1992), Spanish (Rosa & O'Neill, 1999) and English (Abraham, 1985; Robinson, 1996). Two studies (Abraham, 1985; Rosa & O'Neill, 1999) targeted one language structure only. Two studies investigated the effectiveness of both forms of instruction on a variety of target structures (Herron & Tomasello, 1992; Robinson, 1996). Herron and Tomasello (1992) targeted a total of ten grammatical structures in French. Students were exposed to five structures under each treatment condition.

Robinson (1996) investigated the relationship between type of instruction and grammatical structure. He chose two grammatical rules and their corresponding structures that differed in complexity in L2 English. The “hard” rule described how to form pseudoclefts of location and the ‘simple’ rule described subject-verb inversion in sentences where adverbials of movement or location are fronted. Robinson found no effect for treatment in relation to the complexity of target structure.

### 2.3.5 Target population

All studies have used adult learner populations rather than high school populations. Studies targeted students with a wide range of proficiency levels. One study (Herron & Tomasello, 1992) targeted beginners, two studies (Robinson, 1996; Rosa & O’Neill, 1999) chose intermediate level students and Abraham (1985) chose high intermediate learners of English.

### 2.3.6 Assessment of instructional treatments

All studies used one language measure only to investigate the effectiveness of the instructional treatments. In all but one study (Robinson, 1996), the language measures used were written production tasks. Robinson used a grammaticality judgement test. He measured speed as well as accuracy on this test. Only one other study (Rosa & O’Neill, 1999) required students to complete the assessment task under time pressure. In Robinson’s study there was an effect approaching significance for the greater speed of the inductive learners relative to the deductive learners. In Rosa and O’Neill’s study both groups made significant gains but there was no difference between them.

Only one study (Herron & Tomasello, 1992) included a delayed posttest as well as an immediate posttest. Herron and Tomasello (1992) had students complete the delayed posttest 1 week following instructional treatments.

### 2.3.7 Investigation of effectiveness of instruction in relation to individual learner differences.

Abraham (1985) looked at the effectiveness of deductive and inductive instruction in relation to learner differences. She had all participants complete the Group Embedded Figures Test (GEFT) (Oltman, Raskin & Witkin, 1971), to assess their degree of field dependence. In this test students are asked to find a single geometric shape embedded in a complex design. Low scores indicate that students are highly field-dependent, while high scores indicate that students are highly-field independent.

Abraham found that students who were field-independent performed better with the deductive lesson and those who were field-dependent performed better with the inductive lesson. These results confirmed Abraham's hypothesis that field-independent students are more adept at learning and using rules than field-dependent learners.

### 2.3.8 Results of research conducted to date

There is conflicting evidence as to the effectiveness of deductive versus inductive instructional approaches. Herron and Tomasello (1992) found an overall advantage for inductive instruction whereas Robinson (1996) found an overall advantage for deductive instruction. Abraham (1985) and Rosa and O'Neill (1999) identified no significant difference between the two approaches.

Although the number of studies considered is small and conclusions must be tentative, there seems to be no apparent relationship between the different variables (that characterise the way this research has been conducted and that have been discussed through 2.3.1 to 2.3.6) and the results obtained from these studies.

2.3.9 Limitations of deductive/inductive research

DeKeyser (1995) notes that one of the difficulties characteristic of this type of research is that distinctions between the instructional treatments can be overridden by students' learning strategies and/or other circumstances. This was highlighted by a retrospection questionnaire that DeKeyser asked students to complete in a study (1994, 1995) where he compared the effectiveness of explicit and implicit instruction. Only half of the students in the explicit group reported paying any attention to grammar in the judgement test. In another study, Alanen (1995) reported that the intended learning conditions did not always match the actual learning conditions, that is, what the learners actually did during the learning task. Some students seemed heavily influenced by their own interests and motivation.

Of the studies that we have reviewed above, only one (Rosa & O'Neill, 1999), investigated the relationship between the intended learning conditions and the actual learning conditions. Rosa and O'Neill used think-aloud protocols to gauge the focus of attention of students in their instructed and rule-search instructional groups. They found that there were students in every learning condition who formulated and tested hypotheses about the target structure.

## 2.4 Conclusions

The following conclusions can be drawn from research conducted to date that has contrasted deductive instruction, where rule explanation precedes practice activities, with inductive instruction, where students are not given rule explanation at any stage of instruction but work only at practice activities (i.e., Abraham, 1985; Herron & Tomasello, 1992; Robinson, 1996; Rosa & O'Neill, 1999).

1. There are differences in the way that inductive instruction has proceeded in these studies. In two studies (Robinson, 1996; Rosa & O'Neill, 1999) students were told to look for rules as they completed practice activities but the rules were not verbalised at any time. In Abraham (1985) and Herron and Tomasello (1992) students completed practice activities but were not told to look for rules.

2. One study (Robinson, 1996) investigated the relationship between instruction and complexity of grammatical structure. No relationship between these variables was found.

3. All studies have targeted adult populations. No study has investigated the effectiveness of deductive and inductive instruction on high school students.

4. No study has used measures of both language comprehension and language production. Hulstijn and De Graaff (1994) suggest that explicit instruction may have a differential effect on language comprehension and language production.

5. No study has included a measure of oral language production.

6. One study (Rosa & O'Neill, 1999) included an assessment task that required a pressured response. Robinson (1996) measured speed of response on a grammaticality judgement test.

7. No study measured the effects of instruction more than one week after the instructional treatments.

8. There is evidence from one study to suggest that deductive instruction may be more effective for field-independent learners and inductive instruction more effective for field-dependent learners (Abraham, 1985).

9. There are conflicting results with respect to the effectiveness of both methods of instruction. While two studies (Abraham, 1985; Rosa & O'Neill, 1999) found no difference between the two approaches, Robinson (1996) found an overall advantage for deductive instruction and Herron & Tomasello (1992) for inductive instruction.

10. Only one study (Rosa & O'Neill, 1999), investigated the relationship between the intended learning conditions and the actual learning conditions. Rosa and O'Neill found that in both inductive and deductive treatment conditions there were students who formulated and tested hypotheses about the target structure.

# CHAPTER THREE

# STRUCTURED INPUT INSTRUCTION

## 3.1 Overview

This chapter will firstly define structured input instruction and situate it in relation to other input-based methods of instruction, in particular to input processing instruction (VanPatten, 1996, 2002a). Whilst much of the research that has been conducted in structured input instruction has been inspired by research in input processing instruction, the boundaries between the two have not, as it will be seen, always been clearly delineated in the past. A discussion of the research that has been informed by both these theoretical positions will enable conclusions to be drawn about the aspects of explicit input-based instruction that most contribute to success in L2 learning and will highlight those areas that research is yet to address.

## 3.2 Input versus output-based instruction

The model of language acquisition that informs mainstream second language acquisition puts forward three main processes (R. Ellis, 2001):

1. intake 2. acquisition 3. language production

VanPatten (2002a) defines intake as the linguistic data that is processed from language input and held in working memory. It may be subsequently incorporated into long-term memory and result in restructuring of the students' interlanguage system (i.e., acquisition) and the eventual use of these stored forms in language production. Traditionally, language instruction has been aimed at the last of these processes, that is, teachers have combined some sort of explicit grammar instruction with activities that concentrate on providing learners with opportunities to produce the target structure.

VanPatten and Cadierno (1993b) claim that instead of trying to change how learners produce language output, instruction should focus on altering how learners process input. This is more likely to have an impact on the developing language system, given that language acquisition is a sequential process that moves from left to right. Figure 1 demonstrates the focus of traditional grammar instruction.

Figure 1: Traditional Explicit Grammar Instruction in Foreign Language Teaching (VanPatten & Cadierno, 1993a)

$$
\begin{tikzcd}
\text{Input} \arrow[r, "\mathrm{I}"] & \text{Intake} \arrow[r, "\mathrm{II}"] & \text{Developing system} \arrow[r, "\mathrm{III}"] & \text{Output} \\
 & & \boxed{\text{Focused practice}} \arrow[ur] &
\end{tikzcd}
$$

The focus of language instruction that aims at having learners work with language input and does not require them to engage in language output, is depicted in Figure 2. This figure is an adaptation of the one that VanPatten and Cadierno (1993a) use to illustrate input processing instruction. It has been modified to include other input-based approaches to instruction.

Figure 2: Input-based Language Instruction in Foreign Language Teaching (adapted from VanPatten & Cadierno, 1993a).

$$
\begin{tikzcd}
\text{Input} \arrow[r, "\mathrm{I}"] & \text{Intake} \arrow[r, "\mathrm{II}"] & \text{Developing system} \arrow[r, "\mathrm{III}"] & \text{Output} \\
\boxed{\text{Focused practice}} \arrow[ur] & & &
\end{tikzcd}
$$

There is now a substantial body of research that has contrasted the effectiveness of having students work with language input, with having them produce language output. This research is reviewed later in this chapter.

## 3.3 Input-based instruction

The idea that having students work with language input should precede production is not new. Asher (1981) and Winitz (1981) recommend the delay of oral practice in foreign language teaching until the "clinician" (Winitz, p. 102) is convinced that the structures which are being taught are fully understood without contextual assistance. They claim that "comprehension training" is a valuable methodological approach that brings students into contact with a wide range of language data. Winitz (1981) explains how he uses pictures to focus student attention on specific language forms. Any investigation, however, of the success of these input-based instructional techniques, commonly referred to as comprehension-based approaches, was done in the context of global method studies. This discussion will focus on more recent research in input-based instructional techniques that has investigated the acquisition of specific language structures.

Input-based instructional techniques may be examples of either explicit or implicit language instruction. Enriched input and enhanced input instructional techniques are both forms of implicit language instruction, in that there is neither rule presentation nor direction to attend to particular language forms (Norris & Ortega, 2000). Enriched input instructional techniques (also referred to as input flooding) expose students to input that has been seeded with examples of the target structure (N. Ellis, 1993; Robinson, 1996). Enhanced input instructional techniques expose students to input where the target structure is typographically enhanced (Alanen, 1995; Doughty, 1991; Leeman et al, 1995).

This discussion will be concerned with explicit rather than implicit forms of input-based instruction. Two types of explicit input-based instruction can be identified, input processing instruction and structured input instruction.

### 3.4 Input processing instruction and structured input instruction defined

In structured input instruction students are required to work with language input that focuses their attention on a particular target structure. They are given listening or reading tasks that require them to pay attention to the form of the target structure and to process its meaning. They are not at any stage engaged in activities requiring them to produce this structure. R. Ellis (2001) defines structured input instruction as fitting within the focus-on-forms category (see 1.2.1) because it aims to focus student attention on form and because attention is repeatedly drawn to a preselected linguistic feature. A crucial aspect of this instructional approach is that it involves a primary focus on form.

In input processing instruction, the language structure targeted, as the focus of the instructional treatment, is one that has been demonstrated to present processing difficulties for students. It is typically either misinterpreted or overlooked by students (see below). Input processing instruction is the instructional technique based on the theoretical findings of input processing. In input processing instruction instructional treatments, students are given explicit information about this unhelpful processing strategy and the correct target language strategy. They are also given meaning-focused input-based activities that direct them away from it. They do not engage in production of the target structure.

## 3.5 Input processing instruction

Input processing instruction is based on research conducted by VanPatten (1989, 1996, 2000a) into learners' input processing strategies. Input processing attempts to explain how learners attend to form in language input while their primary focus is on meaning. VanPatten (2002a) defines form as referring to the surface features of language, for example, functors, inflections, although he claims that input processing is also relevant to syntax. From input students derive intake, defined as those linguistic features that they process and take into working memory. VanPatten claims (2002a) that working memory is "capacity limited", so that learners can only attend to so much input before their attentional resources are depleted. He outlines a series of principles of input processing which explain how students parse sentences when their primary focus is on meaning. These four main principles are:

P1. Learners process input for meaning before they process it for form.

P2. For learners to process form that is not meaningful, they must be able to process informational or communicative content at no (or little) cost to attention.

P3. Learners possess a default strategy that assigns the role of agent (or subject) to the first noun (phrase) they encounter in a sentence/utterance. This is called the first noun strategy.

P4. Learners first process elements in sentence/utterance initial position. (VanPatten, 2002a)

VanPatten argues that because the learners' input processing may lead to impoverished intake, form-focused instruction needs to manipulate learner attention and input data so that better form-meaning connections are made (VanPatten, 1996, 2002a; VanPatten & Cadierno, 1993 a & b). In input processing studies the target structure chosen is one that has been demonstrated to cause processing problems for students, according to VanPatten's principles of input processing described above. The crucial components of the instructional treatments are:

(a) Students are given explicit grammar instruction about the target structure. Information is presented non-paradigmatically. Students are told about the natural processing strategy that may negatively affect their acquisition of the target structure.

(b) Students are given input-based materials that are designed to direct them away from this unhelpful processing strategy. These materials are designed to force students to focus on the target structure and to process it for meaning. Some of these materials are what VanPatten calls "referentially oriented", in that they focus content on a third person rather than on the learner. In these types of activities there is a right or wrong answer that reveals whether or not the students have processed the form correctly. Other activities are "affectively oriented" and encourage students to provide indications of their beliefs, opinions, feelings and personal circumstances (VanPatten, 1996, 2002a; VanPatten & Sanz, 1995).

It is important to note that evidence from more recent studies that have investigated the role that explicit information plays in processing instruction (Benati, 2002; Sanz & Morgan-Short, 2001; VanPatten & Oikkenon, 1996) have led VanPatten (2002a) to suggest that it is the input that directs students away from the non-optimal processing strategy rather than the information they are given about this strategy that is more effective. The explicit instruction plays only a minor role, he claims, if indeed, it plays any at all.

VanPatten and Cadierno (1993b) summarise the differences between output-based instruction, which they refer to as traditional instruction, and input processing instruction in Table 3. We will use the term output-based instruction, rather than traditional instruction, to refer to the instructional treatments that are contrasted with input-based instructional techniques; it is requiring students to work at activities where they produce language output that is the defining feature of this instruction.

Table 3: Summary of Traditional vs. Processing Instruction.

| **Traditional** | **Processing** |
|---|---|
| Paradigmatic | Non-paradigmatic |
| Focus on output | Focus on input |
| Some focus on meaning | Meaning always in focus |

3.5.1 Research in input processing instruction

In a seminal study, VanPatten and Cadierno (1993a) compared the effects of input processing instruction and output-based language instruction on English learners' acquisition of Spanish clitic object pronouns. Their choice of structure was determined by their observation that learners of Spanish find processing these language forms difficult because Spanish has a more flexible word order than English. English speaking learners of Spanish typically make the mistake of assigning agent status to the first noun of a string and object status to the second (i.e., P3, the first noun processing strategy). The researchers divided learners into three groups. One received explicit information about the target structure, presented paradigmatically, along with output practice. Another received explicit information about the target structure that was presented non-paradigmatically and included information about the unhelpful processing strategy, followed by input-based activities that aimed at directing students away from this non-optimal strategy. A third group received no instruction. They found that learners who received processing instruction performed better on interpretation tasks than those who had received output-based instruction and as well on production tasks, a surprising result given that these students had not engaged in any activity requiring them to produce the target structure. It is important to note that the students in the Output-based instruction group worked at a combination of mechanical, meaningful and communicative practice activities. Cadierno (1995) conducted a study similar to that described above and obtained identical results for Spanish past tense verb morphology. Instruction given to the Input Processing instruction group targeted what VanPatten (2002a) calls the lexical processing strategy. This is principle P1b of input processing and states that learners prefer processing lexical items to grammatical items (e.g., morphology) for the same semantic information. Thus instruction encouraged students in the Input processing instruction group to process grammatical items, rather than lexical items, for semantic information. Cadierno claims that input processing instruction seems to directly intervene in the learner's interlanguage system (i.e., lead to implicit knowledge).

These studies sparked considerable interest in that they were followed by a number of others, only a few of which VanPatten (2002a) calls replications of the original (Benati, 2001; Cheng, 1995; Sanz & Morgan-Short, 2001; VanPatten & Oikennon, 1996; VanPatten & Sanz, 1995; VanPatten & Wong, 2001). VanPatten claims that these studies are “conceptual replications” (Polio & Gass, 1997) in that they replicate the original study by changing either the target structure, the components of input processing instruction or the assessment tasks. Several studies targeted different structures in a variety of languages: Benati (2001), the Italian future tense; Cheng (1995), the Spanish verbs *ser* and *estar* and VanPatten & Wong (2001), the French causative. Other studies modified the components of processing instruction. VanPatten & Oikennon (1996) investigated the effect that explicit information had on input processing instruction and Sanz & Morgan-Short (2001) investigated the effect of providing explicit feedback. VanPatten & Sanz (1995) investigated the effects of input processing instruction as measured by a range of assessment tasks.

It is important to note that these replications also targeted one of two processing strategies, the first noun processing strategy (P3) or the lexical processing strategy (P1b). They also all produced the same results, that is, greater gains for input processing instruction on interpretation tasks and equivalent gains for input processing instruction and output-based instruction on production tasks. That students in the Input processing instruction group made greater gains on the interpretation tasks is hardly a surprising result when one considers that students in this group received:

(a) information about an unhelpful natural processing strategy and activities that directed them away from this strategy (the Output-based instruction group received neither) and

(b) meaning-focused practice activities only (whereas the Output-based instruction group worked at mechanical as well as meaningful and communicative activities).

What is more interesting is the fact that these students performed as well on production tasks as the Output-based instruction group, even though they had never engaged in production activities during the instructional treatments. The global method studies that investigated the effectiveness of comprehension-based approaches (e.g., Asher, Kusudo & de la Torre, 1972) also found that students who had worked primarily at comprehension activities performed as well on production tests as students who had worked at output-based instruction. It is perhaps these results that have captured the interest of other researchers because a number of studies that have followed on from this body of research have contrasted the effects of having one group of students work at input activities with the effects of having another group work at output activities. Some of these studies were designed to be replications (Allen, 2000; DeKeyser & Sokalski, 1996; Salaberry, 1997), a claim which VanPatten disputes, justifying his viewpoint by stating that these studies constitute a too liberal interpretation (see 3.6.1) of the difference between input processing instruction and output-based instruction (Sanz & VanPatten, 1998; VanPatten, 2002a).

3.5.2 Criticism of input processing instruction

DeKeyser et al (2002) claim that VanPatten's input processing model is based on an outdated "single-resource, limited capacity" model of attention. They call for a reclarification of both the role of attention and that of processing in the input processing model VanPatten proposes, thus questioning whether there is any psycholinguistic basis for the theoretical tenets of input processing instruction. They caution that it would be premature to draw conclusions about what type of processing students need to engage in to acquire various language structures.

Batstone (2002) argues that in order to force students to attend to targeted linguistic forms, input processing instruction constructs contexts where the clues that are crucial for correctly processing the meaning of these forms are removed. For example, with respect to Cadierno's study (1995), he suggests that either the learners already knew about past tense forms in Spanish or they did not. If they were not familiar with these forms, the tasks that Cadierno constructed, Batstone claims, prevented them from correctly understanding these forms, that is, from making form-meaning mappings. Therefore, he suggests, the results that VanPatten and Cadierno claim are due to input processing instruction may be due to input processing instruction in association with prior explicit presentation of the target structure. Input processing instruction cannot, he claims, create initial salience but it can have the effect of reinforcing salience.

DeKeyser et al (2002) suggest that there is a confounding of treatment variables in the way that output-based instruction is conceptualised and operationalised. Results from Allen's (2000) and Farley's studies (2001 a & b) demonstrate the importance of the way that output-based instruction is defined and then operationalised in the treatment condition. Allen (2000) got students in the Output-based instruction group to work at some interpretation activities (i.e., they heard and interpreted a number of sentences that contained the target structure) and Farley (2001a & b) ensured that the Output-based instruction group worked at meaning based activities only. While all other studies show that students who had had input processing instruction made greater gains on interpretation tasks than those in the Output-based instruction group, in Allen (2000) and in Farley (2001 b) the gains made on both interpretation and production tasks were equivalent for both treatment groups. These results do not invalidate the claims VanPatten makes with respect to the effectiveness of input processing instruction. However they do call into question any basis for assuming the superiority of this method of instruction over one that engages students in *meaning-focused* output activities. VanPatten (2002a) claims that his output-based instruction is defined according to evidence he has of current practice in US language classrooms. While, as DeKeyser et al (2002) point out, this characterisation of current teaching practice may be valid, it is important to be very clear about which are the treatment variables that are being contrasted in these studies. It is also important to point out that output-based instruction does not occur independently of either input processing or of meaningful exposure to target language. The output that a student produces in output-based instruction practice activities may well serve, for example, as input for other students who are listening in. In research to date, input processing instruction has not been compared with an instructional treatment that controls carefully for the amount of input that students are exposed to. (Only a computer-based study would allow for this.)

3.6 Structured input instruction

As a form of input-based instruction, structured input instruction is not as narrowly prescribed as input processing instruction. Structured input instruction research therefore enables a greater understanding of the role that having students engage with language input, as opposed to language output, plays in second language acquisition. In structured input instruction, students work at activities that are designed to encourage them to pay attention to form and to process input for meaning (R. Ellis, 2001). Students do not engage in activities that require them to produce the target structure in either written or spoken form. Unlike input processing instruction, the activities that students work at do not aim to direct them away from an unhelpful processing strategy. The key differences between processing instruction and structured input instruction are summarised in the table below.

Table 4: Differences between Input Processing Instruction and Structured Input instruction.

| Features | Input processing instruction | Structured input instruction |
|---|---|---|
| Explicit instruction | Non-paradigmatic. Students are given information about unhelpful natural processing strategy (VanPatten & Cadierno, 1993b). | May be paradigmatic or non-paradigmatic. |
| Choice of target structure | One that has been demonstrated to present input processing difficulties for students (VanPatten, 2002a). | No restriction on choice of target structure. |
| Input-based materials | Direct students away from unhelpful processing strategy. Help students create form-meaning mappings. Referentially and affectively oriented (VanPatten, 2002a). | Focus students' attention on target form while encouraging them to process it for meaning. May or may not be both referentially and affectively oriented (Ellis, 2001). |

As can be seen from Table 4, it is the choice of target structure that accounts for the key difference between input processing instruction and structured input instruction. There has, however, in the past been some confusion as to the differentiation between input processing and structured input research. Some of this has been due to the fact that whilst some studies have been designed as input processing studies they do not fit the criteria that VanPatten (1996, 2002a) outlines. For the reasons given below (see 2.6.1), we will consider these studies as structured input studies. Another likely reason for the fact that research informed by these two theoretical positions is often not clearly differentiated is that VanPatten uses the term "structured input activities" to refer to the input-based activities that he gives to students in his input processing instruction instructional treatments. This can lead to the misunderstanding that structured input activities are synonymous with input processing instruction. We have referred to the activities that both forms of instruction use as input-based activities.

### 3.6.1 Research in structured input instruction

As mentioned above (see 3.5.1), the original research in processing instruction (Cadierno, 1995; VanPatten & Cadierno, 1993a & b) was followed by a number of studies that contrasted the effect of having one group of students work at input activities with the effect of having another group of students work at output activities. Some of these (Allen, 2000; DeKeyser & Sokalski, 1996; Salaberry, 1997) were clearly designed to be processing instruction studies but have been criticised by VanPatten for failing to adhere to the criteria he outlines. This has, as R.Ellis (1999a) documents, resulted in some controversy and an ongoing exchange of views (DeKeyser, 2002; Salaberry, 1998; Sanz & VanPatten, 1998; VanPatten, 2002a & b).

We will consider DeKeyser and Sokalski's (1996) and Salaberry's (1997) studies as structured input rather than input processing instruction studies because they fit more closely with the criteria outlined for the former. Neither DeKeyser and Sokalski (1996), nor Salaberry (1997), specify that they designed input-based activities to direct students away from an unhelpful processing strategy (VanPatten, 2002a). Furthermore, the students in what DeKeyser and Sokalski (1996) termed their Processing instruction group, worked at some mechanical activities (i.e., there was not an emphasis on meaning at all times). On the other hand, we will classify Allen's study (2000) as an input processing instruction study because although her operationalization of traditional (output-based) instruction differs from that of those studies VanPatten defines as conceptual replications (i.e., students in the Output-based instruction group worked at activities where they heard and interpreted the target structure), her conceptualisation of input processing instruction was faithful to the criteria outlined by VanPatten.

Details of studies that have contrasted structured input and output-based instruction are presented in Table 5.

Table 5: Summary of Research that Investigates the Effectiveness of Structured-input Instruction 1996-2002

| Study | Sample size & length of instruction | Structured input contrasted with | Target structure | Mechanical practice | Posttests | Tests | Results | Weaknesses |
|---|---|---|---|---|---|---|---|---|
| Tanaka, Y. '96 | 90 high school students<br>2 x 50 mins | -Output instruction<br>-Interaction based instruction | English relative clauses (Students already familiar with these) | Yes for output group 'students not required to understand what sentence meant' | Posttest 1 – 5 days<br>Posttest 2 – 8 weeks | Listening compre. test<br>Written production test (sentence combining) | Comprehension<br>Input group outperformed the other two<br>Production<br>Similar gains for Input & Output grp | No test of oral production. |
| DeKeyser & Sokalski '96 | 2 grps<br>- 36/46 University students<br>- 90 mins | -Output instruction on 2 different structures (no prior instruction)<br>-Control | Spanish clitic d. obj. pronouns – (difficult to comprehend)<br>Conditional – (diff. to produce) | Yes but same balance of mechanical/ communicative exercises for each grp. | Posttest 1 – 0 days<br>Posttest 2 – 1 week | Comprehension & Production test (not described in detail) | D.O pronouns<br>No sig. difference bet. grps for either task.<br>Conditional<br>No sig. difference | Different instructors. No posttesting beyond one week post treatments. |
| Toth '97 | 91 University students<br>-6 x 50 min treatment sessions | -Task based instruction<br>-Output instruction | Spanish morpheme *se* in passive impersonal & anticausative constructions | Limited only for output grp. | Posttest 1 – 0 days<br>Posttest 2 – 24 days | Written – guided production<br>-free production<br>Grammaticality judgment task | No differences bet. grps on GJT or on guided prod. task<br>Output grp has slight advantage for frequency on free prod. task. | Different instructors.<br>No comprehension test. No test of oral production. |
| Salaberry '97 | 26 University students<br>- 90 mins. | -Output instruction<br>-Control | Spanish clitic direct object pronouns | ? Language content of exercises same for both treatment conditions (not described) | Posttest 1 – 1 day<br>Posttest 2 – 4 weeks | Written comprehension test<br>Production test<br>Free narrative | Gains for both input & output grps. on compre.tasks.<br>No significant gains on production tasks | Different instructors<br>Small sample<br>No delayed posttesting of production tasks. |

| Study | N size & length of instruction | Structured input contrasted with | Target structure | Mechanical practice | Posttests | Tests | Results | Weaknesses |
|---|---|---|---|---|---|---|---|---|
| Nagata '98 | 14 University students<br>- 4 x 1 hr | Computer based input vs computer based output | Japanese honorific system | No – not according to examples given | Posttest 1 – 2 days<br>Posttest 2 – 4 weeks<br>Posttest 3 – 5 weeks | Interpretation task<br>Written production task<br>Oral prod. task (posttest 3 only) | <u>Interpretation</u><br>Equivalent gains for both grps<br><u>Production tasks</u><br>Greater gains for output grp. | Small sample<br>No control<br>No prettest |
| Hazzard '99 | 54 University students<br>- 2 x 55 min | -Output instruction<br>-Control | Spanish verbs *ser* & *estar* | Some for Output grp. | Posttest 1 – 2 weeks<br>Posttest 2 – 6 weeks | Interpretation task<br>Written prod.task<br>Unplanned oral prod. task | <u>Interpretation</u><br>Input = Output<br><u>Written prod.</u><br>Input & Control gained more than Output<br><u>Oral prod.</u><br>Input = Output | Control grp made greater gains due to different instructor & different approach. |
| Kim 2001 | 87 University students ( had had 6 yrs of English instruct.)<br>- 35 mins | -Output instruction<br>-Control | English relative clauses | Some for Output grp. | Posttest 1 – 6 days<br>Posttest 2 – 2 weeks | Timed listening compre. task<br>Reading task<br>Writ. prod. task (timed/untimed) | Input & output grps made similar gains<br>Greater gains for Output grp. on <u>timed production posttest 2</u> | No oral production test<br>Structure not difficult enough |
| Tanaka, T. 2001 | 65 junior college students<br>- 90 mins. | -Output instruction<br>-Combined Input & Output<br>-Control (received explicit instruction) | Psychological verbs in English. | No | Posttest 1 – 1 week<br>Posttest 2 – 4 weeks | Aural interpretation task.<br>Verbal production task – timed. | <u>Interpretation</u><br>Similar results for all 3 grps<br><u>Production</u><br>Combined & Output grp made greater gains than Input | |
| Hendrix et al. 2002 | 57 High School students (had had 4 1/2 yrs of French instruct.)<br>100 mins per each structure | -Output<br>-Control (implicit condition i.e. some exposure to structure) | Conditional & negation in French | Yes | Posttest 1 – 0 days<br>Posttest 2 - 4 weeks | Grammaticality judgement task<br>Written prod.<br>Guided oral interview | <u>GJT</u> Input = Output<br><u>Written production</u><br>Greater long term gains for Input grp<br><u>Oral production</u><br>Slight longterm advantage for Output | |

These studies vary considerably in terms of research design. Differences include:

(a) incorporation of explicit grammar instruction in instructional treatments.

All studies, except the one conducted by Kim (2001), gave explicit grammar instruction to students before getting them to work at input-based and output-based activities. Kim (2001) gave no initial explicit grammar instruction to students but required students in the Structured input group to work at activities where they had to decide whether given sentences were grammatical or not. In the Output-based instruction group, students received feedback as to the correctness of their responses. Y. Tanaka (1996) differentiated between the grammar instruction he gave to each group, ensuring that students in the Structured input group received non-paradigmatic presentation of information. In other studies, identical information was given to each instructional group. (Salaberry [1997] did not give details).

(b) inclusion of affectively oriented input-based activities along with referentially oriented input-based activities (VanPatten & Sanz, 1995; VanPatten, 1996).

An examination of teaching materials indicate that three studies (DeKeyser & Sokalski, 1996; Hazzard, 1999; Toth, 1997) included some affectively oriented input-based activities along with referentially oriented material. However, none of these studies made any reference to the fact that the inclusion of both types of activity was deliberate.

(c) use of corrective feedback.

Most studies do not state whether students were given corrective feedback or not. Kim (2001) and Toth (1997) gave students feedback as to whether their answers were right or wrong. DeKeyser & Sokalski (1996) answered questions by reiterating information from the grammar handout and Hazzard (1999) gave corrective feedback through additional examples.

(d) scheduling of posttesting.

Most studies included a delayed posttest that took place more than two weeks after the instructional treatments. Exceptions were Kim (2001) and DeKeyser and Sokalski (1996). DeKeyser and Sokalski's delayed posttest took place one week after the instructional treatments, while Kim's posttest took place exactly two weeks after instructional treatments.

(e) design of tests.

The majority of studies included tests of interpretation/comprehension but these varied according to whether they were aural or written. Production tests were mainly written but varied in terms of how tightly structured/open-ended they were. Norris and Ortega (2000) suggest that the particular tests and measures used in experimental research play a central role in determining the results obtained.

(f) instructors

Some studies used the same instructor for all instructional treatments; others used different instructors (DeKeyser & Sokalski, 1996; Hazzard, 1999; Salaberry, 1997; Toth, 1997).

Most importantly, however, studies differed in what they contrasted structured input instruction with, that is, in how they operationalised the instruction they gave to the output-based instructional option. Results from input processing instruction research, that show that input processing instruction may not be more effective than output-based instruction when it is meaning oriented (Allen, 2000; Farley, 2001b; VanPatten, 2002a), suggest that the benefits of input-based instruction depend crucially on what it is opposed to.

Some structured input studies incorporated some mechanical activities in the output-based instructional treatments (Hazzard, 1999; Hendrix, Housen & Pierrard, 2002; Kim, 2001; Toth, 1997). One study (Y. Tanaka, 1996) did not require students in this group to focus on meaning at all. Other studies, however, contrasted structured input instruction with output-based instruction that was meaning focused, that is, they designed materials to require an equal focus on meaning for each instructional group (Nagata, 1998; T. Tanaka, 2001). DeKeyser and Sokalski (1996) included some mechanical practice in the instructional treatment that they gave to their Structured input group as well as in the instructional treatment that they gave to the Output-based instruction group. Therefore, in their study also, each group received an equal focus on meaning. Salaberry did not provide enough information to enable classification. Only two researchers (T. Tanaka, 2001; Toth, 1997) gave any definition of what they meant by meaningful/mechanical activities and no researcher gave details about what proportion of the treatment session was spent on mechanical as opposed to meaningful or communicative activities. The classification of treatments as meaning-focused therefore, is dependent to some extent on the way that individual researchers interpret this term.

We will define mechanical and meaningful activities according to Lee and VanPatten (1995). Mechanical activities are those which students can complete without attending to meaning and for which there is only one correct answer.

e.g. Fill in the gap in the following sentences.

1. Voilà l'autobus. Vous devez __*le*__ prendre pour aller en ville.

*(There's the bus. You need to take it to get into town).*

2. Où est le guide Michelin? Je veux __*le*__ lire.

*(Where is the Michelin guide? I want to read it).*

Meaningful activities, on the other hand, can only be successfully completed when the meaning of both the stimulus and the response are attended to.

e.g. Answer the following questions to see if you are a good student or not. Use direct object pronouns to replace the underlined nouns.

Q.Est-ce que tu fais toujours tes devoirs?

*(Do you always do your homework?).*

The student formulates their own answer which may be, for example:

Oui, je les fais tous les soirs.

*(Yes I always do it every evening).*

*e.t.c.*

A number of conclusions can be drawn from the results of these studies that contrast structured input and output-based instruction.

1. All studies provide evidence that students who have had structured input instruction perform as well on comprehension/interpretation tasks as those who have had output-based instruction.

2. Only one study reports a superior effect for structured input instruction on comprehension tasks (Y. Tanaka, 1996). It is important to note that the

instruction that students in the Output-based instruction group received in this study did not require them to focus on meaning at all.

3. Four studies (DeKeyser & Sokalski, 1996; Hazzard, 1999; Y. Tanaka, 1996; Toth, 1997) report equivalent gains for both Structured input and Output-based instruction groups on production tasks (Hazzard reports equivalent gains for both groups on an oral production task but greater gains for the Structured input group on a written production task). It is interesting to note that in all of these studies where there were equivalent gains for both groups on production tasks, structured input instruction was contrasted with output-based instruction that included mechanical practice and was not consistently meaning focused. Three studies (Kim, 2001; Nagata, 1998; T. Tanaka, 2001) report greater gains for the Output-based instruction group on production tasks. In Nagata (1998) and T. Tanaka (2001) the output-based instructional treatments were meaning focused.

4. In those studies where there was an advantage for the Output-based instruction group on tests of production, the advantage tended to be evidenced on tests that required a pressured response, that is, timed production tests (Kim, 2001; T. Tanaka, 2001). Toth (1997) also reports a slight advantage for the Output-based instruction group on a test of free oral production.

5. Two studies (Hazzard, 1999; Hendrix, Housen and Pierrard, 2002) produced results that showed greater gains for the Structured input group on production tasks but in both cases this advantage was evidenced on tests that did not require time pressure or unplanned language use, that is, on controlled written

production tasks. On a guided oral production test Hendrix, Housen and Pierrard (2002) report a small long term advantage for the Output-based instruction group.

### 3.7 Conclusion

The following conclusions can be drawn from research that has been conducted to date.

#### 3.7.1 Input processing research

1. Input processing instruction studies provide some evidence that instruction that is aimed at having students work at processing input leads to superior results on comprehension tests and gains on production tests equivalent to those obtained for instruction that has students produce output. It is important to note that all studies have targeted only one of two input processing strategies: the first noun strategy or the lexical processing strategy.

2. Results from more recent studies (Allen, 2000; Farley, 2001b) suggest that it is crucial to consider what input processing instruction is opposed to. There is evidence to suggest that processing instruction may not lead to greater gains on comprehension tests than meaning oriented output-based instruction.

#### 3.7.2 Structured input instruction

1. Results from structured input studies do not show a clear advantage, on tests of either comprehension or production, for having students work at processing input as opposed to producing output. The key feature

distinguishing structured input instruction from input processing instruction is the fact that it does not target a specific unhelpful natural processing strategy. This factor may be crucial in accounting for the superior results of the input processing studies.

2. There is evidence to suggest that structured input instruction is inferior to meaning oriented output-based instruction when the effects of treatment are measured on tasks of language production (in particular tasks that require a pressured or unplanned response).

# CHAPTER FOUR

# LANGUAGE APTITUDE

## 4.1 Overview

This chapter will start by briefly considering why language aptitude is relevant to the field of second language acquisition.

It will then present a model of language aptitude and discuss each of the components of this model. Particular attention will be paid to working memory, given that this component of language aptitude has received considerable research focus over recent years.

The chapter will conclude by reviewing research that has investigated the relationship between language aptitude and L2 learning.

## 4.2 Relationship between language aptitude and instructional outcomes.

Miyake and Friedman (1998) claim that a greater understanding of the way in which learners differ from one another imposes useful constraints on theories of L2 learning and also throws light on how to maximise the outcome of L2 learning and instruction. The idea that language learners can be matched, according to their profiles on language aptitude measures, to a particular methodological approach is not new. Wesche (1981) describes how students participating in the Public Service Commission intensive French training program, in the 1970’s, in Ottawa, were allotted to one of three methodological approaches (audio-visual method/analytical approach/functional approach) according to their performance on the Modern Language Aptitude Test (Carroll & Sapon, 1959), the

Pimsleur Language Aptitude Battery (Pimsleur, 1966) and information given during an interview. She reports evidence which suggests that matching students with methodological approaches, using language aptitude test profiles as basic criteria, encourages positive attitudes and enhances achievement.

There is, however, a relative lack of research that has investigated the area of language aptitude, especially when compared to the considerable body of more general "acquisition oriented" research (Sawyer and Ranta, 2001; Skehan 1998). Skehan (1998) claims that if language development requires a capacity to process input and restructure it, through the formulation of hypotheses about the structure of the target language, then individual differences in aptitude could have major relevance. Research needs to probe whether different approaches to instruction are especially effective with particular types of learner.

Another reason for recognising the importance of language aptitude is suggested by evidence that adult second language learners may be limited in their ultimate level of achievement because of maturational changes that take place during the so-called critical period (DeKeyser, 2000). As a result, L2 learning may rely to a greater extent than L1 acquisition on general learning mechanisms and principles. Indeed, DeKeyser (2000) claims that adults learn language explicitly and that their ultimate success and level of attainment in second language learning is determined by language aptitude.

### 4.3 Components of language aptitude

Carroll (1962) developed a model of aptitude comprising four components, each of which the various subtests of the Modern Language Aptitude Test (MLAT) were intended to investigate. These four components were: (a) phonetic coding ability, (b) grammatical sensitivity, (c) rote learning ability for foreign language materials and (d) inductive learning ability. Carroll's test was later followed by one that was more appropriate for high-school students, the Pimsleur Language Aptitude Battery (PLAB) (Pimsleur, 1966). The PLAB emphasizes auditory factors but also includes motivation as an integral part of aptitude.

From studies of language aptitude conducted over many years, Carroll (1981) concludes that language aptitude is a relatively stable learner characteristic, composed of relatively independent cognitive abilities. While it overlaps with verbal intelligence or academic ability, it is not, however, the same as these domains.

Skehan (1998) has taken Carroll's model and adapted it to an information processing model of language acquisition, more in line with recent research in cognitive psychology. He thus maintains that while the different successful subtests have emerged rather inductively from aptitude research, they can now be explained in relation to language learning processes. He claims that there are three components of language aptitude and that they represent different stages in the perception, analysis, storage and retrieval of information as it passes through the learner's information processing system. Each of these stages, that is, input, central processing and output, is related to a different component of language aptitude; the input processing stage can be linked to phonemic coding ability, the central processing stage can be linked to language analytic ability and the retrieval of material and fluency in output can be linked to memory ability (Skehan, 1998). This is represented in Table 6 as follows:

Table 6: Relationship of Components of Language Aptitude to Stages of Information Processing (based on Skehan, 1998).

| Processing Stage | Aptitude Component |
|---|---|
| input | phonemic coding ability |
| central processing | language analytic ability |
| output | memory |

Skehan allows, however, a role for memory within the input processing stage. He claims that noticing must actually take place within working memory and suggests that those learners who are the more effective input processors will have greater working memory attentional capacity. He also attributes a greater overall importance to memory (see 5.5.2 below) than to the other two components of aptitude that he identifies (i.e., phonemic coding ability, language analytic ability).

Skehan (1998) views language acquisition as a dual mode system where lexicalisation precedes syntacticization. Students who have progressed past the first stage have a rule-based system as well as exemplars which can be mobilised, as appropriate, to different communicative goals and contexts. In on-line language tasks, memory-based communication is more appropriate and learners will thus draw on exemplars. Where there is more time, and precision is more important, the rule-based system can be accessed. A language teaching syllabus must thus stress both analysability (rule-based) and accessibility (memory-based) since language use depends on the coexistence of analysed and accessible systems. Skehan believes that individuals will differ in their predisposition to view language learning as either syntactic or lexical. This differentiated view of aptitude proposes that individuals may differ in separate components. Indeed, Skehan reports that few learners are high in both verbal aptitude and memory aptitude. Rather, success seems to come from just one of these sources.

### 4.4 Phonemic coding ability

Phonemic coding ability was first identified in studies of aptitude that were carried out over forty years ago (Carroll and Sapon, 1959). Carroll (1962) emphasized a sound-symbol association ability, rather than an ability to make isolated sound discriminations. Skehan (1998, 2002) claims that phonemic coding ability concerns the effective auditory processing of input. It is important in allowing the student to analyse and code auditory material for the purpose of retention, often in real time. It determines the extent to which input that the learner is exposed to can become input that is worth processing.

Skehan (1998) makes two key points with respect to phonemic coding ability:

1) It is particularly important at beginning stages of language learning.
2) It impacts crucially on how much comprehensible input is available to the learner for the next stage of processing.

### 4.5 Language analytic ability

The product of the phonemic coding stage is the input for the central stage of information processing. Crucial to this stage is the ability to infer rules of language or make linguistic generalizations, what Skehan (1998) calls "language analytic ability." Carroll (1962) claims that there are two separate components to this ability, that is grammatical sensitivity and inductive language analytic ability (although his MLAT did not include a measure of the latter). It is, Skehan (1989) suggests, language analytic ability that is more closely related to general measures of intelligence. Skehan (1998) cautions, however, that it is not clear what structures and processes operate at this stage. If the adult learner still has access to Universal Grammar, then an ability which is qualitatively different from general learning mechanisms may be at work; if not, then more general cognitive processes may play the dominant role. Recent research (Ehrman & Oxford, 1995) indicates that language analytic ability continues to be a good predictor of success in learning a second language. Ehrman & Oxford (1995) examined the relationships of a variety of individual difference variables to end-of-training proficiency ratings for a large sample of learners (*N* = 855) receiving instruction in a variety of languages. They found that the MLAT and its components most strongly correlated with proficiency. The component that assesses language analytic ability, that is, the Words and Sentences test, was one of the subtests that correlated most strongly.

### 4.6 Memory

The component of aptitude that has received the greatest focus over the past thirty years is that of memory (Skehan, 2002). It is also the component of the MLAT that has stood the test of time least well (Skehan, 1998). Carroll (1962) had a traditional, behaviouristic understanding of memory, referring to it as short-term memory (STM) and conceiving of it as having a passive storage function. Using a simple digit span test, Skehan (1982) did not find any relationship between short-term memory and language learning success. Recent work in cognitive psychology has led to the concept of working memory, which proposes that it is the operations that are carried out upon material held within immediate memory that are crucial.

### 4.6.1 Working memory

Working memory is responsible for both manipulating and temporarily storing information. Baddeley (1999) proposes a model of working memory that comprises three components. The central executive is the main component, aided by two slave systems, that is, the phonological loop and the visuo-spatial sketch pad.

#### 4.6.1.1 The central executive

The central executive is, according to Baddeley (1999), the most complex and least understood component of working memory. It is capacity limited and used for both the storage and processing of information. Measures of working memory capacity therefore need to be based on tasks that require both processing and storage. Traditional short-term memory tasks, such as digit span and word span, do not meet this requirement as they evaluate storage only (Sawyer & Ranta, 2002; Towse & Hitch, 1995) and are based on the traditional conception of short-term memory as a fixed set of slots that passively store to-be-maintained information. The reading span test (Daneman and Carpenter, 1980) requires students to recall auditory input while simultaneously processing the input. Students read aloud a set of unrelated sentences and then recall the final word of each sentence in that set, in the correct serial order. The number of sentences per set is gradually increased. Because this measure places simultaneous demands on processing and storage, it correlates well with an individual's language comprehension performance. It has been used in a number of studies (Mackey et al, 2002; Miyake & Freidman, 1998). Waters and Caplan (1996) claim, however, that memory load in the Daneman-Carpenter reading span test is unrelated to the computations that the sentence-processing task requires and report poor test-retest reliability for this test. They claim a higher reliability for the Waters and Caplan (1996) reading span task, which they say takes both sentence processing efficiency and storage capacity into account. In this test, students are presented with a number of sentences on a computer screen and asked to make an acceptability judgement about each sentence. (Unacceptable sentences are formed, for example, by inverting the animate subject and inanimate object noun phrases: “It was the pillow that clenched the man”). At the end of each series of sentences students are asked to recall the last word of each sentence in the correct serial order.

4.6.1.2 The phonological loop

The phonological loop is the aspect of working memory which is best understood and for which the best theoretical account is available. It is specialized for the retention of verbal information over short periods of time and is comprised of two units, the phonological store and the subvocal articulatory rehearsal process. The phonological store holds information in phonological form and is subject to decay and interference. The subvocal articulatory rehearsal process recodes nonauditory material into a form suitable for the phonological store and maintains decaying representations in the phonological store (Baddeley, Gathercole & Papagno, 1998). Baddeley (1999) claims that evidence for the storage factor is reflected in the “acoustic similarity effect” and evidence for the rehearsal factor in the “word length effect”.

Evidence for the acoustic similarity effect comes from an experiment in which Baddeley (1966) compared the performance of a group of participants reproducing groups of acoustically similar words (“mad, man, mat, map, cad, can, cat, cap”) with their performance at reproducing acoustically different words. He presented sequences of five words by tape recorder, at a rate of one word per second, and participants were allowed 20 seconds to write down the words in the order they heard them. The relevant sets of words were written on cards and both sets were visible throughout the test session, in order to maximise response availability. Baddeley found that a mean of 9.6 per cent of the acoustically similar sequences were correctly reproduced, compared with 82.1 per cent of the acoustically dissimilar sequences. Baddeley extended the experiment to compare the reproduction of words that were semantically similar with the reproduction of words that were semantically different. Results showed that the reproduction of semantically similar words was only slightly more difficult (64.7 % correct) than the reproduction of semantically dissimilar words (71.0 % correct).

Evidence for the subvocal articulatory rehearsal factor comes from what Baddeley (1999) calls the "word length effect". In a number of experiments, Baddeley, Thomson & Buchanan (1975) investigated the link between memory recall and word length. They found that longer words are more difficult to recall and concluded that this was because they take longer to articulate during rehearsal. They tested this assumption by preventing participants from rehearsing subvocally, requiring them to generate repetitive speech (articulatory suppression). Participants were asked to say repeatedly an irrelevant word such as "the" out loud, while reading lists of multisyllabic words. As predicted, when participants were prevented from rehearsing subvocally, the level of performance was reduced and the word length effect was removed. As participants were unable to rehearse subvocally, the length of words ceased to be important. From this Baddeley and associates assumed that articulatory suppression prevented participants from transferring material to the phonological short-term store. However, the word length effect disappeared only when the material was presented visually, not when it was presented auditorily. Baddeley et al. thus conclude that visually presented material needs to be converted into a phonemic code before it can be fed into a storage system. With auditory presentation, on the other hand, the material is already encoded in an appropriate form and can be fed into the supplementary system without the need for rehearsal.

Baddeley (1999) suggests that phonological capacity may be an important determinant of foreign language acquisition rate, claiming that learners rely on the phonological loop for acquiring foreign language vocabulary. Papagno and Vallar (1992) claim that temporary storage in the phonological loop may be useful in the early phase of learning a foreign language, as it may allow learners to build up semantic relationships among the items. It is no longer necessary, however, at a later stage when such semantic processes have been completed. This claim is based on a study (Papagno, Valentine & Baddeley, 1991) that provided evidence that the phonological loop is used in foreign language vocabulary acquisition but that it can be circumvented if the material allows semantic associations to be developed. Papagno and his associates showed that articulatory suppression disrupted the learning of Russian vocabulary by Italian participants, but not the learning of native language vocabulary. Articulatory suppression did not, however, disrupt the learning of Russian vocabulary by English participants. Papagno et al. concluded that this was because the Russian words had greater association value for the English participants. This would suggest that there were already long-term lexical representations of incomplete phonological structures in the memory store and that the phonological loop had only to interact with these to build up complete representations. They tested their hypothesis in a final experiment which showed that the learning of Finnish words, selected for their dissimilarity to English, was disrupted by articulatory suppression. They concluded that, as there were no stored phonological patterns of these very unfamiliar (to an English ear) words in the mental lexicon, repetition of their unfamiliar sound patterns could only be mediated by the phonological loop. Further evidence for the availability of language dependent long-term knowledge to the phonological loop comes from experiments with monolingual and bilingual children reported by Gathercole and Thorn (1998).

Evidence from the studies cited above explains why “non-word” tasks provide a more sensitive assessment of phonological capacity than the more conventional digit span measure which uses familiar words as memory stimuli (Gathercole et al., 1997). Increasingly in research, non-word recall tests have been used as measures of phonological short-term memory (Avons et al., 1998; Gathercole & Martin, 1996; Gathercole et al., 1991).

According to Gathercole and Thorn (1998), learning the spoken forms of foreign as well as native language words is directly constrained by an individual's phonological loop capacity. They suggest that a key feature of gifted language learners may be their exceptional phonological loop function. However, most adult language processing does not require the phonological loop (Gathercole & Baddeley, 1993). The comprehension of clauses and sentences with simple syntactical and semantic structures proceeds on-line and without reference to phonological working memory representations of the message. There is some evidence for phonological loop involvement with long and syntactically complex material (i.e., participants' reading of these types of material has been selectively impaired by articulatory suppression) suggesting that the loop may, in these situations, provide a back-up representation for off-line consultation. Most adult language processing depends more critically on the operations of the central executive.

### 4.6.2 The importance of working memory in second language acquisition

Miyake and Friedman (1998) postulate that working memory may be the learning skill most crucial to the success of second language acquisition because of the role it plays in the acquisition of complex knowledge and skills. Indeed, they suggest that it may in fact be *the* central component of language aptitude. They review studies (Harrington, 1991; Harrington & Sawyer, 1992) that provide evidence that individual differences in L2 reading skill are highly correlated with L2 working memory span. They conclude that these provide promising initial support for the view that working memory capacity is related to L2 proficiency and, in particular, that a larger working memory may lead to faster L2 learning. They also point to research showing high correlations between L1 and L2 working memory spans (Osaka & Osaka, 1992; Osaka, Osaka, & Groner, 1993), suggesting that L2 processing may draw from the same working memory resources as L1 processing. They also claim that evidence suggests that the correlation between L1 and L2 skills increases as the learner's proficiency level of L2 increases (Hulstijn & Bossers, 1992). Language performance at early stages of L2 acquisition may be more strongly linked to the learner's L2-specific knowledge. As the L2 proficiency level increases, the relative contribution of non-L2 specific factors may increase.

N. Ellis (1996) also claims a greater role for phonological working memory, presenting arguments that the ability to learn phonological sequences is at the centre of vocabulary learning, idiom learning and the acquisition of grammar. Much of language acquisition is, in fact, Ellis claims, sequence learning and the resultant long-term base of language sequences serves as the database for the acquisition of language grammar. He believes that second language acquisition of lexis, idiom, collocation and grammar are all determined by individual differences in learners' ability to remember simple verbal strings in order. He quotes a number of studies (Adams & Gathercole, 1995; Ellis & Sinclair, 1996; Speidel, 1993) that have demonstrated that phonological working memory correlates with grammatical ability.

Skehan (1998) considers that working memory may be the most important component of his language aptitude model. He reports that exceptional learners do very well on memory tests (excluding the digit span test). The outstanding learner seems very good at assimilating new material, in particular at dealing with large quantities of material, memorising it quickly and easily. These learners do not however shine in other areas, that is, phonemic encoding and language analysis.

### 4.7 Research investigating aptitude by treatment interaction

Recent research has been concerned with investigating the relationship between aptitude and L2 learning in different instructional settings. Krashen (1981) argues that aptitude correlates with learner success only in settings that foster "learning", that is, where the emphasis is on formal accuracy and metalinguistic explanation. There is, on the other hand, according to Krashen, no relationship between aptitude and learner success in "acquisition" settings and on tasks that make use of acquired knowledge. For Krashen, communicative language teaching levels out the interaction that may exist between aptitude and other methods of language instruction.

De Graaff (1997a) compared the effects of the presence or absence of explicit grammar instruction on the acquisition of four grammatical structures of a modified version of the artificial language Esperanto. These structures varied in terms of complexity and according to whether they were morphological or syntactic. He also investigated any relationship between the effect of instruction and participants' individual language aptitude. Participants were tested on the Words and Sentences and Paired Associates subsets of the MLAT and on a measure of the ability to infer word meaning in context (lexical inferencing task). The instructional treatments were computer administered. De Graaff found that those who had had explicit instruction outperformed those who had had implicit instruction but that aptitude, as measured by the Words and Sentences subtest and the lexical inferencing task, affected test performance in both conditions to the same extent: for both groups there were correlations between learning and performance on these two measures of language aptitude. Performance on the rote memory Paired Associates task did not, on the other hand, predict learning.

Another laboratory study was conducted by Robinson (1997) but this time English, rather than an artificial language, was used. Aptitude was measured using the Words and Sentences and the Paired-Associates subtests of the MLAT. Students were assigned to one of four groups: implicit, instructed, rule-search and incidental conditions. All students were presented with the same sentences for the same amount of time. In the implicit condition participants were told that they would be given a memory task and they were asked questions about the location of words in sentences. Students in the Incidental group were asked comprehension questions and given feedback with respect to their answers. Results showed that performance on both the Words and Sentences and Paired-Associates subtests of the MLAT correlated with learning in the implicit, rule-search and instructed conditions but that the strongest correlations were for the Implicit group. There were no correlations for the Incidental group, a result that provides some evidence for the hypothesis that aptitude may not be relevant where the instructional focus is on meaning and there is no focus-on-form (De Graaff, 1997b).

Robinson (2002) however argues that learning under any condition is potentially sensitive to differences in learner aptitude and concludes (1997) that, in this particular study, task demands may determine the role that individual learner differences play in different learning conditions. The fact that students in the implicit learning condition were required to process the form of the stimulus sentences may explain why there was a greater interaction between language analytic ability and instructional outcomes for this group.

Both De Graaff's and Robinson's studies provide evidence of the predictive ability of language aptitude measures in both explicit and implicit learning situations, and thus challenge Krashen's claim (1981) that aptitude correlates with learning only in instructional settings where the emphasis is on formal accuracy and metalinguistic explanation. Another study (Ranta, 2002), this time conducted in a natural classroom environment, provides evidence that communicative language teaching does not counteract the effect that aptitude differences may have among learners. Ranta's subjects were grade 6 francophone children studying English in an intensive programme in Quebec. The emphasis of the programme was on developing communicative skills and the children received no form-focused instruction. Ranta measured participants on a test of grammatical sensitivity in their L1. Although she did not find strong correlations between this measure and L2 proficiency measures, a cluster analysis showed that language analytic ability was associated with above average performance on the L2 measures.

A study conducted by Ando et al (1992) investigating the relationship between working memory scores and instructional outcomes, found an interesting aptitude by treatment interaction. Two groups of Japanese students received English instruction. One was given traditional grammar-oriented instruction and the other nontraditional, communicative instruction. Results showed that students with larger working memory spans (as measured in their L1) benefited more from the explicit, grammar-oriented approach, while those with smaller spans benefited more from the implicit, communicative approach. In interpreting these results, Miyake and Friedman (1998) postulate that large working memory capacity tends to make learners focus on each input string as a whole. Learners do not perform detailed internal analyses of the encoded elements. Miyake and Freidman suggest that younger children attain a higher level of proficiency in L2 language learning than adults because of differences in working memory capacity. Children's more restricted working memory means that they can maintain only some elements of each input string within working memory, but this may in fact make internal analysis of encoded elements much simpler and may account for their greater mastery of the internal structure of language. This hypothesis would suggest, however, a negative relationship between working memory and language acquisition, which has not been corroborated by research to date (Harrington, 1991; Harrington & Sawyer, 1992).

## 4.8 Conclusion

A number of conclusions can be drawn from the research to date.

1. While traditional views of aptitude are still relevant to applied linguistics, Skehan has refined Carroll's model of language aptitude and adapted it to an information processing model of language acquisition. He identifies three key components of language aptitude: phonemic encoding ability, language analytic ability and memory.

2. Research in cognitive psychology has replaced the notion of associative memory, which was seen as having a passive storage function, with the concept of working memory, responsible for both processing and temporarily storing information.

3. There is some evidence to suggest that the storage and processing capacity of working memory may play a key role in determining L2 learning outcomes.

4. Results from research to date suggest that language aptitude can be predictive of learner outcomes in both explicit and implicit/naturalistic learning environments.

# CHAPTER FIVE

# METHODOLOGY

## 5.1 Overview

This chapter will start by outlining the research questions that this study addressed. It will then present the design and results of the pilot study and discuss how this preliminary research informed the main study.

The main study will be discussed in detail with respect to research design, participants, target structure and instructional treatments. The tests will be described and information presented about test reliability and validity.

The chapter will conclude by discussing the research investigating differences in language aptitude that was carried out subsequent to the main study. The instruments used will be presented.

## 5.2 Research questions

The questions which the study addressed can be divided into three groups.

### 5.2.1 Deductive instruction (output-based) /inductive instruction (input/output-based)

> RQ 1. What are the relative effects of deductive and inductive instruction on the acquisition of direct object pronouns in L2 French?

Deductive instruction which involves rule explanation (Norris & Ortega, 2000) was contrasted with inductive instruction where learners were led to take an active role in hypothesis testing but not told to search for rules or an underlying pattern. Grammatical rules were not stated by either the teacher or learners in this group (Abraham, 1985; Herron & Tomasello, 1992).

5.2.2 Structured input instruction /output-based instruction

> RQ 2. What are the relative effects of structured input instruction and output-based instruction on the acquisition of direct object pronouns in L2 French?

Structured input instruction was contrasted with meaning-oriented output-based instruction.

For both research questions, instructional techniques were compared on measures of language comprehension and production (both oral and written). Performance of students on all measures was compared with performance of students in the Control group.

5.2.3 Language aptitude

> RQ 3. To what extent does learners' ability to benefit from a particular instructional method depend on language aptitude?

Students' performance in relation to the different instructional methods outlined in 5.2.1 and 5.2.2 above was compared with their performance on four different measures of language aptitude:

1. a measure of language analytic ability.
2. a measure of phonemic coding ability.
3. two tests of working memory capacity, one assessing processing of information and one assessing storage of information.

## 5.3 Pilot study

The pilot study enabled the trialling of instructional materials and testing materials, prior to their use in the experimental study. It investigated the relative effects of output-based instruction and structured input instruction on the acquisition of direct object pronouns in French (excluding 'en' and reflexives).

The research question which the study asked was as follows:

> What are the relative effects of structured input instruction, output-based instruction and combined structured input and output-based instruction on the acquisition of direct object pronouns in L2 French?

### 5.3.1 Participants

The participants were University students enrolled in an intensive 12 week language acquisition course designed for beginners. Students attended one of three classes, all of which participated in the study. This allowed for three treatment groups, that is, a Structured input group, Output-based instruction group, combined Structured input/ Output-based instruction group. All students involved in the project signed a consent form, as required by the University of Auckland Human Subjects Ethics Committee.

The syllabus on which the course is based is structured to provide discrete-point grammatical presentation and practice, that is, focus on forms. The course stresses aural comprehension and places considerable emphasis on spoken practice in class. Because students were allocated to one of the three classes according to timetabling constraints, there was, in principle, little overall difference in ability between the classes. However, the grades of all work completed by students from the beginning of the semester up until the commencement of the study were compared across the three groups. The average coursework grades of those students participating in the study were: 79%, Structured input group; 82%, Output-based instruction group; 84%, combined Structured input and output-based instruction group.

In each class there were students from diverse language backgrounds and students who had had some previous exposure to French. The Structured input group and the Output-based instruction group were comparable in terms of language background; they each had six students for whom English was a second language. However, students in the Output group had had on average more exposure to French (five had had some background in French at school) than those in the Structured input group (only two had had some previous exposure to French). Over half the students in the combined Structured input and Output-based instruction group had had some previous exposure to French. There was a smaller proportion of students (two) in this group for whom English was a foreign language.

Students had to be present at all teaching and testing sessions in order to be included in the study. Unfortunately, three students withdrew from the course on the day the study commenced and over 14 students had to be eliminated because of non-attendance at one or more sessions. Sample sizes were thus smaller than expected: 12 for the Structured input group, 14 for the Output-based group and 10 for the combined Structured input and Output-based instruction group ($N = 36$).

### 5.3.2 Research method

The students participating in the study had not received any classroom instruction on direct object pronouns during the semester although they may well have "come across" them incidentally. The students were told that the target structure would not be tested in any coursework evaluations and, during the week of the study (i.e., week eight of the 12 week course), they were given an essay assignment (on a topic that did not require use of the target structure) to be completed and handed in the following week. To reduce the likelihood that motivated students would do extra study and revision of direct object pronouns, the delayed posttest was scheduled during a time when students were busy with course-assessment work.

Pretest scores demonstrated that none of the students were able to consistently comprehend and produce direct object pronouns with accuracy. No student scored over 70% on the combined production tests and no student correctly used a pronoun form on the oral production pretest. One student scored over 80% on the combined comprehension tests but was still included in the study because s/he scored under 25% on the combined production tests. All other students scored under 65% on these comprehension tests. An ANOVA conducted on the pre-tests revealed no differences between the groups before instruction (listening comprehension task, $F(2,33) = .336$, $p = .717$; reading comprehension task, $F(2,33) = .346$, $p = .710$; written expression task, $F(2,33) = .238$, $p = .789$; oral production task, $F(2,33) = 1.520$, $p = .234$).

### 5.3.3 Instructional treatments

The instructor was one of the two regular teachers assigned to all three groups. All students were thus familiar with him and his teaching style. He was unfamiliar with structured input instruction prior to the study but was given guidance on the administration of the instructional treatments.

The experimental treatments for all groups consisted of one lesson of 50 minutes duration followed by a 25 minute lesson the following day, at the conclusion of which the first posttest was administered.

The Structured input group received explicit instruction regarding the key grammatical items. This information was presented non-paradigmatically (i.e., not all direct object pronoun forms and functions were presented at once). The input enhancement activities (VanPatten, 1996) that students worked on allowed practice of the different morphological features of direct object pronouns (i.e., person/number/gender) one at a time. The activities were designed so that students had to rely on spoken as well as written input (VanPatten and Cadierno, 1993a). Students were also given exercises where they had to identify errors in written and then spoken input, thus requiring them to analyse the formal properties of direct object pronoun usage (R. Ellis, 1995). They were encouraged to explain the reason why a particular form was non-target. Correct answers were given and explained to the students but the production of direct object pronouns was not elicited.

The Output-based instruction group also received explicit information regarding direct object pronouns. However, this time, the information was presented paradigmatically (i.e., all direct object pronoun forms were presented at once in the form of a table). The students in this group were thus immediately involved in exercises that required them to produce direct object pronouns (in both oral and written tasks). Activities were designed to be meaningful and communicative. For the most part, students worked at exercises in pairs and then attended to a teacher-directed review of the correct answers. Students were encouraged to identify, correct and explain errors.

The combined Structured input and output-based instruction group received the same explicit instruction as the Structured input group and worked on the same input enhancement activities (VanPatten, 1996) that allowed practice of the different morphological features of direct object pronouns (i.e., person/number/gender) one at a time, except that they did half the examples only in each exercise. They also did the same oral production exercises in pairs as the Output-based instruction group; these exercises were again adapted to include half the examples of the original. Students were then given the same exercises as the Structured input group, which required them to identify errors in written and spoken input. They were asked, however, to also correct them. During teacher feedback, errors were identified and corrections were elicited from the students and discussed.

It was decided that all students would be given, at some stage in the lesson, the same explicit instruction handout (which included a paradigmatic chart illustrating the forms of all direct object pronouns) to look at during class instruction. The reason for this was that a number of students were non-native speakers of English and had varying levels of English language competency. Because all explicit instruction was in English, a handout would enable those students who had understood less well to consolidate information. This handout, along with all other handouts distributed in class, was, however, given back to the teacher at the end of the lesson.

### 5.3.4 Testing

This consisted of a pretest administered one day prior to the instruction, a posttest administered directly following the instruction and a delayed posttest administered one month later. Each test consisted of a listening comprehension task, a reading comprehension task, a written production task (all three of which were administered in a classroom setting) and an oral production task (recorded in the language laboratory).

To control for possible discrepancies between the different versions of the tests, a split block design was used in test administration. For all tests, Versions A, B and C were administered during each testing session. The two regular classroom teachers (one of whom was the instructor for the period of the study), and the researcher were all involved in the classroom administration of the pretest and posttests, which all took place during timetabled class hours. The delayed posttest was scheduled for a time when students did not expect it.

#### 5.3.4.1 Comprehension tests

The listening comprehension test was a ten item multiple choice test, the same as that used in the experimental study. It is discussed in detail in Section 5.4.5.1.

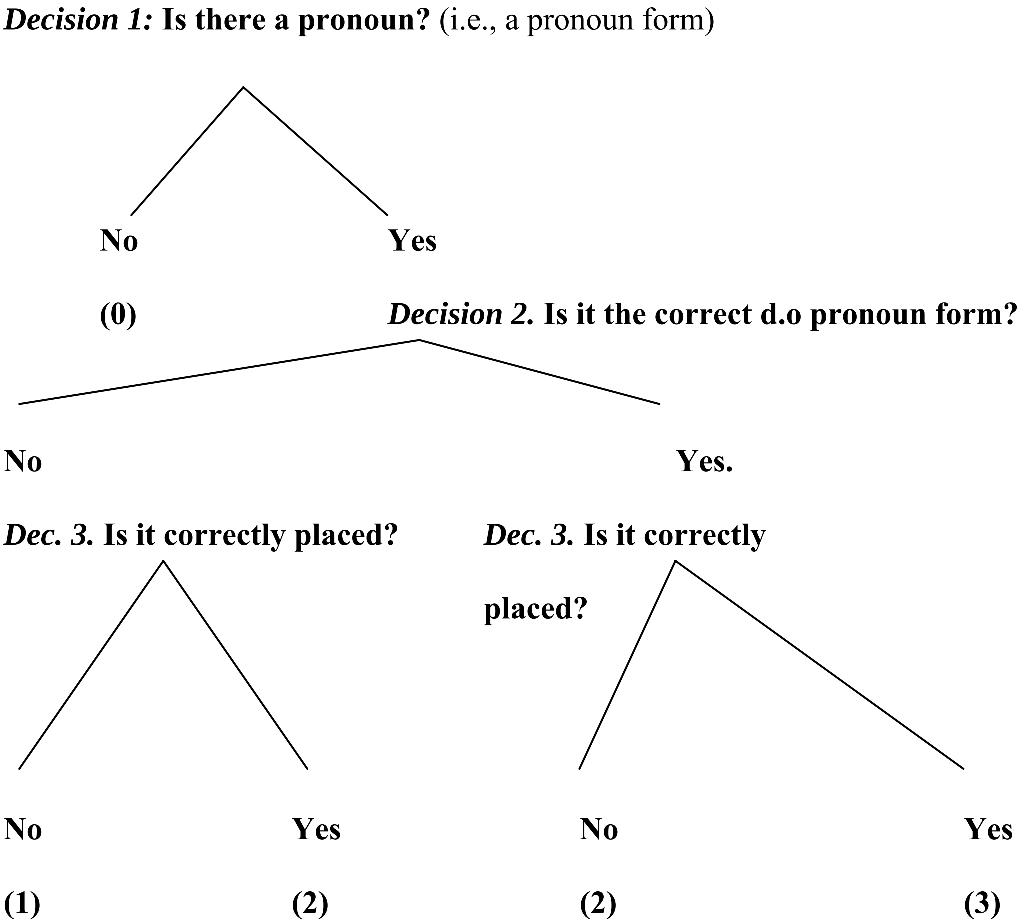
The reading comprehension test consisted of a short text written in French, controlled for vocabulary (a small number of unfamiliar words were glossed in the margin) and containing examples of direct object pronouns. The students were asked to answer eight questions, six of which were designed to test whether they understood the direct object pronoun referents. Two questions were distractors. Students were given one mark for each correct answer. They could thus score up to a total of 6 points.

5.3.4.2 Production tests

The written production tests were the same as those used in the experimental study and are described fully in Section 5.4.5.3. Students were told to rewrite sentences (i.e., statements and questions) replacing underlined direct objects with the correct pronoun.

The following coding system (loosely based on a system developed by Doughty and Varela, 1998, to encode use of past tense forms) was used to score the written production tests (in the pilot study only). This coding framework, outlined in Figure 3 below, was developed to measure interlanguage development. It differed from the system used by VanPatten and Cadierno (1993a) in that it gave greater credit for either a correct pronoun form not placed correctly or for correct placement of an incorrect pronoun form than it did for an incorrect pronoun form incorrectly placed. Students were given a possible score out of three for each pronoun form attempted; 30 was thus the maximum score possible for the whole test.

Figure 3: Coding Process




The oral production tests were once again the same as those used in the experimental study and are described fully in Section 5.4.5.4.

Because the oral production test did not guarantee obligatory occasions for direct object pronoun use (in contrast to the written production test), students were first given a score to reflect their use of direct object pronoun forms (i.e., scoring for pronoun frequency). There was no limit to this score. Each attempted pronoun form was then scored according to the coding system described above. The final score (i.e., scoring for pronoun form and placement) was the average of all these scores. The possible maximum score under this scoring condition was therefore three (the score for a correct pronoun correctly placed).

5.3.4.3 Reliability of testing instruments

Test scores were aggregated for the comprehension tests. This decision was taken because it is a well-known fact that reliability is a function of test length (Brown, 1996) and, due to timing constraints, individual tests used in this study contained relatively few test items.

Earlier versions of the listening comprehension tests gave students two instead of four multiple choice options for each of the ten test items. These were trialled on a group of University students ($n$ = 22) who had received formal instruction in direct object pronouns and who were enrolled in the same beginners programme as students in the pilot study. Cronbach's alpha was calculated using an internal consistency approach. The reliability estimate was low, $\alpha$ = .5583. It was decided that this could be due to the fact that it was too easy for students to score highly when they were only given two choices. (On this trialling, students scored a mean of 23.6, out of a total possible score of 30). These tests were accordingly rewritten to give students a choice of four instead of two possible answers for each test item. These versions of the test were used in the pilot study and reliability, using Cronbach's alpha, was estimated on the aggregated scores of students in the Structured input and Output-based instruction groups ($n$ = 26). This time the reliability was higher, $\alpha$ = .6762.

Reliability of the reading comprehension tests was also estimated using the aggregated scores of students in the Structured input and Output-based instruction groups ($n$ = 26),

$\alpha$ = .7430. However it was realised in scoring this test that the open-ended nature of some of the questions meant that, in a number of cases, students could answer questions correctly without having demonstrated a correct understanding of direct object pronoun referents.

Reliability of the three versions of the written production tests was also estimated using the scores of students in the Structured input and Output-based instruction groups ($n$ = 26), Test A, $\alpha$ = .9482; Test B, $\alpha$ = .9483; Test C, $\alpha$ = .9483.

### 5.3.5 Results

Descriptive statistics for the performance of each group on all tests are presented below in Table 7.

Mixed model ANOVAs were conducted on the raw scores of all tests. There was no significant interaction between time and group on any test but there were main effects for time on all tests (listening comprehension test, $F(2,66) = 9.439$, $p = .000$; reading comprehension test, $F(2,66) = 4.439$, $p = .016$; written production test, $F(2,66) = 45.817$, $p = .000$; oral production test scored for pronoun frequency, $F(2,64) = 12.747$, $p = .000$; oral production test scored for pronoun form and placement, $F(2,64) = 18.807$, $p = .000$). There was no significant main effect for group on any test.

Table 7: Descriptive Statistics for the Performance of Pilot Study Groups.

| | | Input $n = 12$ | | Output $n = 14$ | | Combined $n = 10$ | |
|---|---|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Listening Comprehension | pretest | 2.83 | 1.80 | 3.36 | 2.47 | 3.50 | 1.65 |
| | posttest 1 | 4.00 | 2.38 | 5.29 | 2.33 | 4.60 | 2.60 |
| | posttest 2 | 5.25 | 2.05 | 4.64 | 1.74 | 5.30 | 2.00 |
| Reading Comprehension | pretest | 2.83 | 1.85 | 3.21 | 1.42 | 2.70 | 1.50 |
| | posttest 1 | 3.91 | 1.50 | 3.71 | 1.77 | 3.90 | 1.45 |
| | posttest 2 | 3.08 | 1.56 | 3.79 | 1.31 | 3.70 | 1.83 |
| Written production | pretest | 4.75 | 5.01 | 5.21 | 5.51 | 6.40 | 6.72 |
| | posttest 1 | 15.2 | 9.22 | 15.3 | 10.9 | 20.6 | 10.0 |
| | posttest 2 | 16.0 | 9.56 | 16.5 | 10.7 | 18.8 | 9.08 |
| Oral production scored for pronoun frequency | pretest | 0.08 | 0.28 | 0.29 | 0.61 | 0.00 | 0.00 |
| | posttest 1 | 1.75 | 2.41 | 2.21 | 2.83 | 2.90 | 3.34 |
| | posttest 2 | 2.08 | 2.23 | 2.21 | 2.36 | 1.70 | 2.75 |
| Oral production scored for form and placement | pretest | 0.04 | 0.14 | 0.14 | 0.61 | 0.00 | 0.00 |
| | posttest 1 | 1.08 | 1.25 | 1.19 | 1.45 | 1.58 | 1.48 |
| | posttest 2 | 1.10 | 1.21 | 1.41 | 1.33 | 0.80 | 1.30 |

### 5.3.6 Discussion

The results indicate that the three groups made significant gains over time on all tests. They thus demonstrate the effectiveness of an explicit focus on linguistic form combined with either input-based and/or output-based practice. The study demonstrated the effectiveness of the teaching materials used and validated their inclusion in the experimental study.

There was no significant advantage for any one group on any test. It was possible, however, that the small sample size could have contributed to the lack of significant differences among the groups.

As a result of the experience of this initial trialling of the study, a number of decisions were taken when designing the main study.

a) It was decided that a high school population was more likely to guarantee a larger sample size than a University population. While University students could choose whether or not to attend classes, high school students were obliged to do so. It was also hoped that a larger population might allow for the inclusion of a Control group in the study. A Control group would receive no exposure to the target structure outside of the testing episodes and would thus be the basis of comparison with treatment groups. Without such a group, any claims about learning could only be tentative. Furthermore, high school populations are under-utilized in this field of research. Only two (Hendrix, 2002; Shaffer, 1989) of the seven deductive/inductive studies referred to in Chapter Two used a high school population. Only two (Allen, 2000; VanPatten & Oikkenon, 1996) of the ten input processing instruction studies and three (Hendrix, Housen & Pierrard, 2002; T. Tanaka. 2001; Y. Tanaka, 1996) of the nine structured input studies used school-aged populations.

b) The decision was taken to redesign the reading comprehension test questions. Instead of being allowed to write their own answers to questions, students would be required to choose one of four possible multiple choice answers written in English. The same reading texts were used but were modified to allow for the rewriting of questions and for the addition of two extra test items. It was hoped that the addition of the additional items would increase test reliability.

c) It was decided that the production tests would be scored differently so as to give information about the number of pronoun forms attempted by students, the accuracy of those pronoun forms attempted and the correct placement of (attempted) pronoun forms. Further details are given in Section 5.4.5.3.

d) Whereas the pilot study included a treatment group that received explicit information along with structured input instruction and output-based instruction, in the main study this group was replaced by a group (inductive) that worked at structured input and output-based activities but which received no explicit information. This decision was taken to further test evidence arising out of Norris and Ortega's (2000) meta-analysis that treatments involving an explicit focus on the rule-governed nature of L2 structures are more effective than treatments that do not include such a focus.

## 5.4 The main study

### 5.4.1 Participants

The study was conducted in one of New Zealand's largest secondary schools during the last school term of 2000. The school was chosen because it had a larger number of students taking French, at the level required for inclusion in the study, than most other secondary schools. The school is a state (i.e., non fee paying) school but is situated in a socio-economically advantaged area. After obtaining permission to conduct the research from the University of Auckland's Human Subject Ethics Committee, the researcher sought permission from the Headmaster, the Head of the Languages Department and those teachers whose classes were involved in the study. Permission was also obtained from the students included in the study and from their parents/guardians. (see Appendix A for Ethics forms). The Head of the Languages Department met with the researcher to discuss the project and looked over the teaching and testing materials to ensure that they were appropriate for the level of those students who were to be involved in the study.

Four classes of 4$^{th}$ form students (approximately 14 yrs of age) were involved in the study. The school allocates students to class options according to timetabling constraints so that there was, in principle, little overall difference in ability between the classes. Students' scores across the four classes were compared, however, on a Test of Scholastic Abilities (Reid, 1981), administered prior to students' entry to the school and designed to give an indication, using a nine point scale, of their ability to cope with the abstract manipulation of verbal and numerical symbols. A oneway ANOVA failed to find a significant difference between the four groups on this test, $F(4,85) = 1.117$, $p = .354$. Means and the numbers of students in each group for whom these scores were available, are, Group one, $M = 5.91$, $n = 23$; Group two, $M = 6.22$ , $n = 18$; Group three, $M = 6.58$, $n = 19$ and Group four, $M = 6.72$, $n = 25$.

Each class included some students whose mother tongue was a language other than English, although all such students reported that they had been living in New Zealand for a period of more than two years. The level of English of these students was sufficient for them to be exempted from additional ESOL classes, which meant that they had time in their schedules for an optional subject such as French. Five students in Group one (see below) reported that their first language was not English (i.e., 4 x Korean, 1 x Chinese), six students in Group two (i.e., 1 x Russian, 3 x Taiwanese, 2 x Chinese), three students in Group three (i.e., 1 x Afrikaans, 1 x Chinese, 1 x one of the languages of India) and three students in Group four (i.e., 2 x Korean, 1 x German). There was a higher ratio of girls to boys in each of the four groups: Group one, 21:2 ; Group two, 17:4; Group three, 19:3; Group four, 17:9.

For the purposes of the study, classes were arbitrarily allocated to one of the three treatment options: Group (1) structured input instruction (deductive), Group (2) output-based instruction (deductive), Group (3) structured input/output-based instruction (inductive) and Group (4) control group option. A total of 92 students (those who had attended all treatment and testing sessions) were included in the final analyses of results (a total number of 118 students were initially involved in the study but 26 had to be excluded because they had not attended all treatment/testing sessions). The numbers of students in each of the four groups were as follows: Group one, 23 students; Group two, 21 students; Group three, 22 students; Group four, 26 students.

The teaching approach adopted by the school's languages department places an emphasis on developing communicative skills in French although there was also a considerable amount of focus on forms. Classes meet five days a week for a 45 minute lesson.

## 5.4.2 Target structure

R. Ellis (1995) claims that language forms which are already known but to which another, as yet unknown, meaning is to be assigned, will be more “learnable” than entirely new language forms. Students in the present study were already familiar with the linguistic forms that realise direct object pronouns, that is, they had previously been taught these linguistic forms in lessons dealing with other grammatical functions (i.e., nous/vous as subject pronouns; me/te/nous/vous as reflexive pronouns; le/la/les as definite articles). Mastery of direct object pronouns required them to assign another meaning to these already familiar forms.

Direct object pronouns present a number of difficulties for learners of French. They require the learner to make a number of morphosemantic distinctions: gender (e.g., le/la), person (e.g., me/te) and number (e.g., le/les). Felix and Hahn (1985) report that students master the pronominal system by acquiring these morphosemantic features one at a time. This, they claim, parallels naturalistic language acquisition, which is characterised by the learner's successive acquisition of individual structural features and the integration of those features as they slowly approximate target language norms.

White (1996) points out that direct object pronouns in French are clitics (nous/vous are also used as emphatic pronoun forms). As such they have distinctive properties that differentiate them from strong pronoun forms: they cannot be used in isolation; they cannot receive focal stress; they cannot be separated from the verb; they cannot be conjoined or modified. For example, the following sentences are disallowed in French. Corrections are given in parentheses.

Qui as-tu vu? *[5]Le (Lui)

*Jean LA préfère. (Jean la préfère, elle)

*Jean la et le voit. (Jean les voit, lui et elle)

Whereas direct noun objects in French follow the verb, clitic object pronouns precede it, as shown in the examples below.

Franck connaît mon amie.

Il la connaît.

*Il connaît la.

According to White (1996), placement of a French direct object clitic pronoun after the verb suggests that the learner has misanalysed the object clitic as a strong pronoun form. It is not surprising that English-speaking learners of French should make this error, as English has strong pronoun forms and no clitics. English-speaking learners of French thus have to acquire the appropriate properties of clitics when learning French pronoun forms. White presents data from a study of young learners of French in immersion programmes showing that placement errors were rare and thus concludes that L2 learners of French will correctly analyse French weak pronouns as clitics even in the earliest stages. However, she recognises that there is a body of research that reports the occurrence of these errors (Gundel and Tarone, 1992; Selinker, Swain and Dumas, 1975; Towell and Hawkins, 1994) and that there is thus evidence to suggest that clitics are commonly misanalysed as strong pronouns.

[5] The symbol * means a deviant form.

Several researchers (Gundel and Tarone, 1992; Towell and Hawkins, 1994) have identified three stages that learners pass through in the placement of direct object pronouns.

(1) after the verb e.g. *j'ai reconnu **le** *(I recognised him)*

(2) omission of the pronoun e.g j'ai reconnu

(3) between the auxiliary verb and the past participle

e.g. *j'ai **le** reconnu

This first stage would suggest, as has been discussed above, that the clitic pronoun has been analysed as a strong pronoun. White attributes such an error, as made by English learners of L2 French, to L1 interference but Van Patten's theory of input processing (1996) suggests that it could be due to a misanalysis of L2 input. (Of course, both these analyses could play a role, that is, L1 interference could lead to a misanalysis of L2 input.) Learners may initially assume that because full object nouns are placed after the verb (e.g., *j'ai reconnu Mary*), as are object pronouns with affirmative commands (e.g., *Faites-le*), direct object pronouns are also postverbal. As learners progress, however, they realise that the object pronoun is not post verbal but mistakenly assume that null objects are permissible (i.e., the object may be omitted). Their error may be attributable to input that contains weak and nonsalient object pronouns. In spoken French, the schwa vowel of the object pronouns me/te/le may be weakened to the extent that it is almost imperceptible. In written input, the preverbal object pronoun, which in French is placed medially in the sentence, may be dismissed as a structure that appears to have little communicative value. This is predicted by VanPatten's input processing principle P.4 (see Section 3.5), that learners process elements in sentence initial or final position before elements in medial position. VanPatten claims that this principle can be used to determine which forms are acoustically non-salient as a basis for designing activities to help students process these forms. It would seem then that object pronouns lend themselves especially well to structured input instruction because an attempt to make these forms more salient is likely to induce learners to attend to them even although they occur medially.

### 5.4.3 Procedure

Prior to the study, the students had not received any classroom instruction on direct object pronouns, although they may well have "come across" them incidentally. For the purposes of the study, they were introduced to the target structure earlier than scheduled in the syllabus plan. Normally, they would not be given instruction in direct object pronouns until their third year of French. During the period of this study, they received no teaching on the target structure other than that given during the instructional treatments. The students were aware that the material taught during the research period would not be tested in any school evaluation procedure and that their individual results would not be shown to their class teachers. The instructional treatments took place at a time when the students' normal class teachers were overseas on a French study trip with another group of students. The fact that the researcher could teach some classes during their absence was advantageous for the school because it meant they did not have to employ a reliever at those times.

Pre-test scores established that no students scored above 75% on either of the comprehension tests. On the written production tests, no student used more than 2/10 correct pronoun forms or correctly placed more than 1/10 (attempted) pronoun forms.

On the oral production tests, no student used a correct pronoun form or correctly placed an attempted pronoun form.

5.4.4 Instructional treatments.

The experimental treatments for all groups consisted of three lessons, each of 45 minutes duration, spread over a period of one week. The teaching sessions were audiotaped for all classes.

All teaching sessions were conducted by the same instructor, who was also the researcher. The use of the researcher as the instructor was unavoidable given that demands on teachers at the school had to be kept to a minimum throughout the study. Furthermore the instructor needed to be a qualified, N.Z registered teacher, which the researcher is.

5.4.4.1 Deductive instruction (output-based) versus Inductive instruction (input/output-based)

1. Students in the Inductive group received substantially less explicit positive knowledge in the form of metalinguistic information (Zobl, 1995) than students in the Deductive group. They were not given any rule explanation before beginning practice activities (shortened versions of those used in both the Structured input instruction and the Output-based instructional treatments).

2. Students in the Deductive/output-based group had a chart of all direct object pronoun forms, classified according to person and number, available to them at

all times during instructional treatments, whereas students in the Inductive group were never shown this chart.

3. During the completion of activities or during feedback sessions, students in the Inductive group were asked to explain why they had chosen a particular pronoun form or why they considered a given statement to be correct or incorrect while students in the Deductive group were given corrections or corrective feedback and their attention was drawn to rules governing the use of pronouns or to the chart of pronoun forms.

5.4.4.2 Structured input instruction versus Output-based instruction

1. The instruction that the Structured input instruction group received was loosely based on descriptions of input processing instruction as outlined in VanPatten (1996) and VanPatten and Cadierno (1993a & b). At no time were students in this group given any activity requiring them to produce direct object pronoun forms.

   The model of teaching for the Output-based instruction group was based loosely on what DeKeyser (1998) describes as 'Cognitive Code', where explicit instruction is followed by form-focused activities which allow students time to think and apply rules they have learnt. For the purposes of this study, it was decided that the oral pair work that students engaged in should be kept to a minimum, in order to reduce the possibility that students gain input from listening to each other's attempts at producing the target structure. Thus a greater emphasis was placed on individual written activities. One oral exercise (P. 2) was completed chorally with the researcher.

2. Students in the Structured input group received explicit instruction and activities that presented and allowed for the practice of the different morphological aspects (person, number, gender) of direct object pronouns one at a time (Cadierno, 1995). The explicit instruction that students in the Output-based group received presented information about the different morphological features of direct object pronouns in one go.

3. Students in both groups received corrective feedback during and after completion of exercises. This feedback frequently involved reference to the morphological and syntactical rules governing direct object pronoun use.

The instruction consisted of three main components each of which is described below. Each group received instruction that consisted of combinations of these main components. Further details are given below and additional examples of instructional activities are given in Appendix B.

5.4.4.3 Explicit information

1. Students were given practice in identifying direct object nouns in a sentence. Students were presented with two sentences in English and asked to identify the subject (i.e., performing the action) and the direct object (i.e., receiving the action) for each one. They were then asked to do the same for six illustrated sentences shown to them in French. For example:

La fille regarde la souris (*The girl is looking at the mouse)*

2. It was then explained that the direct object noun can be replaced by a pronoun and they were shown one of the sentences in French they had already seen with, this time, a pronoun replacing the direct object. The rule describing placement of direct object pronouns was elicited from one student and presented to the whole class. They were then shown a chart which presented all direct object pronoun forms (see Table 8).

Table 8: Direct Object Pronoun Chart.

| Direct object pronouns | |
|---|---|
| Singular | plural |
| **me** (**m'**) me | **nous** us |
| **te** (**t'**), **vous** you | **vous** you |
| **le** (**l'**) him, it (m) | **les** them |
| **la** (**l'**) her, it (f) | |

3) At appropriate stages of instruction, students were given explicit instruction to clarify examples of direct object pronoun use they had come across in different activities. They were told where direct object pronouns are placed in relation to the negative and infinitive verb forms. The difference between a number of verbs which are phrasal in English but not in French (i.e., chercher, regarder, écouter, attendre) was brought to their attention, as was the elision of the vowel of a direct object pronoun form before a verb beginning with a vowel.

5.4.4.4 Input-based activities

Students were given sequenced input-based activities that allowed practice of the different morphological features of direct object pronouns (see 5.3.3) one at a time (VanPatten, 1996). They encouraged students to process input and interpret it correctly while attending to form as well. They did *not* engage students in production of the target form in question. An example of one of the activities that allowed students to practise the morphological distinction of number is presented below.

> Students were given handouts containing sets of pictures. Under each pair of pictures was one written statement. They had to choose which of the two pictures[6] the statement correctly described.
>
> picture (a) picture (b)
>
> Je te déteste.
>
> *(I hate you [one person]).*
>
> Answers were elicited from students (who were encouraged to refer to choices in terms of option [a] or [b], rather than produce the target structure) and feedback was given.

[6] Every effort has been made to trace the source of all pictures used during instructional treatments and during testing episodes. A reference list on page 331 documents the sources of the majority of pictures used.

In other input-based activities, students were required to process input presented orally.

The majority of input-based activities were referentially oriented and there was a right or wrong answer. A few activities were affectively oriented, requiring students to make a personal response; for these there was no right or wrong answer. An example is given below; students had to read statements that contained direct object pronoun referents and decide whether they were true for them or not.

| | | |
|---|---|---|
| e.g le professeur | je l'écoute toujours en classe | oui/non |
| *(the teacher* | *I always listen to him/her in class* | *yes/no)* |

In other input-based activities, students were given a short reading comprehension passage and asked to circle the correct direct object pronoun referents from a choice of options. An example of one of these passages is given below. A translation is provided for the reader.

Franck: Je **t'**invite au cinéma vendredi soir.

Nathalie: Très volontiers.

Franck: Et mes parents **nous** invitent à dîner chez eux dimanche soir.

Nathalie: Je regrette, je suis prise dimanche.

*(Franck: I'd like* ***you*** *to come to the pictures with me on Friday evening.*

*Nathalie: I'd love to.*

*Franck: And my parents would like* ***us*** *to come to their place for dinner on Sunday evening.*

*Nathalie: I'm sorry but I've got something on on Sunday).*

**Who do the pronouns listed below refer to? Circle the correct answers. (You may need to circle more than one answer.)**

(a) t’

| | | |
|---|---|---|
| Franck | Nathalie | les parents de Franck |

(b) nous

| | | |
|---|---|---|
| Franck | Nathalie | les parents de Franck |

Students were also given “consciousness-raising” exercises where they had to identify errors in written and then spoken input (as recommended in R. Ellis, 1995). These exercises required students to decide whether a given pronoun form was correct for a particular context and whether it was correctly placed in the sentence. They were encouraged to explain the reason why a particular usage was non-target. Correct answers were given and explained to the students but the production of direct object pronouns was not elicited.

An example of one of these activities, which was presented as a listening activity, is given below (a translation is provided for the reader). Students were given a handout with the instructions and the questions only. They were instructed to listen to each answer and to indicate on their paper whether it was correct or not. At the end of the exercise, the researcher displayed the answers to all questions on an overhead. The students were asked to explain incorrect answers.

Henri asks David some questions. But David has had a bit too much to drink! When he speaks French he makes some mistakes. For each question that Henri asks below, listen to the answer that David gives and decide whether it is grammatically correct or whether it contains an error.

Henri: David, est-ce que tu trouves le français facile? *(D., do you find French easy?)*

**David: Non, je trouve le très difficile.** ***(No, I it find very difficult.)***

Henri: Alors, est-ce que tu trouves les examens difficiles? *(Well, do you find exams difficult, then?)*

**David: Ah oui, je les trouve très difficiles. (*Yes, I find them very difficult.)***

Etc.

5.4.4.5 Production activities

Students were given exercises requiring them to produce direct object pronouns. These activities were either written or oral. In some of these activities they had to rewrite sentences replacing underlined nouns with the correct pronoun form. An example is given below:

e.g La fille écoute <u>la radio</u> (*The girl is listening to the radio)*

Other activities were gap-fill. The following is an example of one of these. Students had to answer questions using pronouns to decide whether they would invite named "friends" to a party. They completed the exercise in pairs.

e.g Q. Est-ce que tu invites tes parents? A. Non, je ne **les** invite pas.

(*Are you going to invite your parents? No, I'm not inviting them).*

The content of a number of the production activities was based on the content of the input-based activities. This was to control as much as possible for any effect that variation in content and vocabulary may have across the different instructional treatments.

While the researcher originally intended the production activities to be meaningful and communicative and to relate as much as possible to the students' world and experience, it was later realised that two activities were mechanical as defined by Lee and VanPatten (1995). The students did not need to attend to meaning to complete them and there was only one correct response. (For students in the Production-based group, these two activities took a total of 22 minutes for students to complete, a small proportion [16%] of the total instructional time). An example of one of these activities is given below.

| | |
|---|---|
| e.g Où est le guide Michelin? | Je veux **le** lire. |
| (*Where is the Michelin guide?* | *I want to read it).* |

5.4.4.6 Sequence of activities

The sequence of activities that each instructional group worked at is outlined in Table 9.

Table 9: Sequence of Instructional Activities

| | Group 1 – Structured input (deductive) | Group 2 – Output-based (deductive) | Group 3 – Combined Input/Output (Inductive) |
|---|---|---|---|
| Day 1 | Explicit info. (person) | Explicit info. | IB 1 – written input |
| | IB 1 – written input | P 1 - written | IB 2 – oral input |
| | IB 2 – oral input | P 2 – oral | P 2 - oral |
| | Explicit info. (number) | P3 – written – gap fill | IB 3 - written input |
| | IB 3 – written input | P4 – oral – gap fill | IB 4 – oral input |
| | IB 4 – oral input | | |
| | IB 5 – reading compre. | | |
| Day 2 | Explicit info. (gender) | Explicit info. - overview | IB 5 – reading compre. |
| | IB 6 – written input | P 5 - written | IB 6 - written input |
| | IB 7 – oral input | P 6 – written – gap fill | IB 7 – oral input |
| | IB 8 – reading compre. | | P 3 – written then oral |
| | IB 9 – affectively orient. | | P 4 - written |
| | | | IB 9 – affectively orient. |
| | | | IB 13 – consciousness raising - oral |
| Day 3 | Explicit info. - overview | Explicit info. - overview | P 7 – written – gap fill |
| | IB 10–consciousness raising (written input) | P 7 – written – gap fill | IB 10 – consciousness raising (written input) |
| | IB 11 – as above | P 8 - written | IB 11 – as above. |
| | IB 12 – consciousness raising (oral input) | P 9 - oral | P 8 - written |
| | | P 10 - written | P 9 - oral |

*Note.* IB = input-based activities; P = production activities.

5.4.4.7 Control group

The Control group were not told that they were receiving instructional treatment which differed with respect to the target structure from that given to the other two classes.

They also had three lessons time-tabled with the researcher and received form-focused instruction that targeted partitive articles. They completed a number of oral and written comprehension and production activities. They thus received no exposure to the target structure outside the testing episodes.

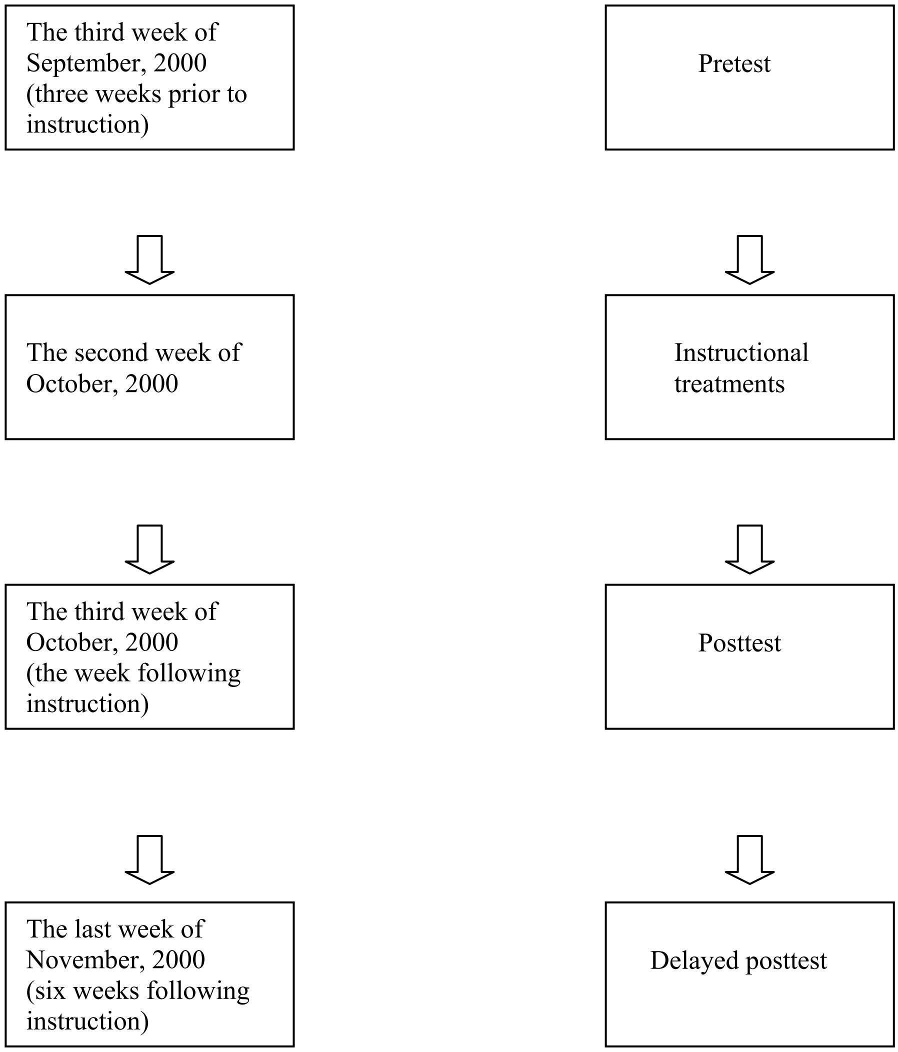
Following the instructional treatments, the three different class teachers were told that the students had been given instruction on direct object pronouns and were asked not to focus on this structure in any class work for the rest of the year.

### 5.4.5 Testing

This consisted of a pretest, a posttest and a delayed posttest. The pretest was administered prior to a two-week holiday break. The instructional treatments commenced the first week of the new term and posttesting was completed the following week. Delayed posttesting was completed in the sixth week following instruction.

The sequence of tests in relation to the instructional treatments is outlined in Figure 4 below.

Figure 4: Sequence of Testing Administrations and Treatments.




Each test consisted of a listening comprehension task, a reading comprehension task, a written production task (all three of which were administered in a classroom setting) and an oral production task (recorded in an interview room). As in the pilot study, a split block design was used in test administration to control for possible discrepancies between different versions of the tests. All tests took place during timetabled class hours. Tests were administered by the researcher and by tutors or advanced level students from the University of Auckland French department, who were given instruction in how to administer the different tests. The use of test administrators other than the researcher was necessary because all three versions of the test were administered simultaneously.

The design of all the tests was constrained by the fact that testing had to place a minimum of demands on student time. The three pen and paper tests (i.e., the listening comprehension, reading comprehension and written production tests) had to be administered in one class lesson (a maximum of 45 minutes not allowing time for students to arrive late to class, etc.) This meant that shorter than desirable versions of some tests, in particular the reading comprehension and listening comprehension tests, had to be designed. This had implications for test reliability (see 5.4.5.5).

During test administration, the reading comprehension test was completed after the written production and listening comprehension tests to minimise the possibility of it serving as input for these two tests. Students also had their answer sheets for these other two tests removed before they began the reading comprehension test. Oral production testing was begun the day following group administration of these three tests and completed within the week. For this test, students were tested individually and audio-recorded (see Appendix C for copies of all tests).

5.4.5.1 Listening comprehension test

The listening comprehension tests consisted of 12 items, two of which were distractors. They were timed in order to increase the likelihood that students were using implicit language knowledge in making their choices. The students had two seconds to view a picture presented on the overhead projector, following which they heard four sentences read at a slightly slower than normal rate by a native French speaker, and then a further two seconds to decide which sentence accurately described the picture. The picture was then removed. A tape recording was used for the administration of all the listening tests and indicated when the visual stimulus was to be placed on the overhead projector and when it was to be removed. The sentences were chosen to include options that were grammatically incorrect and/or grammatically correct but an inaccurate description of the picture. The correct choice in each case was a grammatically correct description of the picture. All tests (except Test B which had one example of the second person pronoun [i.e., te]) included nine examples of third person direct object pronouns (i.e., le, la, les) and one example of the first person pronoun (i.e., me, nous). Students could score up to a maximum of 10 on this test. An example of one test item is given below[7]:

*(a)* Il l'aime. (*he loves her*)

*(b)* Elle aime le. (*she him loves*)

*(c)* Il aime la. (*he her loves*)

*(d)* Elle l'aime. (*she loves him*)

[7] See footnote 6.

5.4.5.2 Reading comprehension test

As has already been discussed in 5.3.6, the reading comprehension tests were redesigned after initial trialling in the pilot study. They consisted of a short text written in French, controlled for vocabulary (a small number of unfamiliar words were glossed in the margin) and containing examples of direct object pronouns. Students were asked to answer ten multiple choice questions in English, eight of which (two were distractors) were designed to test whether they understood the direct object pronoun referents. The maximum score on each test was eight points. Tests B and C contained only third person direct object pronoun forms, Test A contained two 1st person and two 2nd person direct object pronoun forms. A comparison of performance, however, of 44 students (those in the Structured input instruction [Deductive] and Output-based instruction [Deductive] groups) on these 3 versions of the test produced similar means, Test A, $M = 3.7442$, $SD = 1.79$ ; Test B, $M = 3.2955$, $SD = 1.55$; Test C, $M = 3.6136$, $SD = 1.63$. A one-way ANOVA failed to find a statistically significant difference between the performance of students on these three tests, $F\ (2,128) = .846$, $p = .431$.

While this test was not timed, the researcher instructed students not to spend too long on any one question but to make a choice and move on to the next if they found a question hard. This was to encourage students to rely on their first impressions and dissuade them from having recourse to explicit knowledge of rules and paradigms. Although these instructions did appear to have the effect of encouraging some students, at least, to complete the test quickly, with no retrospective investigation of student focus it is difficult to be sure how students approached this task.

The following is an excerpt from one of the reading comprehension texts and is followed by a question that relates to it. A translation is provided for the reader.

> Jean-Loup et Benjamin arrivent à une soirée internationale. Il y a des musiciens africains fantastiques et un saxophoniste américain qui joue du jazz. Jean-Loup et Benjamin l'écoutent.
>
> *(Jean-Loup and Benjamin arrive at the international evening. There are some fantastic African musicians and an American saxophonist who is playing some jazz. Jean-Loup and Benjamin listen to him).*
>
> 1.What do Jean-Loup and Benjamin do when they first arrive at the soirée internationale?
>
> (a) They listen to the jazz musicians
>
> (b) They listen to the African musicians
>
> (c) They listen to the American saxophonist
>
> (d) Jean-Loup talks and Benjamin listens

5.4.5.3 Written production test

The written production test was also timed. Students were shown, on an overhead transparency, statements and questions with direct object nouns underlined. (Two of the questions in each test contained an underlined direct object pronoun which had to be replaced with an appropriate pronoun, involving a change of person, when the question was answered.) Students were told to rewrite the statements and respond to the questions according to the given prompts, replacing the underlined words with a pronoun. They were shown a correctly completed example before commencing the test. They were given 12 seconds in which to view each statement/question and a further 10 seconds in which to complete each response, during which time the statement/question was removed. A pre-recorded tape gave time signals to indicate when the visual stimulus was to be presented on the overhead and when it was to be removed. The test comprised 12 items, including two distractors. The tests were carefully controlled to ensure that they elicited a similar number of direct object pronouns which varied with respect to gender, number and person and that the direct object pronouns occurred in an equivalent number of varying contexts, for example, with an infinitive, in a negative sentence. (Each test required the use of a total of eight pronouns in the third person [i.e., le, la, les] and two in the first person [i.e., me, nous]. Two pronouns had to be used with a negative and two with an infinitive.)

An example of one of the test items is given below:

Je vais acheter le cadeau demain. (*I am going to buy the present tomorrow)*

The time pressure was originally designed to reduce the likelihood that students were monitoring their language performance. However it became apparent that the time pressure was not sufficient in all cases to preclude this. One student even had enough time to write out the whole statement/question and the corresponding answer. Other students did not appear to have enough time to complete some items and the inconsistency of their answers suggested little opportunity for monitoring. In a test of written production it seems hard to establish a timeframe which would allow all students sufficient time to write answers but none the possibility of monitoring responses.

Each test was marked to give three scores, that is, one that reflected frequency of pronoun use, one that reflected mastery of pronoun forms and one mastery of pronoun placement. In this way, scoring gave differential information about acquisition of the morphological and syntactical features of the target structure. Students were given one mark for each attempted pronoun form. The maximum score was 10. They were also given 1 mark for each correct pronoun form (a maximum score of 10). For pronoun placement scoring, students were given 1 mark for each pronoun form or attempted pronoun form correctly placed (again the maximum score was 10).

5.4.5.4 Oral production test

The oral production test involved narration of a story as told by a short sequence of pictures. To test for obligatory use of the target structure, each of the three narration tests was piloted on five native French speakers. One such test had to be redesigned because it failed to elicit an average of more than one target structure on pre-test trialling. The results of the final version of the oral production tests are shown in Table 10.

Table 10: Native Speaker Trialling of Oral Production Tests.

| | Average no.of structures elicited | range | no. of trials |
|---|---|---|---|
| Test A | 8 | 3-14 | 5 |
| Test B | 4 | 2-7 | 5 |
| Test C | 4 | 2-11 | 5 |

All tests provided contexts for the use of the third person pronouns as follows:

Test A: le, la Test B: le, les Test C: le, la, les

It should be noted that in Tests A and C the pronouns referred to persons and in Test B to objects. It was decided that any discrepancies between Test A and Tests B and C would be controlled for in the split block design.

Test B is shown below.

The oral production test had a timing constraint in that students were allowed only enough time to look right through the sequence of pictures once, in front of the examiner, before commencing the picture narration. They were moved along to the next picture (the examiner indicated with his/her finger that they were to commence the next in the sequence) if they showed a tendency to dwell on any given picture (either giving unnecessary detail or being unable to give any information). Underneath each picture was written the verb required to describe the action depicted.

This test was intended, in its original design, to be a test of free production, that is, to require students to engage in unplanned, meaning-focused language use that would force them to draw on their implicit language knowledge (R. Ellis, 2002a). However, during test administration it became apparent to the researcher that some students approached the task with the knowledge that they were being tested on their ability to produce direct object pronouns. One student even remarked to the test administrator, "Oh I know, you're wanting me to use direct object pronouns, aren't you?" Although students were not given time to plan their narratives, one cannot be sure that more aware students were not able to access explicit language knowledge as they described the sequence of pictures, especially as, at times, they paused before beginning or completing an utterance. It would seem that lack of opportunity for planning and a focus on meaning are not sufficient to guarantee student reliance on implicit language knowledge. Some students, it should be noted, did seem to treat the task as a more general measure of their communicative competence, rather than as a test of their ability to produce direct object pronouns. With many it was impossible to tell.

Pre-test scores reflect the number of pronoun forms attempted. Students were given a total of three scores, the first reflecting attempted pronoun forms (there was no limit to this score), the second reflected the percentage of correct pronoun forms (of the total number attempted) and the third the percentage of pronouns correctly placed (of the total number attempted). In scoring for pronoun form and placement it was decided that percentages rather than frequency of correct usage would be a more useful indication of student learning because the test created an indefinite number of obligatory contexts for direct object pronoun use.

5.4.5.5 Test reliability and validity

Douglas (2001) reports that second language acquisition researchers generally fail to discuss whether the language measures used are reliable and valid and stresses the need for them to address these issues. None of the Inductive/Deductive studies reviewed in Chapter Two, nor the input processing instruction studies reviewed in Chapter Three, provide any information about the reliability of the language measures they use. Y. Tanaka (1996) is alone in providing any indication of the reliability of measures used in the Structured-input studies.

The measures used in this study were all designed to provide information about students' learning of direct object pronouns in L2 French. All versions of all tests (except the oral production test) were accordingly trialled on two populations of students of French, one that had had explicit instruction in the target structure and one that had not. Both University and high school students were involved in this trialling of the different versions of the tests. Independent samples *t* tests found significant differences between the performances of both groups for all tests. These results, which are presented in Table 11 below, are considered evidence of the construct validity of the different versions of the tests.

Table 11: Results of T-tests from Trialling of Versions of Tests

| Test | Version | *t* | *df* |
|---|---|---|---|
| Listening comprehension | A | -5.46** | 49 |
| | B | -4.07** | 39 |
| | C | -3.37** | 48 |
| Reading comprehension | A | -5.43** | 75 |
| | B | -2.20* | 43 |
| | C | -2.14* | 46 |
| Written production | A | 5.43** | 30 |
| | B | 4.98** | 30 |
| | C | 4.42** | 30 |

** $p < .001$; * $p < .05$

Reliability of the different test instruments was estimated on the performance of students in the pilot study and has been discussed in Section 5.3.4.3. Reliability was also estimated on the performance of 43 students in the structured input (deductive) and output-based (deductive) treatment options. Cronbach's alpha was calculated for each test using an internal consistency approach.

Test scores were aggregated for the comprehension tests. This decision was taken because reliability is a function of test length (Brown, 1996) and, due to timing constraints, individual tests used in this study contained relatively few test items.

Results of the reliability estimate for the combined listening comprehension tests (30 items) were as follows, $\alpha = .4235$. This is low. It is possible that students were guessing answers on this test, because they were unable to make decisions about the language choices presented to them in real time. There was less variation in test scores (i.e., lower

*SD*'s) than on other tests and it is significant to note that reliability increases as a function of increase in variability (see Table 12 below). According to Henning (1987), a test that is either too difficult or too easy will result in skewed scoring distributions and thus poor reliability. De Graaff (1997a) reports a low reliability estimate for a test that he uses in his study, that is, a judgment task performed under time pressure, and attributes this to performance at chance level for a considerable number of participants.

Because the reading comprehension tests had been redesigned after the pilot study, the new versions of the reading comprehension test were trialled before their use in the main study. Versions A and B were trialled on high school students (in their third year of French) and Version C was trialled on University students enrolled in the same course as those students in the pilot study. Both groups had had formal instruction in the target structure. Reliability was based on two occasions of testing (test-retest) and correlation coefficients were calculated. Results were as follows, Test A, $r = .828$, $p < .001$; Test B, $r = .810$, $p < .001$; Test C, $r = .850$, $p < .001$.

Reliability was also estimated for the population used in the main study (as above). Again the reading comprehension test (24 items) items were aggregated, $\alpha = .6540$. The fact that there were fewer items and low variability in test scores (see below) may explain this low reliability.

Reliability estimates for each of the written production tests were high. Results are as follows, Test A, $\alpha = .8962$; Test B, $\alpha = .9070$, Test C, $\alpha = .9457$. The greater reliability of the written production tests can perhaps be explained in part by the greater number of items and also by the greater variability in test scores. As Brown (1996) claims, a test that is administered to a group of students with a wide range of abilities tends to be more reliable than a test administered to a group of students with a narrow range of abilities. Table 12 shows that those tests with higher standard deviations had greater reliability estimates.

Table 12: Reliability Measures and Standard Deviations of Tests.

| Test | α | *M* | *SD* |
|---|---|---|---|
| Listening comprehension main study | .4318 | 10.23 | 3.13 |
| Listening comprehension pilot study | .6762 | 12.69 | 4.48 |
| Reading comprehension | .6540 | 10.81 | 3.67 |
| Written production version A | .8962 | 8.28 | 7.12 |
| Written production version B | .9070 | 8.46 | 7.87 |
| Written production version C | .9457 | 7.43 | 8.31 |

Sixty-four transcripts of the oral production tests (taken from all three testing sessions) were rated by an independent rater, a senior lecturer in French at University level. Correlation coefficients were calculated to give an estimate of inter-rater reliability of scoring for pronoun use, pronoun form and pronoun placement in the oral production tests. Results are as follows, pronoun frequency, $r = .989$, $p < .01$; pronoun form, $r = .968$, $p < .01$; pronoun placement, $r = .958$, $p < .01$.

## 5.5 Language aptitude

After the completion of the experimental study it was decided to investigate to what extent there was a relationship between student performance in relation to a particular instructional method and scores on different measures of language aptitude.

Those students who had originally participated in the study, with the exception of those who had been in the Control group, completed tests of language aptitude. The Control group was excluded because the test results of these students were quite independent of the instruction they had received.

Six months after completion of the experimental study, the researcher thus went back to the school to administer a selection of language aptitude tests. This testing required the cooperation of the Languages department as testing had to take place in class time. It also necessitated the cooperation of a number of teachers from the English department who agreed to release students from their classes for testing. A number of students who were involved in the original study were no longer enrolled in the French programme and so had to be withdrawn from other classes. Because it was reasonable for the researcher to ask for release of students for one class period only (i.e., 45 minutes) the choice and administration of these tests was largely determined by this rather restrictive time frame. Testing took place over two days.

The tests were explained to students, who were told that if they took part in the testing procedure they would be given individual feedback about their performance. After the collation and analysis of results, the researcher accordingly wrote a short profile on each student, which included their results on all tests, and gave it to their classroom teachers. Fifty-nine of the sixty-six students who were involved in one of the three experimental treatments completed all the tests (Group one, [21/23]; Group two, [19/21]; Group three, [19/22]). Three students had left the school and four were absent on both testing days.

5.5.1 Testing

Tests of working memory, phonemic coding ability and language analytic ability were administered in the order listed. These tests are described more fully below. Issues of reliability and validity are discussed individually in relation to each test.

5.5.1.1 Language analytic ability

A commonly used measure of language analytic ability is the Words and Sentences subtest of the MLAT (Carroll and Sapon, 1959). High scores on this test are interpreted as demonstrating an awareness of the syntactical patterning of sentences and of the grammatical functions of individual elements in a sentence.

Each item of this test presents students with two sentences. In the first sentence a particular word or phrase is underlined and capitalized. In the second sentence students have to select the grammatical construction that has a function similar to that of the underlined word/phrase in the first sentence. The difficulty of the task lies in the fact that the student has to choose the correct multi-choice answer from a number of attractive distractors.

e.g Mary is cutting the APPLE.

My brother John is beating his dog with a big stick.

A B C D E

Items are presented in order of increasing difficulty and enough time (15 minutes) is allowed to permit nearly all candidates to try every item (there are a total of 45 items).

A factor analysis conducted by Gardner and Lambert (1965) showed that the Words in Sentences subtest loaded on a factor which Gardner and Lambert labelled “School French Achievement”. This factor, School French Achievement, also included a variable that they defined as “Grammar”. Gardner and Lambert conclude that the loading of the Words and Sentences Test on this factor suggests that students who are aware of grammatical distinctions in English will do well in French courses where the emphasis is on grammar. On a canonical regression analysis of data collected and published by Gardner and Lambert (1965), Carroll (1981) weighted ten predictor variables (i.e., the 5 subtests of the MLAT and the 5 subtests of Primary Mental Abilities) against 14 criteria variables measuring the achievement in French of high school students in Louisiana. He found that the Words in Sentences subtest topped the list of the best predictors. Skehan (1989) reports that the Words in Sentences subtest of the MLAT is one of the most robust sub-tests that have been used in language aptitude testing.

The students who participated in the study found this subtest difficult, however, and their class teachers expressed surprise at the level of difficulty of the test. Descriptive statistics were calculated for all students who completed the test ($n$ = 43); 17 students did not manage to complete the test in the allotted time. The mean was 15.26 (there were 45 items in the test) and the standard deviation was 4.40. Reliability was estimated on the scores of those students who did complete the test using Cronbach’s Alpha. The alpha rating was lower than expected, $\alpha = .5953$. This rating may be related to the students’ poor performance and low variation in scores. As Henning (1987) claims, when a test is overly difficult or too easy for a given group of examinees, skewed scoring distributions will result and there will be a loss of reliability.

5.5.1.2 Phonemic coding ability

Skehan (1998) claims that phonemic coding ability concerns the effective auditory processing of input, that is, the coding and analysis of auditory input in real time so that it may be passed on to subsequent stages of information processing. The Pimsleur's Sound Discrimination Test (a subtest of the Pimsleur Language Aptitude Battery, i.e., PLAB) measures the ability to remember sounds and their significance. It utilises Éwé, an African language. Test takers are asked to identify sound patterns, a task that Carroll (1962) claims will be relatively easy for English speakers because the tone patterns are analogous to meaning-bearing pitch patterns in English. Carroll also suggests (1981) that this test may have a memorization component, in that the examinee is required to memorize sound-meaning relationships in order to perform the test.

There are 30 items in the test and the administration, which includes training, takes 13 minutes.

Carroll (1962) says that the Pimsleur's Sound Discrimination Test probably derives its validity from the fact that after identifying the sound patterns the subject has to associate them with meanings and retain these associations while performing the test. It is this association of particular sound patterns with meaning, which may be regarded as a form of phonetic encoding, that probably gives the test its validity, given that tests of sound discrimination do not appear to be predictive of foreign language success.

Reliability, using Cronbach's alpha, was estimated on the population involved in the testing ($n$ = 60), $\alpha$ = .7279 ($M$ = 19.10, $SD$ = 4.77).

5.5.1.3 Working memory

Whilst the researcher would have prefered to assess phonological loop functioning by using a test of the repetition of non-words, this was not possible given a number of constraints. There were, firstly, only a very limited number of non-occupied classrooms available that would have allowed for individual student testing. Secondly all testing (as mentioned above) had to take no more than one class period. This meant, therefore, that the tests of working memory had to be group-administered, along with the MLAT and PLAB subtests. The two tests of working memory that were used are described below.

A multisyllabic word test of the phonological loop was designed by the researcher and based on a description of the study conducted by Baddeley, Thomson and Buchanan (1975). This test was designed to assess the processing of information. It was based on the discovery by Baddeley et al. that visually presented material has to be transferred to the phonological short-term store and that longer words are more difficult to recall because they take longer to articulate during rehearsal.

While, in the study referred to above, the test is designed to allow for students to repeat back orally a list of words they have read, this method of administration was not possible because it required one-on-one instructor/student pairing. It was decided to allow students to write, instead of repeat aloud, the list of words. This change to the original administration of the test was validated by a task that Baddeley (1999) claims demonstrates the findings of the 1975 study, that is, that longer words are more difficult to recall than shorter words. In this task, Baddeley has subjects give answers in written, rather than oral, form.

It was decided, however, to see if it could be demonstrated that having students write instead of repeat orally the list of words would not result in a significantly different performance. The two different test administrations of the same test (i.e., written and oral) were thus trialled on a group of University students of French ($n$ = 22). The written test was trialled first. Students were initially shown a list of eight words so as to familiarise themselves with all the words used (c.f., 1975 study). They were then presented with lists of five five-syllable words, each of which they had 7.5 seconds to view (c.f., 1975 study) and a further 20 seconds to write down in order. There were six lists in all. A tape recorder was used to present the instructions and regulate the timing of the test. The words were the same five-syllable words used in the original study (1975), that is, "association, opportunity, representative, organization, considerable, immediately, university, individual." The students were then given the test again on an individual basis during the following four days. This time they were asked to repeat the words orally instead of writing them down. Several scoring methods were trialled:

- 1) 1 mark for each correctly remembered word (irrespective of sequence) (Score = /30)
- 2) 1 mark for each correct word and 1 mark for each word correctly placed (Score = /60)
- 3) 1 mark for each correct sequence (Score = /6)

The third option was preferred because it replicated the original study but had to be rejected because the low number of items would compromise reliability. Reliability was estimated based on test-retest administration and correlations were calculated for the written and oral versions of the test for each of these three scoring methods. Results were as follows:

1) $r = .671, p = .001$

2) $r = .463, p = .030$

3) $r = .393, p = .070$

It was decided to use the first scoring option because it gave the highest reliability rating but also because it corresponded to the scoring that Baddeley (1999) uses in the task that he claims demonstrates the findings of the 1975 study (mentioned above). It was also decided that students should not be required to replicate the list in the right order and that they would be given the opportunity to familiarise themselves with the words prior to the test (again both of these modifications to the test correspond to Baddeley, 1999).

This written, rather than oral, form of the test, and scoring method were subsequently trialled on another group of students (University students of French, $n = 36$) and reliability was established using, this time, the internal consistency approach, $\alpha = .7771$ ($M = 24.64$, $SD = 4.07$).

Reliability, based on an internal consistency approach and using Cronbach's alpha, was estimated on the population involved in the testing ($n = 59$), $\alpha = .7059$ ($M = 19.94$, $SD = 4.50$).

The second memory test was designed to test the storage of information. It was based on what Baddeley (1966) identified and named as the acoustic or phonological similarity effect, in a study that demonstrated that sequences of items having similar speech sounds are particularly hard to remember in the appropriate order. The test was designed to be a replication of this 1966 study. Students were presented with sequences of five words randomly drawn from a set of eight acoustically similar words (i.e., “mad, man, mat, map, cad, can, cat, cap”). Words were presented by tape recorder, at the rate of one word per second, and students were allowed 20 seconds to write down the words they heard in the order they heard them. To maximise response availability, the set of eight words was available throughout the testing session, although, in total, three versions of this set of words were presented to students, to minimise the possibility of their familiarising themselves with any one list and developping strategies to aid memory recall.

Before beginning the test, students were asked to write down the eight words as a check that they were hearing the words correctly. The results of students who did not score perfectly on this listening test were eliminated from the study. Three students had to be omitted from this test because they failed the listening component.

The performance of students on this test could not be scored in terms of the percentage of correct sequences, as in the original study, because of the small number of sequences used in the test (seven instead of 12 in the original study). An initial system of scoring was trialled where students were given one mark for each correct sequence of initial consonants and 1 mark for each correct sequence of final consonants (i.e., two marks per sequence, a total of 14 marks for the test). It was felt that this scoring was problematic in cases where the students omitted words in a given sequence as they would then have no score for that sequence. A second system of scoring was trialled where words were given scores only if they were correctly placed in sequence with other words, that is, two correctly sequenced words scored two, three scored three etc.

(i.e., five marks per sequence, a total of 35 marks for the test). A third system of scoring was also trialled where each correct word scored only if it was correctly placed in the sequence, that is, a word occurring in third place in a given sequence had to be in that position to score one mark (i.e., five marks per sequence, a total of 35 marks for the test).

This test was trialled on the same group of students as described above (University students of French, $n$ = 36). The results of one student had to be withdrawn because s/he failed the listening component of the test ($n$ = 35). Reliability was calculated based on test-retest administration. Results were as follows:

*1)* $r = .588, p < .001$

*2)* $r = .604, p < .001$

*3)* $r = .721, p < .001$

It was decided to adopt the third scoring method because it gave the highest reliability rating. This scoring method was subsequently trialled on a group of students (University students of French, $n$ = 24) to establish reliability using, this time, the internal consistency approach: $\alpha = .8044$, ($M$ = 19.88, $SD$ = 5.91).

Reliability using Cronbach's alpha, was estimated on the population involved in the testing ($n$ = 56), $\alpha = .6075$ ($M$ = 17.8571, $SD$ = 4.35).

# CHAPTER SIX

# DEDUCTIVE VS. INDUCTIVE INSTRUCTION

## 6.1 Overview

The research question that this chapter addresses is:

> RQ 1. What are the relative effects of deductive and inductive instruction on the acquisition of direct object pronouns in L2 French?

The chapter will begin with providing data about the instructional process, available from the audio-tapes of treatment sessions. The results of statistical analyses of test data will then be presented, followed by a discussion of these results as they relate, in particular, to the research question.

## 6.2 The instructional process

Details of the instruction that students in the Deductive and Inductive groups received have been given in Sections 5.4.4.1 through to 5.4.4.6. The treatment sessions were audio-taped and then transcribed so as to provide additional information about the instructional process.

The researcher intended that the Inductive group receive substantially less explicit positive knowledge in the form of metalinguistic information (Zobl, 1995) than students in the Deductive group (see 5.4.4.1). The transcriptions of instructional treatments allowed for documentation of the frequency of use of metalinguistic terms in each group (see Table 13) and thus confirmed that this was, indeed, the case. It is important to note that, for the Deductive group, the grammar overview given on the second day of teaching was not recorded (the researcher omitted to turn on the tape recorder at the beginning of the lesson). It is to be expected, then, that the figures given for this group are lower than they should be.

Table 13: Number of Occurrences of Specific Metalinguistic Terms during Instructional Treatment Sessions.

| | Direct object | Pronoun | Gender | Masculine | Feminine | Plural | Singular | Total |
|---|---|---|---|---|---|---|---|---|
| Deductive group | 17 | 42 | 2 | 6 | 9 | 4 | 2 | 82 |
| Inductive group | 0 | 6 | 0 | 5 | 2 | 1 | 1 | 15 |

Whereas it was intended that students in the Deductive group receive explicit rule explanation, students in the Inductive group, on the other hand, were to have their attention drawn to language forms without receiving explicit rule instruction. For each group, the references made to direct object pronoun placement were compared (these are documented in Appendix D). The rule governing placement of direct object pronouns was unintentionally mentioned to students in the Inductive group on one occasion but not referred to subsequently. For students in the Deductive group, however, there was explicit reference to the rule governing placement of direct object pronouns during both grammar overview sessions and student completion of activities.

The model of teaching used for the Inductive instruction group was one which led students to take an active role in hypothesis testing (see 5.2.1). During consciousness raising activities (see 5.4.4.4) as well as during group feedback and correction sessions, students in this group were consistently encouraged to think about why a particular pronoun form or placement of a pronoun form was correct or incorrect. An analysis of the transcribed instructional treatment sessions shows that there were at least 35 questions asking students to explain why a particular answer was target or non-target, during whole group teaching sessions. Where a given statement was identified as incorrect, students were encouraged to explain the reason why it was non-target (student answers tended to focus on meaning). An example of one of these occasions where students were encouraged to correct and explain errors is given below. Translations are given, where needed, between parentheses.

Researcher: (putting up picture of woman eating chocolates on the overhead)

O.K – *une femme* and she's eating the *chocolats*. *Elle* **la** *mange*.

*(O.K – a woman and she's eating the chocolates. She is eating* ***it****)*

Student: No

Researcher: No. What should it be?

Student: *Les*.

*(Them)*

Researcher: It should be *elle* **les** *mange* – why?

*(It should be she is eating* ***them*** *– why?)*

Student: Because there's more than one.

Researcher: O.K. Next one.

Students in the Deductive/production-based group did not work at these consciousness-raising activities (described more fully in Section 5.4.4.4) but they were given corrections or corrective feedback at the end of each activity. During these feedback sessions their attention was drawn to rules governing the use of pronouns or to the chart of pronoun forms. They therefore received direct consciousness raising in the form of grammar explanations.

6.3 Results

One way ANOVAs performed on pretest scores revealed no significant differences between the groups before treatment (see below). These results support the conclusion that any differences among groups on posttests cannot be attributed to prior knowledge of the structure.

A three way mixed model factorial ANOVA conducted on the raw scores of all tests (except those of the oral production tests scored for pronoun form and placement where there was zero variance on scores) revealed a significant interaction between test, time and group, $F(20,620) = 1.987$, $p = .007$. Further ANOVAs (see below) were conducted for each of the individual tests. An alpha level of .05 was set as the decision level for all statistical tests.

Descriptive statistics for the comprehension tests are reported in Table 14. Effect sizes, calculated using Cohen's *d*-index, are also reported. These show the standardized mean difference between each experimental group and the Control group in standard deviation units. Unlike tests of statistical significance, the interpretation of effect sizes is not contingent on differences in sample sizes (Norris and Ortega, 2000).

Table 14: Descriptive Statistics and Effect Sizes for Comprehension Tests.

| Test | Deductive group | | | | Inductive group | | | | Control group | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Listening** | *M* | *SD* | *n* | *d* | *M* | *SD* | *n* | *d* | *M* | *SD* | *n* |
| (Max = /10) | | | | | | | | | | | |
| pretest | 2.86 | 1.88 | 21 | -0.12 | 2.64 | 1.00 | 22 | -0.32 | 3.08 | 1.72 | 26 |
| posttest 1 | 4.76 | 2.19 | 21 | 1.11 | 3.14 | 1.78 | 22 | 0.15 | 2.92 | 1.23 | 26 |
| posttest 2 | 3.67 | 1.83 | 21 | 0.58 | 3.09 | 1.54 | 22 | 0.24 | 2.73 | 1.48 | 26 |
| **Reading** | | | | | | | | | | | |
| (Max = /8) | | | | | | | | | | | |
| pretest | 3.43 | 1.54 | 21 | -0.10 | 3.45 | 1.74 | 22 | -0.08 | 3.58 | 1.45 | 26 |
| posttest 1 | 4.19 | 1.81 | 21 | 0.67 | 3.14 | 1.39 | 22 | 0.04 | 3.08 | 1.57 | 26 |
| posttest 2 | 3.76 | 1.64 | 21 | 0.13 | 3.05 | 3.58 | 22 | -0.76 | 3.58 | 1.21 | 26 |

Results of a mixed model ANOVA conducted on the raw scores of the listening comprehension test are reported in Table 15. One way ANOVAs were used to test for the simple effects of group. Results revealed no significant differences between the groups on either the pretest or the delayed posttest, $F(2,68) = .462$, $p = .632$; $F(2,68) = 1.967$, $p = .148$. There was, however, a significant difference between group scores on the posttest, $F(2,68) = 7.387$, $p = .001$. Post hoc analysis[8] found that the Deductive group performed significantly better than both the Inductive and the Control groups on the posttest. One way repeated measures ANOVAs were conducted to investigate the simple effects of time. There was a significant result for the Deductive group, $F(2,40) = 5.660$, $p = .007$. Post hoc analysis revealed a significant difference between performance on the posttest and both the pretest and delayed posttests for this group.

[8] All post hoc testing was done using Fisher's LSD test. There was no concern over an escalated familywise Type 1 error rate because of a significant Anova and because there were only 3 groups (Howell 1999, p.321).

There was no significant effect for time, however, for the Inductive and Control groups, $F(2,42) = .635$, $p = .535$; $F(2,50) = .356$, $p = .702$.

Table 15: Analysis of Variance for Listening Comprehension tests.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 19.478 | 9.739 | 3.604* | .030 |
| Time x group | 4 | 27.009 | 6.752 | 2.499* | .046 |
| Error (Time) | 132 | 356.691 | 2.702 | | |
| Between Subjects | | | | | |
| Group | 2 | 30.360 | 15.180 | 5.546* | .006 |
| Error (Group) | 66 | 180.664 | 2.737 | | |

* $p < .05$.

ANOVA results of the reading comprehension tests are presented in Table 16. A mixed model ANOVA revealed no significant interaction between time and group, nor was there a significant main effect for time and group.

Table 16: Analysis of Variance for Reading Comprehension tests.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 0.024 | 0.012 | .007 | .993 |
| Time x Group | 4 | 12.375 | 3.094 | 1.739 | .145 |
| Error (Time) | 132 | 234.843 | 1.779 | | |
| Between Subjects | | | | | |
| Group | 2 | 11.259 | 5.629 | 1.745 | .183 |
| Error (Group) | 66 | 212.886 | 3.226 | | |

Descriptive statistics for the written and oral production tests are presented in Table 17.

Table 17: Descriptive Statistics and Effect Sizes for Production Tests.

| Test | Deductive group | | | | Inductive group | | | | Control group | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Written** | *M* | *SD* | *n* | *d* | *M* | *SD* | *n* | *d* | *M* | *SD* | *n* |
| pronoun frequency (Max = /10) | | | | | | | | | | | |
| pretest | 2.48 | 2.66 | 21 | 0.46 | 1.95 | 2.03 | 22 | 0.27 | 1.38 | 2.21 | 26 |
| posttest 1 | 7.00 | 2.41 | 21 | 1.46 | 3.45 | 3.11 | 22 | 0.00 | 3.46 | 2.44 | 26 |
| posttest 2 | 6.52 | 3.46 | 21 | 0.85 | 3.22 | 2.64 | 22 | -0.23 | 3.85 | 2.87 | 26 |
| pronoun form (Max = /10) | | | | | | | | | | | |
| pretest | 0.14 | 0.48 | 21 | 0.05 | 0.14 | 0.47 | 22 | 0.05 | 0.12 | 0.33 | 26 |
| posttest 1 | 4.57 | 2.46 | 21 | 2.77 | 1.23 | 2.20 | 22 | 0.66 | 0.27 | 0.83 | 26 |
| posttest 2 | 2.95 | 2.91 | 21 | 1.49 | 1.23 | 1.90 | 22 | 0.67 | 0.35 | 0.75 | 26 |
| pronoun placement (Max = /10) | | | | | | | | | | | |
| pretest | 0.14 | 0.36 | 21 | 0.37 | 0.18 | 0.39 | 22 | 0.48 | 0.04 | 0.20 | 26 |
| posttest 1 | 4.24 | 2.93 | 21 | 2.42 | 0.59 | 1.59 | 22 | 0.23 | 0.35 | 0.56 | 26 |
| posttest 2 | 2.19 | 2.96 | 21 | 1.23 | 0.36 | 0.58 | 22 | 0.24 | 0.23 | 0.51 | 26 |
| **Oral** | | | | | | | | | | | |
| pronoun frequency (No limit) | | | | | | | | | | | |
| pretest | 0.67 | 1.83 | 21 | 0.30 | 0.19 | 0.68 | 21º | -0.09 | 0.26 | 0.92 | 23º |
| posttest 1 | 1.57 | 2.77 | 21 | 0.88 | 0.86 | 1.77 | 21º | 0.63 | 0.13 | 0.63 | 23º |
| posttest 2 | 1.57 | 2.04 | 21 | 0.22 | 0.57 | 1.66 | 21º | -0.26 | 1.09 | 2.35 | 23º |
| pronoun form (percentage) | | | | | | | | | | | |
| pretest | 0.00 | 0.00 | 21 | 0.00 | 0.00 | 0.00 | 21º | 0.00 | 0.00 | 0.00 | 23º |
| posttest 1 | 18.86 | 34.78 | 21 | 1.14 | 11.91 | 31.24 | 21º | 0.80 | 0.00 | 0.00 | 23º |
| posttest 2 | 15.48 | 33.98 | 21 | 0.96 | 7.14 | 23.91 | 21º | 0.63 | 0.00 | 0.00 | 23º |
| pronoun placement (percentage) | | | | | | | | | | | |
| pretest | 0.00 | 0.00 | 21 | 0.00 | 0.00 | 0.00 | 21º | 0.00 | 0.00 | 0.00 | 23º |
| posttest 1 | 28.57 | 43.51 | 21 | 1.38 | 6.19 | 20.12 | 21º | 0.65 | 0.00 | 0.00 | 23º |
| posttest 2 | 21.43 | 40.53 | 21 | 1.11 | 0.00 | 0.00 | 21º | 0.00 | 0.00 | 0.00 | 23º |

ºSome students had to be deleted from the oral pretesting because they were not recorded due to technical error.

ANOVA results of the written production test scored for pronoun frequency are presented in Table 18. Results of a one way ANOVA revealed no significant differences between the groups on the pretest, $F(2,68) = 1.313$, $p = .276$, but significant between-group differences on both the posttest and the delayed posttests, $F(2,68) = 12.923$, $p = .000$; $F(2,68) = 7.415$, $p = .001$. Post hoc analysis found that the Deductive group performed significantly better than both the Inductive and Control groups on these tests. One way repeated measures ANOVAs conducted to investigate the simple effects of time found significant results for all three groups, $F(2,40) = 24.897$, $p = .000$; $F(2,42) = 4.796$, $p = .013$; $F(2,50) = 14.413$, $p = .000$, and post hoc analysis revealed a significant improvement between performance on the pretest and both the posttest and the delayed posttests for all groups.

Table 18: Analysis of Variance for Written production Tests Scored for Pronoun Frequency.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 320.019 | 160.010 | 42.882** | .000 |
| Time x group | 4 | 67.973 | 16.993 | 4.554** | .002 |
| Error (Time) | 132 | 492.539 | 3.731 | | |
| Between Subjects | | | | | |
| Group | 2 | 261.887 | 2814.965 | 9.433** | .000 |
| Error (Group) | 66 | 916.210 | 13.882 | | |

** $p < .01$.

ANOVA results of the written production test scored for pronoun form are presented in Table 19. One way ANOVAs revealed no significant differences between the groups on the pretest, $F(2,68) = .028$, $p = .973$, but significant between-group differences on both the posttest and the delayed posttests, $F(2,68) = 31.465$, $p = .000$; $F(2,68) = 10.219$, $p = .000$. Post hoc analysis found that the Deductive group performed significantly better than both the Inductive and Control groups on these tests. One way repeated measures ANOVAs conducted to investigate the simple effects of time found significant results for both the Deductive and Inductive groups, $F(2,40) = 29.200$, $p = .000$; $F(2,42) = 3.356$, $p = .044$, but not for the Control group, $F(2,50) = .964$, $p = .388$. Post hoc analysis revealed a significant improvement between performance on the pretest and both the posttest and the delayed posttests for the Deductive and Inductive groups.

Table 19: Analysis of Variance for Written Production Tests Scored for Pronoun Form.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 130.844 | 65.422 | 31.717** | .000 |
| Time x Group | 4 | 115.119 | 28.780 | 13.953** | .000 |
| Error (Time) | 132 | 272.272 | 2.063 | | |
| Between Subjects | | | | | |
| Group | 2 | 193.952 | 96.976 | 26.851** | .000 |
| Error (Group) | 66 | 238.367 | 3.612 | | |

** $p < .01$.

Table 20 shows ANOVA results for the written production tests scored for pronoun placement. One way ANOVAs revealed no significant differences between the groups on the pretest, $F(2,68) = 1.294$, $p = .281$, but significant between group differences on both the posttest and the delayed posttests, $F(2,68) = 29.659$, $p = .000$; $F(2,68) = 9.236$, $p = .000$. Post hoc analysis found a significant difference between the Deductive group and both the Inductive and Control groups on these tests. One way repeated measures ANOVAs conducted to investigate the simple effects of time found significant results for the Deductive group, $F(2,40) = 21.228$, $p = .000$, with post hoc analysis revealing a significant difference in performance over all testing episodes. There was no significant effect for the Inductive group, $F(2,42) = .893$, $p = .417$. Results for the Control group approached statistical significance, $F(2,50) = 3.117$, $p = .053$.

Table 20: Analysis of Variance for Written Production Tests Scored for Pronoun Placement.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 88.022 | 44.011 | 26.471** | .000 |
| Time x Group | 4 | 102.321 | 25.580 | 15.385** | .000 |
| Error (Time) | 132 | 219.467 | 1.663 | | |
| Between Subjects | | | | | |
| Group | 2 | 160.250 | 80.125 | 25.267** | .000 |
| Error (Group) | 66 | 209.296 | 3.171 | | |

** $p < .01$.

The oral production tests were also scored to give information about increase in pronoun use (which, for the purposes of this study, is termed pronoun frequency). Results are presented in Table 21. One way repeated measures ANOVAs conducted to investigate the simple effects of time found no significant effect for the Deductive group, $F(2,40) = 1.536$, $p = .228$, or for the Inductive group, $F(2,40) = 1.248$, $p = .298$. The result for the Control group approached statistical significance, $F(2,44) = 3.131$, $p = .054$.

The oral production test was administered in different versions (see 5.4.5.4). The performance of all participants on version A of these tests over all testing episodes resulted in higher means and standard deviations, Version A, $M = 1.2841$, $SD = 2.16$, $n = 88$; Version B, $M = .3605$, $SD = 1.48$, $n = 86$; Version C, $M = .6591$, $SD = 1.47$, $n = 88$. The difference in performance on version A may have lead to artificially high standard deviations for each treatment and hence an artificial lack of significance of the difference for the results between the treatments. One way ANOVAs were therefore conducted to see if there was any difference between the performance of the Deductive, Inductive and Control groups on the oral production tests scored for pronoun frequency when the scores for students who sat version A were omitted. There was no significant difference on the posttest, or the delayed posttests, $F(2,38) = 1.486$, $p = .239$; $F(2,45) = 7.313$, $p = .063$.

Table 21: Analysis of Variance for Oral Production Tests Scored for Pronoun Frequency.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 16.788 | 8.394 | 3.342* | .039 |
| Time x group | 4 | 11.756 | 2.939 | 1.170 | .327 |
| Error (Time) | 124 | 311.414 | 2.512 | | |
| Between Subjects | | | | | |
| Group | 2 | 24.362 | 12.181 | 2.825 | .067 |
| Error (Group) | 62 | 267.310 | 4.311 | | |

* $p < .05$.

ANOVA was not appropriate for making comparisons on the oral test scored for pronoun form since the pretest and Control group scores exhibited zero variance. Independent samples *t* tests were conducted to compare the performance of the Deductive and Inductive groups on both the posttest and the delayed posttest. There were no significant differences between these two groups on these two tests, $t(40) = .681$, $p = .499$; $t(40) = .919$, $p = .364$.

A *t* test was conducted to compare the scores of the Deductive group and the Inductive group on the immediate oral production posttest scored for pronoun placement.

(Comparisons of these two groups on the delayed posttest was not possible because of zero variance.) A significant result was obtained, $t(40) = 2.140$, $p = .039$.

### 6.3.1 Summary of results

Table 22 presents a summary of significant differences between each experimental group and the Control group and of significant differences between the two experimental groups. For each significant between-group difference, the group that performed better is given in parentheses.

Table 22: Summary of Significant Between-group Differences.

| Test | Ded. vs. Control | Ind. vs. Control | Ded. vs. Ind. |
|---|---|---|---|
| Listening comprehension posttest 1 | * (Ded.) | | * (Ded.) |
| Listening comprehension posttest 2 | | | |
| Reading comprehension posttest 1 | | | |
| Reading comprehension posttest 2 | | | |
| Written production scored pronoun frequency posttest 1 | * (Ded.) | | * (Ded.) |
| Written production scored pronoun frequency posttest 2 | * (Ded.) | | * (Ded.) |
| Written production scored pronoun form posttest 1 | * (Ded.) | | * (Ded.) |
| Written production scored pronoun form posttest 2 | * (Ded.) | | * (Ded.) |
| Written production scored pronoun placement posttest 1 | * (Ded.) | | * (Ded.) |
| Written production scored pronoun placement posttest 2 | * (Ded.) | | * (Ded.) |
| Oral production scored pronoun frequency posttest 1 | | | |
| Oral production scored pronoun frequency posttest 2 | | | |
| Oral production scored pronoun form posttest 1 | | | |
| Oral production scored pronoun form posttest 2 | | | |
| Oral production scored pronoun placement posttest 1 | | | *(Ded.) |
| Oral production scored pronoun placement posttest 2 | | | |

*Note.* Ded. = Deductive instruction group; Ind. = Inductive instruction group.

There were significant differences between the Deductive group and both the Inductive and Control groups on the listening comprehension immediate posttest; these were not sustained on delayed posttesting. There were no significant between-group differences on the reading comprehension tests.

On the written production tests the Deductive group performed significantly better than both the Inductive and the Control groups, under all scoring conditions. The oral production tests provided relatively little data for analysis (see Table 17). ANOVA results found little difference between the three groups under scoring for pronoun frequency; there were greater effect sizes for the Deductive group under scoring for both pronoun form and placement and a statistically significant advantage for the Deductive instruction group, on the immediate posttest scored for accuracy of pronoun placement only. No student in the Control group used a correct pronoun form or placed a pronoun form correctly on any of the administrations of the oral production tests and students in the Inductive group correctly placed pronoun forms on the oral posttest only.

Table 23 presents a summary results of the ANOVAs conducted to investigate within-group differences over the three testing episodes. The oral production tests scored for accuracy of pronoun form and pronoun placement are not included because, as has already been discussed, ANOVA was not used to make comparisons on these tests. The first two columns of the table show which groups made significant gains between the two testing episodes indicated. For all groups listed in the third column there was a significant deterioration between scores from the immediate to delayed posttests.

Table 23: Summary of Within-group Differences over Time.

| Test | Pretest – posttest 1 | Pretest – posttest 2 | Posttest 1 – Posttest 2 |
|---|---|---|---|
| Listening comprehension | Deductive | | Deductive |
| Reading comprehension | | | |
| Written production scored pronoun frequency | Ded./Ind./ Control | Ded./Ind./ Control | |
| Written production scored pronoun form | Ded./Ind. | Ded./Ind. | |
| Written production scored pronoun placement | Deductive | Deductive | Deductive |
| Oral production scored pronoun frequency | | | |

*Note*. Ded. = Deductive instruction group; Ind. = Inductive instruction group.

On the comprehension tests, the two treatment groups made no significant gains that were sustained over time. An initial statistically significant advantage for the Deductive group on the listening comprehension posttest was not maintained on delayed posttesting.

On the written production tests, the Deductive group made significant gains from pretest to posttests, under all scoring conditions. The Inductive group made statistically significant gains from pretest to posttests under scoring for pronoun form and frequency and the Control group under scoring for pronoun frequency only.

## 6.4 Discussion

### 6.4.1 Overall comparison of performance of Deductive and Inductive groups with the Control group

Effect sizes show that students in the Deductive group consistently made greater gains than those in the Control group, but that this was not the case for students in the Inductive group. Fourteen out of the sixteen effect sizes calculated for the Deductive group on posttest scores are, according to Cohen (1988), either medium (.50 < $d$ < .80) or large ($d$ > .80). There were smaller than medium effect sizes for this group on only two tests: the reading comprehension delayed posttest ($d$ = 0.13) and the oral production delayed posttest scored for pronoun frequency ($d$ = 0.22). In contrast, only six out of the sixteen effect sizes calculated for the Inductive group on posttest scores were medium. Other effect sizes were small (or less than small, i.e., $d$ < 0.20) and in three cases (reading comprehension delayed posttest, written and oral production delayed posttests scored for pronoun frequency) the Inductive group made gains that were smaller than those made by the Control group. Furthermore, post hoc analysis of ANOVA results did not show a statistically significant difference between the performance of the Inductive and the Control groups on any test, while post hoc analysis of ANOVA results for seven out of the twelve posttests submitted to ANOVA showed a statistically significant difference between performance of the Deductive and both the Inductive and Control groups.

The Control group, in completing all language tests, received some “enriched input”. This served to highlight their awareness of the target form. Students in this group had, it appears, increasingly become aware, through their exposure to the structure in testing sessions, that a direct object noun could be replaced by a pronoun form. (In the majority of cases, students were using a subject pronoun instead of a direct object pronoun.) On the written and oral production delayed posttests, students in this group attempted more pronoun forms than students in the Inductive group. On the written production test scored for attempted use of pronoun forms, they also made significant gains from pretesting to posttesting sessions. In other respects, however, they showed little evidence of learning. On the oral production tasks, no student produced a correct pronoun form or correctly placed an attempted pronoun form.

### 6.4.2 Effects of deductive and inductive instruction on comprehension of the target structure

Hulstijn and de Graaff (1994) point out that research on the effectiveness of explicit instruction has tended to focus on its impact on speaking and writing and almost never on its impact on reading and listening. Pointing to evidence that L2 learners keep making errors in spontaneous speech long after the grammar rule in question has been presented and practised in written exercises, they suggest that explicit instruction may have a considerable effect on language comprehension and a limited effect on language production.

The results of this study show that there were greater gains for students in the Deductive group than for those in the Inductive group on comprehension tasks. The effect sizes for the Deductive group on the listening comprehension tests were large ($d$ = 1.11) and medium ( $d$ = 0.58) while those for the Inductive group were either small or less than small ( $d$ = 0.15; $d$ = 0.24). Results of the ANOVA also indicated that the Deductive group performed significantly better than both the Inductive and Control groups on the posttest but not on the delayed posttest. The fact that the effect of deductive instruction was not evident on the delayed posttest may perhaps be explained by the nature of the test. Students needed to choose grammatically correct descriptions to match pictures (see 5.4.5.1). They thus needed to focus both on meaning and on grammatical form. Standard deviations on the immediate posttest showed variance that was significantly greater than that of the Control group on this test (see 6.4.5), suggesting that this gain was evidence of learning or explicit knowledge. This knowledge was susceptible to loss over time (see 6.4.6, 6.5), hence the poorer performance on delayed posttesting. The low reliability estimate for this test means that these results must, however, be treated with caution.

Gains for the Deductive group on the Reading comprehension test were medium ($d$ = 0.67) and less than small ( $d$ = 0.13). The Inductive group actually scored below the Control group on the delayed posttest.

Results from this study support the hypothesis that explicit instruction may affect language comprehension positively. It is also interesting to note that the more explicit form of instruction (i.e., deductive) had a greater effect than the less explicit (i.e., inductive). However, as will be demonstrated below, results do not indicate that explicit instruction has a greater effect on comprehension than on language production.

6.4.3. Effects of deductive and inductive instruction on production of the target structure

Results on production tasks also show a greater effect for deductive than for inductive instruction. For all but one of the written and oral production tasks, there was a large effect size for the Deductive group (the oral production delayed posttest scored for pronoun frequency was the exception, $d = .22$). In contrast, effect sizes for the Inductive group were either medium ( $.50 < d < .80$), small ($.20 < d < .50$), or less than .20. (The one exception was the oral production posttest scored for pronoun form, $d = .80$). Furthermore, ANOVA results and post hoc analysis showed a significant advantage for the Deductive group over both the Inductive and Control groups on written production posttests, under all scoring conditions. *T* test results showed that the Deductive group also performed significantly better than the Inductive group on the oral production posttest scored for pronoun placement. It is important to note, however, in considering the performance of these two groups on measures of production, that the oral production tests provided relatively little data. Students in the Deductive group produced on average only l.5 pronoun forms on the posttests, while students in the Inductive and Control groups produced even fewer pronoun forms (see Table 17). This was no doubt due to the fact that the test required unplanned and open-ended language use.

6.4.4 Effects of deductive and inductive instruction on learning of morphological and syntactical language features

Hulstijn and de Graaff (1994) suggest that there may be a greater effect for explicit instruction for language features that are syntactical than for language features that are morphological. If this hypothesis were correct, one would expect a greater effect for a method of instruction that was more explicit (i.e., deductive) rather than less explicit (i.e., inductive) on measures of learning of syntactical language features. In this study, production tests were scored to give information about learning of pronoun forms and about learning of placement of pronoun forms.

The results do not provide evidence of a clearly differentiated effect for syntactical and morphological language features for the Deductive group. Effect sizes on the written production tests scored for pronoun form ($d$ = 2.77, $d$ = 1.49) were similar to those on the same tests scored for pronoun placement ($d$ = 2.42, $d$ = 1.23) as were those on the oral production tests scored for pronoun form ($d$ = 1.14, $d$ = 0.96) and for pronoun placement ($d$ = 1.38, $d$ = 1.11). Furthermore, post hoc analysis of ANOVA results for the written production tests scored for pronoun form and placement show significant improvement over time for this group under both scoring conditions.

The Inductive group performed better, however, on measures of language production that assessed the morphological rather than the syntactical features of the target structure. There were medium effect sizes for this group on both written and oral production posttests scored for pronoun form. In contrast, effect sizes for the written production posttests scored for pronoun placement were small ($d$ = 0.23, $d$ = 0.24) and an initially medium effect size on the oral production posttest scored for pronoun placement ($d$ = 0.65) was not sustained on delayed posttesting ($d$ = 0.00). Additional evidence of greater gains for this group on measures of morphological learning are shown by ANOVA results. There were significant gains from pretest to posttests on the written production test scored for pronoun form but not for pronoun placement.

The greater gains for the Inductive group on tests scored for pronoun form suggest that this type of instruction is more likely to facilitate the learning of morphological rather than syntactical aspects of language. These results are perhaps more interesting when considered in the light of R. Ellis's recent review (2002a) of eleven studies that examined the effect of form-focused instruction on learners' free production. Ellis concluded that form-focused instruction would seem to have a better chance of success if it is directed at simple morphological features rather than at more complex syntactical features involving permutations of word order.

Results lend some support to Hultstijn and de Graaff's hypothesis that there may be a greater effect for explicit rule-based instruction on the learning of syntactical than morphological structures. It is interesting to note that placement was not salient enough in the input to be discovered by L2 learners in the Control group without the help of explicit rule-based instruction.

### 6.4.5 Variability in scores

An investigation of the standard deviations across testing episodes suggests increasing variability in individual performance within the Deductive group, especially on the posttests. It was decided to test the scores for variability to see if there was an effect for group. Zobl (1995) has suggested that in classroom experiments that test for the benefits of metalinguistic information, groups receiving communicative input should be more homogeneous in their gain or post treatment scores while groups receiving metalinguistic input should display greater variability. Zobl quotes VanPatten (1988) who suggests that the greater variability of groups who receive metalinguistic input may be explained by the fact that "learning" is encouraged by explicit positive and/or negative evidence and that the scores of groups that receive communicative input are more similar because input is engaging the "acquired" system.

Standard deviations were greater for the Deductive group than for either the Inductive group or the Control group on all posttests (excepting the written production posttest scored for pronoun frequency). Levene's test of homogeneity of variance found that the difference between the variances of the Deductive group and the Inductive/Control groups was significant on a number of posttests (The oral production test scored for pronoun placement was excluded because Inductive and Control group scores exhibited zero variance). Results are presented in Table 24 below.

Table 24: Significant Differences between Variances of Deductive and Inductive/Control groups on Levene's Test of Homogeneity of Variance.

| Test | Inductive | | Control | |
|---|---|---|---|---|
| | Levene statistic | *p* | Levene statistic | *p* |
| Listening comprehension posttest 1 | 1.512 | .226 | 8.222* | .006 |
| Listening comprehension posttest 2 | 0.679 | .415 | 0.164 | .688 |
| Reading comprehension posttest 1 | 4.898* | .033 | 2.170 | .148 |
| Reading comprehension posttest 2 | 6.029* | .018 | 3.171 | .082 |
| Written production scored pronoun frequency 1 | 2.524 | .120 | 0.188 | .666 |
| Written production scored pronoun frequency 2 | 2.019 | .163 | 1.021 | .318 |
| Written production scored pronoun form post. 1 | 1.875 | .178 | 35.753** | .000 |
| Written production scored pronoun form post. 2 | 10.827* | .002 | 71.717** | .000 |
| Written production scored pronoun placement 1 | 16.599** | .000 | 62.167** | .000 |
| Written production scored pronoun placement 2 | 41.651** | .000 | 53.975** | .000 |
| Oral production scored pronoun frequency post. 1 | 3.616 | .064 | 23.815** | .000 |
| Oral production scored pronoun frequency post. 2 | 4.726* | .036 | 0.013 | .000 |
| Oral production scored pronoun form posttest 1 | 1.001 | .323 | n/a | |
| Oral production scored pronoun form postest 2 | 3.467 | .070 | n/a | |
| Oral production scored pronoun placement 1 | 23.656** | .000 | n/a | |

* $p < .05$; ** $p < .01$; n/a = there was zero variance for this group on these tests.

These results do provide some support for Zobl's suggestion that there is more variability among learners who receive a greater level of metalinguistic input than those who receive less.

The fact that there was a significant difference between variances of the Deductive and Inductive groups on the production tests scored for pronoun placement but that there was no significant difference between variances on these tests when scored for pronoun form (the written production delayed post-test is an exception), provides some additional evidence in support of Hulstijn and de Graaff's hypothesis (1994) that explicit rule-based instruction may have a greater effect on the learning of syntactical than morphological language features (see Section 6.4.4 above).

### 6.4.6 Maintenance of gains over testing episodes

While the Deductive group made the greatest gains, this group also showed the greatest decrease in effect sizes over time. There were decreases in effect sizes from posttesting to delayed posttesting on all tests. In contrast, the Inductive group maintained some gains over time (i.e., on the listening comprehension test and the written production tests scored for pronoun form and placement) although there was a decrease in effect sizes over the two testing episodes for other tests. The Control group actually showed an increase in mean scores on some tests (i.e., the written and oral production tests scored for pronoun frequency and the written production test scored for pronoun form).

The decrease in effect sizes over time for the Deductive group may be taken as evidence that this group had gained explicit rather than implicit language knowledge from the instruction they had received. It is to be expected that explicit knowledge, which is the result of deliberate learning, would atrophy more over time than implicit language knowledge.

## 6.5 Conclusion

The research question that this part of the study addressed asked what the relative effects of deductive and inductive instruction were on the acquisition of direct object pronouns in L2 French. Results show a clear advantage for the Deductive group and can be seen as evidence that deductive instruction that includes explicit positive knowledge in the form of metalinguistic information (Zobl, 1995) and rule explanation is facilitative of learning. Schmidt (1990) argues that pedagogic rule formats may facilitate learning for one of two reasons: either they simply cause learners to notice salient aspects of the structures/examples that the pedagogic rule is explaining; or comprehension of the rule explanation itself, in conjunction with noticing examples, leads to an understanding of the structural regularities on which the rule is based. In contrast, Seliger (1975) claims that in the inductive method there is no guarantee that the appropriate attributes of the language concept will be perceived by the learner or that he/she is inducing a correct concept. Furthermore, there is no proof that what is induced, even if ‘correct’, is of more value than what is provided deductively.

It is important to point out, however, that the advantage for the Deductive group was most evident on those tests, namely the written production tests, that allowed students to focus on form rather than on meaning. Norris and Ortega (2000) suggest there is a close relationship between the observed effectiveness of L2 instruction and the tests/measures utilized. On the comprehension tests, students were required to focus on meaning, although, as has already been discussed (see 6.4.2), the listening comprehension test did require some focus on form. On the oral production task it appeared, as has already been discussed (see 5.4.5.4), that students varied in whether they attended to form as well as meaning. Asking for students’ retrospective reports on these tests would have provided more information about student focus during test completion. However, at the time of the design of the study, this did not seem a necessary feature.

The greater gains for students in the Deductive group on tests that allowed them to focus on form, along with smaller gains on tests that allowed them to focus on meaning only (i.e., reading comprehension test), or on both form and meaning (i.e., listening comprehension test, oral production test), is evidence of explicit rather than implicit learning for students in this group. The significant difference between the variances of this group and the Inductive and Control groups (see 6.4.5), on a number of posttests, is additional evidence that the students in the Deductive group had gained explicit language knowledge from the instruction they had received. As discussed above, the greater decrease in gains over time for the Deductive group (see 6.4.6) is yet another indication of explicit language learning.

A major strength of this study is that it used a school-age rather than an adult population. To some extent, the results obtained contrast with those of the only other study (Shaffer, 1989) that used high-school learners. Shaffer reports a trend in favour of inductive instruction. It is important to consider the extent to which the results of this study may be a factor of the differences between school-age learners and adult learners.

# CHAPTER SEVEN

# STRUCTURED INPUT VS. OUTPUT-BASED INSTRUCTION

## 7.1 Overview

The research question that this chapter addresses is:

> RQ 2. What are the relative effects of structured input instruction and output-based instruction on the acquisition of direct object pronouns in L2 French?

The chapter will begin with a discussion of the classification of the research paradigm of this part of the study, based on a review of the instructional process. It will then present results of statistical analyses of test data. These results will be discussed in relation to the research question.

## 7.2 The instructional process

Details of the instruction that students in the Structured input and Output-based instruction groups were given have been outlined in Section 5.4.4.2 and Sections 5.4.4.1 through to 5.4.4.6. More detailed information about the instruction that students in the Output-based (deductive) instruction group received has also been given in Section 6.2.

### 7.2.1 Structured input instruction and input processing instruction differentiated

The target structure that was chosen for this study has been discussed in Section 5.4.2. This language structure can be considered an example of an untested principle of input processing:

> P.4 Learners first process elements in sentence/utterance final position.
>
> P.4a. Learners process elements in final position before elements in medial position (VanPatten, 2002a).

VanPatten claims that this principle can be used to examine forms in a language to determine to what extent they are acoustically non-salient and then processing instruction activities can be constructed to help students process these forms. It could thus be suggested that direct object pronouns, by virtue of the fact that in French they are placed medially in a sentence (see 5.4.2), lend themselves especially well to processing instruction because an attempt to make these forms more salient is likely to direct attention to them.

The researcher has decided, however, not to situate this research within a processing instruction paradigm, but to frame it as one that contrasts structured input instruction, rather than processing instruction, with output-based instruction for the following reasons:

a) Students in this study were not given explicit information about the natural processing strategy that does not work to their benefit, that is, they were not told that students at initial stages of the learning process tend to process only input in sentence initial/final position and that input in the medial position in a sentence tends to be processed at later stages of the learning process only.

b) While the structured input and consciousness-raising activities that students in the Structured input group received were designed to focus students' attention on direct object pronouns, they were not specifically designed to counteract this input processing strategy by, for example, placing direct object pronouns in sentence initial position. The instruction made the target structure more salient but did not necessarily help learners change their processing strategy.

c) A careful examination of the structured input activities that students in the Structured input group worked on shows that not all of these forced students to process the direct object pronoun, that is, they did not ensure that students were unable to perform the given language task correctly unless they processed the direct object pronoun for meaning. In 30% of cases, students could have relied on a subject pronoun to choose the statement that correctly corresponded to a given picture.

d) VanPatten claims (personal communication, 2002) that while P4 should be taken into account when designing activities for students to work on, it cannot be used as a basis to select structures for processing instruction because it is not misleading in the same way that other input processing principles are (e.g., P3. Learners possess a default strategy that assigns the role of agent [or subject] to the first noun [phrase] they encounter in a sentence/utterance). In the case of P4, students do not wrongly process input, they simply do not process it.

## 7.3 Results

One way ANOVAs performed on pretest scores revealed no significant differences between the groups before treatment (see below). These results support the conclusion that any differences among groups on posttests cannot be attributed to prior knowledge of the structure.

A three way mixed model factorial ANOVA conducted on the raw scores of all tests (except those of the oral production tests scored for pronoun form and placement where there was zero variance on scores) revealed a significant interaction between test, time and group, $F(20,630) = 2.194$, $p = .002$. Further ANOVAs (see below) were conducted for each of the individual tests. An alpha level of .05 was set as the decision level for all statistical tests.

Descriptive statistics for the comprehension tests are reported in Table 25. Effect sizes, calculated using Cohen's *d*-index, are also reported. These show the standardized mean difference between each experimental group and the Control group in standard deviation units (see 6.3).

Table 25: Descriptive Statistics and Effect Sizes for Comprehension Tests.

| Test | Input group | | | | Output group | | | | Control group | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Listening** | *M* | *SD* | *n* | *d* | *M* | *SD* | *n* | *d* | *M* | *SD* | *n* |
| (Max = /10) | | | | | | | | | | | |
| pretest | 2.65 | 1.23 | 23 | -0.29 | 2.86 | 1.88 | 21 | -0.12 | 3.08 | 1.72 | 26 |
| posttest 1 | 3.17 | 1.40 | 23 | 0.19 | 4.76 | 2.19 | 21 | 1.11 | 2.92 | 1.23 | 26 |
| posttest 2 | 3.43 | 2.35 | 23 | 0.37 | 3.67 | 1.83 | 21 | 0.58 | 2.73 | 1.48 | 26 |
| **Reading** | | | | | | | | | | | |
| (Max = /8) | | | | | | | | | | | |
| pretest | 2.74 | 1.60 | 23 | -0.55 | 3.43 | 1.54 | 21 | -0.10 | 3.58 | 1.45 | 26 |
| posttest 1 | 3.83 | 1.37 | 23 | 0.51 | 4.19 | 1.81 | 21 | 0.67 | 3.08 | 1.57 | 26 |
| posttest 2 | 3.74 | 1.76 | 23 | 0.11 | 3.76 | 1.64 | 21 | 0.13 | 3.58 | 1.21 | 26 |

Results of a mixed model ANOVA conducted on the raw scores of the listening comprehension tests are reported in Table 26. One way ANOVAs were used to test for the simple effects of group. Results revealed no significant differences between the groups on either the pretest or the delayed posttest, $F(2,69) = .416$, $p = .661$; $F(2,69) = 1.574$, $p = .215$. There was, however, a significant difference between group scores on the immediate posttest, $F(2,69) = 8.389$, $p = .001$. Post hoc analysis[9] found that the Output group performed significantly better than both the Structured input and the Control groups. One way repeated measures ANOVAs were conducted to investigate the simple effects of time. There was a significant result for the Output group, $F(2,40) = 5.660$, $p = .007$. Post hoc analysis revealed a significant difference between performance on the posttest and both the pretest and delayed posttests for this group. There was no significant effect for time, however, for the Structured input and Control groups, $F(2,44) = 1.043$, $p = .535$; $F(2,50) = .356$, $p = .702$.

Table 26: Analysis of Variance for Listening Comprehension tests.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 19.995 | 9.997 | 3.354* | .038 |
| Time x group | 4 | 30.754 | 7.689 | 2.579* | .040 |
| Error (Time) | 134 | 399.417 | 2.981 | | |
| Between Subjects | | | | | |
| Group | 2 | 27.202 | 13.601 | 4.588* | .014 |
| Error (Group) | 67 | 198.612 | 2.964 | | |

* $p < .05$.

ANOVA results of the reading comprehension tests are presented in Table 27. One way ANOVAs showed no significant differences between the groups on either the pretest or the delayed posttest, $F(2,69) = 2.030$, $p = .139$; $F(2,69) = .105$, $p = .901$. On the posttest ANOVA results approached statistical significance, $F(2,69) = 3.060$, $p = .053$. One way

9 See footnote 8.

repeated measures ANOVAs, conducted to investigate the simple effects of time, found a significant result for the Structured input group, $F(2,44) = 5.493$, $p = .007$. Post hoc analysis found a significant difference between performance on the pretest and both posttests for this group. There was no significant effect for time for the Output-based instruction and Control groups, $F(2,40) = 1.615$, $p = .212$; $F(2,50) = 1.540$, $p = .224$.

Table 27: Analysis of Variance for Reading Comprehension Tests.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 9.256 | 4.628 | 2.906 | .058 |
| Time x group | 4 | 19.205 | 4.801 | 3.014* | .020 |
| Error (Time) | 134 | 213.424 | 1.593 | | |
| Between Subjects | | | | | |
| Group | 2 | 6.121 | 3.060 | .761 | .471 |
| Error (Group) | 67 | 269.479 | 4.022 | | |

* $p < .05$.

Descriptive statistics for the written and oral production tests are presented in Table 28.

Table 28: Descriptive Statistics and Effect Sizes for Production Tests.

| Test | Input group | | | | Output group | | | | Control group | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Written** | *M* | *SD* | *n* | *d* | *M* | *SD* | *n* | *d* | *M* | *SD* | *n* |
| pronoun frequency (Max = /10) | | | | | | | | | | | |
| pretest | 1.83 | 1.40 | 23 | 0.24 | 2.48 | 2.66 | 21 | 0.46 | 1.38 | 2.21 | 26 |
| posttest 1 | 6.65 | 2.50 | 23 | 1.29 | 7.00 | 2.41 | 21 | 1.46 | 3.46 | 2.44 | 26 |
| posttest 2 | 5.09 | 2.98 | 23 | 0.43 | 6.52 | 3.46 | 21 | 0.85 | 3.85 | 2.87 | 26 |
| pronoun form (Max = /10) | | | | | | | | | | | |
| pretest | 0.13 | 0.34 | 23 | 0.03 | 0.14 | 0.48 | 21 | 0.05 | 0.12 | 0.33 | 26 |
| posttest 1 | 3.30 | 2.80 | 23 | 1.73 | 4.57 | 2.46 | 21 | 2.77 | 0.27 | 0.83 | 26 |
| posttest 2 | 2.09 | 2.68 | 23 | 1.05 | 2.95 | 2.91 | 21 | 1.49 | 0.35 | 0.75 | 26 |
| pronoun placement (Max = /10) | | | | | | | | | | | |
| pretest | 0.09 | 0.29 | 23 | 0.21 | 0.14 | 0.36 | 21 | 0.37 | 0.04 | 0.20 | 26 |
| posttest 1 | 1.87 | 2.53 | 23 | 1.03 | 4.24 | 2.93 | 21 | 2.42 | 0.35 | 0.56 | 26 |
| posttest 2 | 1.17 | 2.17 | 23 | 0.73 | 2.19 | 2.96 | 21 | 1.23 | 0.23 | 0.51 | 26 |
| **Oral** | | | | | | | | | | | |
| pronoun frequency (No limit) | | | | | | | | | | | |
| pretest | 0.46 | 1.37 | 22º | 0.18 | 0.67 | 1.83 | 21 | 0.30 | 0.26 | 0.92 | 23º |
| posttest 1 | 1.14 | 2.01 | 22º | 0.75 | 1.57 | 2.77 | 21 | 0.88 | 0.13 | 0.63 | 23º |
| posttest 2 | 0.77 | 1.48 | 22º | -0.17 | 1.57 | 2.04 | 21 | 0.22 | 1.09 | 2.35 | 23º |
| pronoun form (percentage) | | | | | | | | | | | |
| pretest | 0.00 | 0.00 | 22º | 0.00 | 0.00 | 0.00 | 21 | 0.00 | 0.00 | 0.00 | 23º |
| posttest 1 | 9.09 | 25.05 | 22º | 0.74 | 18.86 | 34.78 | 21 | 1.14 | 0.00 | 0.00 | 23º |
| posttest 2 | 4.55 | 21.32 | 22º | 0.44 | 15.48 | 33.98 | 21 | 0.96 | 0.00 | 0.00 | 23º |
| pronoun placement (percentage) | | | | | | | | | | | |
| pretest | 0.00 | 0.00 | 22º | 0.00 | 0.00 | 0.00 | 21 | 0.00 | 0.00 | 0.00 | 23º |
| posttest 1 | 12.50 | 28.61 | 22º | 0.90 | 28.57 | 43.51 | 21 | 1.38 | 0.00 | 0.00 | 23º |
| posttest 2 | 4.55 | 21.32 | 22º | 0.44 | 21.43 | 40.53 | 21 | 1.11 | 0.00 | 0.00 | 23º |

ºSome students had to be deleted from the oral pretesting because they were not recorded due to technical error.

ANOVA results of the written production tests scored for pronoun frequency are presented in Table 29. Results of a one way ANOVA revealed no significant differences between the groups on the pretest, $F(2,69) = 1.516$, $p = .227$, but significant between-group differences on both the posttest and the delayed posttests, $F(2,69) = 15.468$, p = .000; $F(2,69) = 4.358$, $p = .017$. Post hoc analysis found that both the Structured input and the Output-based instruction groups performed significantly better than the Control group on the immediate posttest. On the delayed posttest the Output-based instruction group performed significantly better than the Control group. There was no significant difference between the performance of the Structured input group and either the Output-based instruction or the Control groups on this test. One way repeated measures ANOVAs conducted to investigate the simple effects of time found significant results for all three groups, $F(2,44) = 51.789$, $p = .000$; $F(2,40) = 24.897$, $p = .000$; $F(2,50) = 14.413$, $p = .000$. Post hoc analysis revealed a significant improvement between the pretest and both posttests and a significant deterioration in scores between the immediate and delayed posttest for the Structured input group. There was a significant improvement between performance on the pretest and both the posttest and delayed posttests for the Output-based instruction and Control groups.

Table 29: Analysis of Variance for Written Production tests Scored for Pronoun Frequency.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 588.589 | 294.294 | 81.294** | .000 |
| Time x group | 4 | 62.563 | 15.641 | 4.321** | .003 |
| Error (Time) | 134 | 485.094 | 3.620 | | |
| Between Subjects | | | | | |
| Group | 2 | 220.098 | 110.049 | 8.537** | .000 |
| Error (Group) | 67 | | | | |

** $p < .01$.

ANOVA results of the written production tests scored for accuracy of pronoun form are presented in Table 30. One way ANOVAs revealed no significant differences between the groups on the pretest, $F(2,69) = 1.516$, $p = .227$, but significant between-group differences on both the posttest and the delayed posttests, $F(2,69) = 15.468$, $p = .000$; $F(2,69) = 4.358$, $p = .017$. Post hoc analysis found that both the Structured input and the Output-based instruction groups performed significantly better than the Control group on the immediate posttest. On the delayed posttest the Output-based instruction group performed significantly better than the Control group; there was no significant difference between the performance of the Structured input group and either of these two groups on the delayed posttest. One way repeated measures ANOVAs conducted to investigate the simple effects of time found significant results for both the Structured input and Output-based instruction groups, $F(2,44) = 18.704$, $p = .000$; $F(2,40) = 29.200$, $p = .000$, but not for the Control group, $F(2,50) = .964$, $p = .388$. Post hoc analysis revealed a significant improvement between performance on the pretest and both posttests and a significant deterioration in scores between the immediate and delayed posttests for the Structured input and Output-based instruction groups.

Table 30: Analysis of Variance for Written Production Tests Scored for Pronoun Form.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 238.614 | 119.307 | 52.975** | .000 |
| Time x group | 4 | 117.168 | 29.292 | 13.006** | .000 |
| Error (Time) | 134 | 301.784 | 2.252 | | |
| Between Subjects | | | | | |
| Group | 2 | 201.022 | 100.511 | 18.714** | .000 |
| Error (Group) | 67 | 359.840 | 5.371 | | |

** $p < .01$.

Table 31 shows results for the written production tests scored for pronoun placement. One way ANOVAs revealed no significant differences between the groups on the pretest, $F(2,69) = 1.516$, $p = .227$, but significant between-group differences on both the posttest and delayed posttests, $F(2,69) = 15.468$, $p = .000$; $F(2,69) = 4.358$, $p = .017$. Post hoc analysis found that both the Structured input and the Output-based instruction groups performed significantly better than the Control group on the immediate posttest and that the Output-based instruction group performed significantly better than the Control group on the delayed posttest; as was the case when scoring for pronoun form, there was no significant difference between the performance of the Structured input group and either of these two groups on the delayed posttest. One way repeated measures ANOVAs conducted to investigate the simple effects of time found significant results for the Structured input and Output-based instruction groups, $F(2,44) = 8.733$, $p = .001$; $F(2,40) = 21.228$, $p = .000$. Post hoc analysis revealed a significant improvement between performance on the pretest and both posttests and a significant deterioration in scores between the immediate and delayed posttests. Results for the Control group approached statistical significance, $F(2,50) = 3.117$, $p = .053$.

Table 31: Analysis of Variance for Written Production tests Scored for Pronoun Placement.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 147.940 | 73.970 | 36.777** | .000 |
| Time x group | 4 | 84.015 | 21.004 | 10.443** | .000 |
| Error (Time) | 134 | 269.518 | 2.011 | | |
| Between Subjects | | | | | |
| Group | 2 | 137.479 | 68.740 | 13.494** | .000 |
| Error (Group) | 67 | 341.302 | 5.094 | | |

** $p < .01$.

ANOVA results of the oral production tests scored for pronoun frequency are presented in Table 32. One way repeated measures ANOVAs conducted to investigate the simple effects of time found no significant effect for the Structured input group, $F(2,42) = 1.110$, $p = .339$, or for the Output-based instruction group, $F(2,40) = 1.536$, $p = .228$. The result for the Control group approached statistical significance, $F(2,44) = 3.131$, $p = .054$. A mixed model ANOVA revealed no significant interaction between time and group, nor was there a main effect for group.

The difference in performance of participants on version A of the oral production test has already been discussed (see pg. 131). One way ANOVAs were conducted to see if there was any difference between the performance of the Structured input group, Output-based instruction group and the Control group when the scores for students who sat version A were omitted. There was no significant difference on the posttest or the delayed posttests, $F(2,40) = 1.304$, $p = .238$; $F(2,45) = 1.435$, $p = .249$.

Table 32: Analysis of Variance for Oral Production Tests Scored for Pronoun Frequency.

| Source | *df* | *SS* | *MS* | *F* | *p* |
|---|---|---|---|---|---|
| Within Subjects | | | | | |
| Time | 2 | 16.283 | 8.141 | 3.080* | .049 |
| Time x group | 4 | 12.888 | 3.222 | 1.219 | .306 |
| Error (Time) | 126 | 333.042 | 2.643 | | |
| Between Subjects | | | | | |
| Group | 2 | 20.139 | 10.069 | 2.197 | .120 |
| Error (Group) | 63 | 288.689 | 4.582 | | |

* $p < .05$.

ANOVA was not appropriate for making comparisons on the oral test scored for pronoun form since the pretest and the Control group scores exhibited zero variance. Independent samples *t* tests were conducted to compare the performance of each treatment group with the Control group on the immediate posttest. Results showed a significant difference between the performance of the Output-based instruction group and the Control group on this test, $t(20) = 2.485$, $p = .022$, but no significant difference between the performance of the Structured input and the Control group, $t(21) = 1.702$, $p = .104$. On the delayed posttest, *t* test results that compared the performance of the Output instruction group and the Control group approached statistical significance, $t(20) = 2.087$, $p = .050$, whereas there was no significant difference between the performance of the Structured input and Control groups, $t(21) = 1.000$, $p = .329$. *T* tests conducted to compare the performance of the Structured input and Output-based instruction groups on both the posttest and the delayed posttest found no significant differences between these two groups on these two tests, $t(41) = - 1.060$, $p = .295$; $t(33.4) = -1.257$, $p = .218$.

As pretest and Control group scores also exhibited zero variance on the oral test scored for pronoun placement, independent samples *t* tests were conducted to compare the scores of both treatment groups and the Control group. On the immediate posttest, there was a significant difference between the Output-based instruction group and the Control group, $t(20) = 3.009$, $p = .007$. Results that compared the performance of the Structured input and the Control groups approached statistical significance, $t(21) = 2.049$, $p = .053$. On the delayed posttest the Output-based instruction group again performed significantly better than the Control group, $t(20) = 2.423$, $p = .025$, whereas there was no significant difference between the performance of the Structured input and Control groups, $t(21) = 1.000$, $p = .329$. There were no significant differences between the performance of the Structured input and Output-based instruction groups on these two tests, $t(34.3) = -1.424$, $p = .163$; $t(30.0) = -1.698$, $p = .100$.

7.3.1 Summary of results

Table 33 presents a summary of significant differences between each experimental group and the Control group and of significant differences between the two experimental groups. For each significant between-group difference, the group who performed better is given in parentheses.

Table 33: Summary of Significant Between-group Differences.

| Test | SI vs. Control | Output vs. Control | SI vs. Output |
|---|---|---|---|
| Listening comprehension posttest 1 | | *(Output) | *(Output) |
| Listening comprehension posttest 2 | | | |
| Reading comprehension posttest 1 | | | |
| Reading comprehension posttest 2 | | | |
| Written production scored pronoun frequency posttest 1 | *(SI) | *(Output) | |
| Written production scored pronoun frequency posttest 2 | | *(Output) | |
| Written production scored pronoun form posttest 1 | *(SI) | *(Output) | |
| Written production scored pronoun form posttest 2 | | *(Output) | |
| Written production scored pronoun placement posttest 1 | *(SI) | *(Output) | |
| Written production scored pronoun placement posttest 2 | | *(Output) | |
| Oral production scored pronoun frequency posttest 1 | | | |
| Oral production scored pronoun frequency posttest 2 | | | |
| Oral production scored pronoun form posttest 1 | | *(Output) | |
| Oral production scored pronoun form posttest 2 | | | |
| Oral production scored pronoun placement posttest 1 | | *(Output) | |
| Oral production scored pronoun placement posttest 2 | | *(Output) | |

*Note.* SI = Structured input group; Output = Output-based instruction group.

There were significant differences between the Output group and both the Control and Structured input groups on the listening comprehension immediate posttest; these were not sustained on delayed posttesting. There were no significant between-group differences on the reading comprehension tests.

On the written production immediate posttests, the Structured input and the Output-based instruction groups performed significantly better than the Control group under all scoring conditions. On delayed posttesting, however, only the Output-based instruction group maintained a statistically significant advantage over the Control group. On the oral production tests there was an advantage for the Output-based instruction group only, on the immediate posttest scored for accuracy of pronoun form and both posttests scored for pronoun placement.

Table 34 presents a summary results of ANOVAs conducted to investigate within-group differences over the three testing episodes. The oral production tests scored for accuracy of pronoun form and pronoun placement are not included because, as has already been discussed, ANOVA was not used to make comparisons on these tests. The first two columns of the table show which groups made significant gains between the two testing episodes indicated. For all groups listed in the third column there was a significant deterioration between scores from the immediate to delayed posttests.

Table 34: Summary of Within-group Differences over Time.

| Test | Pretest – posttest 1 | Pretest – posttest 2 | Posttest 1 – Posttest 2 |
|---|---|---|---|
| Listening comprehension | Output | | Output |
| Reading comprehension | SI | SI | |
| Written production scored pronoun frequency | SI/Output/ Control | SI/Output/ Control | SI |
| Written production scored pronoun form | SI/Output | SI/Output | SI/Output |
| Written production scored pronoun placement | SI/Output | SI/Output | SI/Output |
| Oral production scored pronoun frequency | | | |

*Note.* SI = Structured input group; Output = Output-based instruction group.

Only the Output-based instruction group made gains over time on the listening comprehension test but these were not sustained on delayed posttesting. Only the Structured input group made gains over time on the reading comprehension test. These were sustained on delayed posttesting.

All groups made gains on the written production test scored for pronoun frequency. The Structured input group alone showed a loss in scores from immediate to delayed posttesting. Both experimental groups made gains over time on the written production tests scored for accuracy of pronoun form and placement but there was a significant loss in scores from immediate to delayed posttesting.

## 7.4 Discussion

### 7.4.1 Comparison of performance of Structured input and Control groups

Effect sizes show that the Structured input group made gains on posttests when compared to the Control group on all but one test; there was a negative effect size for the Structured input group on the oral production delayed posttest scored for pronoun frequency (the gains that the Control group made on production tests scored for pronoun frequency have already been discussed in Section 7.4.1). Five out of the sixteen effect sizes that were calculated can be classified as large ($d$ > 0.80) according to Cohen (1998) and a further four were medium (0.50 < $d$ < 0.80).

Effect sizes for the comprehension tests show that the Structured input group made only small or negligible gains with respect to the Control group. The one exception was the reading comprehension immediate posttest ($d$ = 0.51), although this advantage was not sustained on delayed posttesting ($d$ =  0.11). The Structured input group did, however, make significant gains over time on the reading comprehension tests whereas the Control group, which started off with higher pretest scores, did not. The negligible (immediate posttest: $d$ = 0.19) and small (delayed posttest: $d$ = 0.37) effect sizes for the Structured input group on the listening comprehension test may perhaps be explained by the nature of the test, which was designed to require students to make decisions about the language choices presented to them in real time (see 5.4.5.1). There was low variability in scores on this test (as calculated on the combined scores of students in the Structured input and Output-based instruction groups; see 5.4.5.5) and it has been suggested that this may have been because the test was difficult. It is possible that students were guessing answers on this test because they were unable to process language in real time.

Students in the Structured input group made gains on all written and oral production tests. On four of the immediate posttests and on one of the delayed posttests, effect sizes were large. One way repeated measures ANOVAs conducted to investigate the simple effects of time found a significant change over time for this group on the written production tests under all scoring conditions. Furthermore, one way ANOVA results showed a statistically significant difference between the performance of this group and the Control group on written production immediate posttests. This advantage was not maintained, however, on delayed posttests.

7.4.2 Comparison of performance of Output-based instruction and Control groups

Effect sizes showed that the Output-based instruction group made impressive gains when compared to the Control group; twelve out of the sixteen effect sizes calculated for the posttests were large and a further two were medium. Only two effect sizes were either small (oral production posttest scored for pronoun frequency, $d$ = 0.22) or negligible (reading comprehension delayed posttest, $d$ = 0.13).

The Output-based instruction group did better on the tests of production than on the tests of comprehension. All but one of the twelve effect sizes (oral production delayed posttest scored for pronoun frequency, $d$ = 0.22) calculated for the production posttests were large, whereas only one of the four effect sizes calculated for the comprehension posttests was large (listening comprehension immediate posttest, $d$ = 1.11). Furthermore, ANOVA results showed significant statistical differences between the performance of this group and that of the Control group on written production immediate and delayed posttests under all scoring conditions. Three of the four $t$ tests that compared performance of the Output-based instruction group and the Control group on oral production tests found a significant advantage for the Output-based instruction group. By contrast, there was a significant advantage for this group over the Control group on one comprehension test only, the listening comprehension test, and this advantage was not sustained over time. The clear advantage for the Output-based instruction group over the performance of the Control group on tests of production is not surprising, given that the students in this group worked at activities requiring them to produce the target structure.

### 7.4.3 Comparison of performance of Structured input and Output-based instruction groups

The results on the comprehension tests do not conclusively show that structured input instruction enabled L2 learners to comprehend the target structure more effectively than meaning oriented output-based instruction. In fact, the Output-based instruction group made greater gains on the listening comprehension test than the Structured input group; effect sizes for the Output-based instruction group on this test were large and medium ($d$ = 1.11; $d$ = 0.58) whereas effect sizes for the Structured input group on this test were negligible and small ($d$ = 0.19; $d$ = 0.37). This is an interesting result that contrasts with those of other processing instruction and structured input studies. In no other study was the effect of the Traditional/Output-based instruction group greater than that of the Structured input/Processing instruction group on measures of interpretation/comprehension. The fact that the Output-based instruction group appears to have made greater gains with respect to fluency (see below) and that the listening comprehension test required students to process language in real time may explain this result. Only one other study (Kim, 2001) used a measure of comprehension that involved a time restriction. Kim found, however, that both Input and Output groups performed similarly on this test. It is important to note in this present study that, while the Output-based instruction group made greater gains on the listening comprehension test, they did not maintain these gains over time, whereas the Structured input group showed an increase in effect sizes over time (see below).

There was little difference between the effect sizes of these two groups on the reading comprehension test (output-based instruction, $d$ = 0.67, $d$ = 0.13; structured input instruction, $d$ = 0.51, $d$ = 0.11). ANOVA results show, however, that the Structured input group made statistically significant gains over time whereas the Output-based instruction group did not. It would seem that the instruction received by students in the Structured input group was more effective at enabling students to process language input when measured on a test of comprehension that did not involve time pressure.

The Output-based instruction group performed better than the Structured input group on all measures of production. Eleven out of the twelve effect sizes calculated for the Output-based instruction group on production posttests were large, compared with only five out of the twelve effect sizes calculated for the Structured input group. However, while effect sizes showed greater gains for the Output-based instruction group, ANOVA results showed no statistical difference between gains made by both the Structured input and the Output-based instruction groups on any of the written and oral production tests for which ANOVA was performed. On the oral production tests scored for pronoun form and placement, *t* tests found no significant difference between the gains made by both these groups. These results are impressive in view of the fact that students in the Structured input group did not engage in any activity requiring them to produce the target structure at any time during instructional treatments. They demonstrate that students do not learn to produce language forms only by engaging in output-based activities and underscore the importance of the role of input in language learning.

There are a number of reasons that could account for the relative effectiveness of the output-based instruction in this study, in particular the greater gains for this group on tests of written and oral production. The first is a feature that distinguishes this study from a number of others: the fact that the majority of practice activities that students worked at were designed to be meaningful (see 5.4.4.5). There is, furthermore, some evidence from processing instruction research to support the hypothesis that the meaning-oriented nature of the majority of activities the Output-based instruction group engaged in could account for the results obtained in this study. In Allen's study (2000), where the Output-based instruction group inadvertently received some meaningful input, both Processing instruction and Output-based instruction groups performed equally well on interpretation tasks and the Output-based instruction group outperformed the Processing instruction group on production tasks. Farley's two studies (2001a & b) demonstrated that meaning-based production is equally as effective as processing instruction. In a discussion of Farley's results, VanPatten (2002a) suggests that the meaning-oriented nature of instruction may be the key that fosters acquisition and that processing instruction may be no better than any other explicit focus on form that is meaning-based.

The second possible reason for the effectiveness of the output-based instruction in this study is that it induced attention to form in the input that students received. Careful examination of the task requirements corresponding to activities used in the treatment groups suggests that the two different instructional treatments made the target structure equally salient. Students in the Structured input group were given activities where they were required to pay attention to specific linguistic forms and the meanings they convey. Students in the Output-based instruction group were given tasks where they were required to choose an appropriate linguistic form (direct object pronoun) to replace an underlined direct object noun. They, too, (in the majority of tasks) had to focus on the meaning that these forms conveyed in order to correctly complete these tasks. Students in this instructional treatment option also received feedback with respect to their own performance. The effects of this feedback, which gave students information about the impossibility of certain structures or word orders, may not have been very dissimilar from the learning that students gained from consciousness-raising activities in the Structured input group. Both groups of students may have had the opportunity to "notice the gap" between target and non-target performance. It can be argued, then, that students in each instructional group were engaged in noticing and processing different linguistic structures for meaning. As Gass (1997) points out, if what stimulates the development of L2 competence is salience in the input that students receive, then "it matters little how salience comes about" (p.129).

The third possible reason for the relative effectiveness of the output-based instruction in this study is that it aided automatic use of the target structure. This claim is made on the basis of the fact that all but one of the tests were designed to involve time pressure. On all tests that required students to make a response within a limited period of time there were large effect sizes for the Output-based instruction group. Furthermore, on all but two of these tests (listening comprehension test, oral production test scored for pronoun frequency), large effect sizes were evidenced on both delayed and immediate posttests. Results indicate, moreover, that the performance of the Output-based instruction group relative to that of the Structured input group tended to increase as time pressure increased. The greater gains of the Output-based instruction group on the listening comprehension test have already been discussed. There were large effect sizes for the Output-based instruction group on the oral production posttests scored for pronoun form ($d$ = 1.14, $d$ = 0.96) and medium and small effect sizes for the Structured input group ($d$ = 0.74, $d$ = 0.44), whereas the effect sizes for both groups on the written production posttests scored for pronoun form were large (output-based instruction, $d$ = 2.77, $d$ = 1.49; structured input, $d$ = 1.73, $d$ = 1.05). It is assumed that the oral production test exerted greater pressure upon students in that it required unplanned responses that were not tightly prescribed (as they were in the written production test). However, any conclusions based on the results of this test are necessarily tentative, especially given the limited gains that students made on this test.

The fact that the Output-based instruction group, which had received instruction focusing almost exclusively on production practice, performed so well on tests designed to yield a measure of automaticity, as well as accuracy, may provide support for the theory that skills develop when skills are practised (DeKeyser and Sokalski, 1996).

There is some evidence from other processing instruction/structured input research to suggest that there is a greater advantage for output-based instruction when the measures of language used require either a time pressured response or a response that is not tightly prescribed. Kim (2001) and T. Tanaka (2001) both found that their Output-based instruction groups made greater gains than the Structured input group on timed production tests. Toth (1997) reports a slight advantage for the Output-based instruction group on a test of free oral production and Allen (2000) found that the Output-based instruction group performed better than the Processing instruction group on an open-ended test of written production. Although VanPatten (2002a) dismisses the conclusions that DeKeyser and Sokalski (1996) draw from their study with respect to processing instruction, he does underline the importance of their findings for supporting the idea that skills develop when skills are practised. He suggests the need for a research design that incorporates measures of speed along with measures of accuracy to see whether students who engage in output gain more in fluency in relation to students who do not. Norris and Ortega (2000) claim that there is a significant relationship between the observed effectiveness of L2 instruction and tests/measures used. Further research is needed to clarify to what extent the results obtained in this and other studies are a function of differences in test design.

Results on the oral production tests would tend to indicate, however, that, while output-based instruction was more effective than structured input instruction in enabling students to develop automatic use of the target structure, neither type of instruction was particularly effective. The gains that students made on these tests were limited. On delayed posttests, students in the Output-based instruction group were attempting on average fewer than 2 pronoun forms ($M$ = 1.74) and of these only 24% were correct for the given context (see Table 28). Students in the Structured input group were attempting less than 1 form ($M$ = 0.74) on these tests, of which only 5% were correct. The fact that both groups made relatively small gains on the oral production test is perhaps not surprising, given that students received a total of only 135 minutes of instruction.

The greater gains for the Output-based instruction group on the listening comprehension test have already been discussed. However, it is important to note that this group did not maintain these gains over time, whereas the Structured input group showed an increase in effect sizes over time on this test (from $d$ = 0.19 to $d$ = 0.37). On the reading comprehension test also, the Output-based instruction group showed a greater deterioration in scores over time than the Structured input group, which, in contrast, showed a significant improvement in performance from pretesting to posttesting. These results must be treated with caution given the low reliability estimate for the listening comprehension test in particular (see 5.4.5.5) but they are interesting in the light of other studies which have found that the Structured input/Processing instruction group maintained gains on comprehension tests to a greater extent than the Output-based instruction group. Y. Tanaka (1996) found that comprehension-based instruction was more effective than output-based instruction for comprehension of the target structure for both the short and long-term, and Farley (2001a) found that his Processing instruction group did better on interpretation tasks and maintained gains to a greater extent than the Output-based instruction group. Kim (2001) obtained similar results on a timed test of comprehension, although on another test of comprehension that did not require a timed response, the Structured input group showed a deterioration in gains while the Output-based instruction group showed an improvement.

Research evidence showing that Structured input instruction tends to lead to gains on comprehension tests that are sustained, while output-based instruction leads to gains that atrophy, could suggest that Structured input instruction may engage the 'acquired' system more than Output-based instruction. The fact that this result is also obtained on two tests involving time pressure (this study; Kim, 2001) is further evidence that this may be the case.

On the written production tests scored for pronoun form and placement, the Output-based instruction group made greater gains but also showed a greater decrease in effect sizes over time than did the Structured input instruction group. In contrast, on the oral production tests scored for pronoun form and placement, the effect sizes for the Output-based instruction group were large on both posttests, whereas the effect sizes for the Structured input group decreased from medium ($d$ = 0.74) and large ($d$ = 0.90) to small ($d$ = 0.44, $d$ = 0.44) over the two testing episodes. As has already been discussed, the greater gains for the Output-based instruction group on production tests are not surprising given that the Structured input group had had no practice in producing the target structure, whereas the Output-based instruction group had received instruction that focused almost exclusively on production practice. What is perhaps more remarkable is that the Structured input group were able to produce the target structure at all. It is also to be expected that the Output-based instruction group maintain this skill more successfully over time (DeKeyser and Sokalski, 1996). In this study it is interesting to note that the gains that the Output-based instruction group made were more successfully maintained over time when measured on a test that required unplanned language responses along with time pressure. This is further evidence that the instruction which this group received aided automatic use of the target structure (see above).

7.4.4 Effects of structured input instruction and output-based instruction on learning of morphological and syntactical language features

As has already been described (see 5.4.5.3 & 5.4.4.4), the written and oral production tests used in this study were scored so as to give information about the learning of morphological and syntactical aspects of the target structure.

Results show a slight effect for syntactical learning for the Output-based instruction group, in that there was a significant difference between the performance of this group and the Control group on both written and oral production posttests scored for pronoun placement (under scoring for pronoun form there was a significant difference on both written production posttests but on the oral production immediate posttest only). Results do not show a clear effect for learning of either morphological or syntactical aspects of the target structure for the Structured input group; effect sizes for written production posttests were large under scoring for both pronoun form and placement. On the oral tests, there was a slight initial advantage for scoring for pronoun placement ($d$ = 0.90, $d$ = 0.44) over scoring for pronoun form ($d$ = 0.74, $d$ = 0.44).

It is interesting to note that both treatment groups did better on both written and oral production tests scored for pronoun placement than the group that received inductive instruction (there was an advantage for the Structured Input group over the Inductive group on the written but not the oral production test scored for pronoun form, see Table 17). The fact that the Structured input and Output-based instruction groups, which had both received explicit rule explanation on direct object pronoun forms and placement of these forms while the Inductive group had not, did better on tests scored for pronoun placement can be seen as further evidence in support of Hulstijn and de Graaff's hypothesis (1994) that explicit rule presentation may be more effective for the learning of syntactical than morphological language features (see 6.4.4).

### 7.4.5 Conclusion

The research question that this part of the study addressed, asked what the relative effects of structured input instruction and output-based instruction were on the acquisition of direct object pronouns in L2 French. A number of conclusions can be drawn:

1. While results showed that both groups made some gains on comprehension tests, there was some evidence to suggest greater gains over time for the Structured input group.

2. Results showed that both Structured input and Output-based instruction led to improved production of the target structure. While both instructional groups made gains on production tests, the Output-based instruction group did better than the Structured input group. It has been suggested that this may be related to the fact that the majority of activities given to this group were meaning-based.

3. Gains for both groups on both comprehension and production tests demonstrate the importance of the role of input in second language acquisition. Students in the Structured input group were able to produce

the target structure in all posttesting episodes even though they had been engaged in practice activities requiring them to process language input only. The gains that students in the Output-based instruction group made may also be attributed to some degree to the input that they received during completion of activities, in that these activities were designed to induce attention to form. Students in this group also received input when they were involved in pairwork and in teacher-directed feedback sessions. In a classroom environment it would seem not possible to involve students in production practice while precluding that their output serve as input for other students.

4. The greater advantage for the Output-based instruction group on tests of production may also be explained by the fact that these tests were designed to require a pressured response. Results would suggest that giving students opportunities to produce language enables them to develop automatic control of the target structure.

5. The rationale for situating this study within a structured input paradigm has been discussed in 7.2.1. This decision was taken because the input processing strategy targeted (P.4) does not lead students to wrongly process input and because activities focused on making the target structure more salient rather than on counteracting the input processing strategy.

The results obtained, however, would tend to indicate that it is not enough for a form simply to be non-salient for processing/input-based instruction to have an advantage over output-based instruction. In this respect, the usefulness of processing instruction may be more circumscribed than VanPatten suggests. More research is thus needed to determine whether processing instruction is effective when applied to principles of input processing other than the two that have been targeted by research to date, that is, the first noun processing strategy and the lexical processing strategy.

# CHAPTER EIGHT

# RELATIONSHIP BETWEEN INSTRUCTIONAL METHODS AND MEASURES OF LANGUAGE APTITUDE

## 8.1 Overview

The research question that this chapter addresses is:

> RQ 3. To what extent does learners' ability to benefit from a particular instructional method depend on language aptitude?

This chapter will start with a brief review of the measures of language aptitude and a discussion of how these measures relate to one another. It will then provide statistical data relating students' performance on the different measures of language to their performance on measures of language aptitude. Results will be presented for the group as a whole and then they will be presented and discussed in relation to each instructional method, that is, output-based instruction (deductive), structured input instruction (deductive) and inductive instruction (input/output-based).

## 8.2 Measures of language aptitude

Measures of language aptitude were chosen to correspond to the three components of aptitude that Skehan (1998) has identified and linked to the information-processing stages of his model of acquisition, that is, phonemic coding ability, language analytic ability and memory (see 4.3). The Sound Discrimination test of the Pimsleur Language Aptitude Battery (Pimsleur, 1966) was chosen as a test of phonemic encoding and the Words and Sentences subtest of the MLAT (Carroll & Sapon, 1959) was chosen as a test of language analytic ability (these measures of aptitude are discussed in greater detail in 5.5.1.1 and 5.5.1.2). Two tests of working memory were designed by the researcher to assess phonological loop functioning. The first of these assessed the processing of information (Baddeley, Thomson & Buchanan, 1975), that is, the process used to recode nonauditory material in a form suitable for the phonological store. Students were presented with lists of five five-syllable words on an overhead projector and asked to write each list down. The second test was designed to test the storage of information, based on what Baddeley (1966) has identified as the acoustic similarity effect, where sequences of items having similar speech sounds are particularly hard to remember in the appropriate order. Students were presented with sequences of five acoustically similar words and were then asked to write down the words in the order they heard them (see 5.5.1.3).

Correlations were carried out between these different measures of language aptitude so as to establish whether any relationship existed between them. These correlations were performed using the scores of all students on these tests, that is, the scores of students in all three instructional groups. The results are given in Table 35 below. They show that there was a positive correlation ($r$ = .254) between the Sound Discrimination subtest of the PLAB and the Words and Sentences subtest of the MLAT but that this correlation was not statistically significant. There was no significant correlation between either of these two measures and either of the two working memory tests. There was, however, a significant correlation between the two memory tests, $r$ = .395**.

Table 35: Correlations between Language Aptitude Tests.

| Test | | Words & Sentences | Sound discrimination | WM - processing | WM - storage |
|---|---|---|---|---|---|
| Words & Sentences | Pearson Correl. | 1.00 | | | |
| | Sig. | . | | | |
| | *N* | 60 | | | |
| Sound discrimin. | Pearson Correl. | .254 | 1.00 | | |
| | Sig. | .050 | . | | |
| | *N* | 60 | 60 | | |
| WM - processing | Pearson Correl. | .158 | .130 | 1.00 | |
| | Sig. | .229 | .323 | . | |
| | *N* | 60 | 60 | 60 | |
| WM - storage | Pearson Correl. | .146 | .175 | .395** | 1.00 |
| | Sig. | .278 | .193 | .002 | . |
| | *N* | 57 | 57 | 57 | 57 |

** $p < .01$.

In order to have further information on the extent to which the different language aptitude measures were measuring the same or different constructs, a Principal Component Factor Analysis with Varimax rotation was performed using the scores of students in the three instructional groups on all four measures of language aptitude. Only one factor was found when eigenvalues of over 1 were used to specify the number of factors to extract. The component matrix was not rotated. Results are presented in Tables 36 and 37.

Table 36: Factors, Eigenvalues and Variances Accounted For.

| Factor | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Eigenvalue | 1.67 | .996 | .729 | .605 |
| Proportion of variance (%) | 41.76 | 24.90 | 18.21 | 15.13 |
| Cumulative variance (%) | 41.76 | 66.66 | 84.87 | 100.00 |

Table 37: Loadings for One Factor.

| | Factor 1 |
|---|---|
| Words and Sentences (MLAT) | .559 |
| Sound Discrimination (PLAB) | .606 |
| Working memory - processing | .710 |
| Working memory - storage | .698 |

Three factors were extracted. This decision was taken mainly for theoretical reasons (Kachigan, 1991) and in order to account for as much of the variance as possible (i.e., 85%). The rationale for choosing three factors was to test Skekan's three component model (1998) of language aptitude, that is the hypothesis that the three factors of language aptitude (i.e., language analytic ability, phonemic coding ability and memory) each represent different constructs. Table 38 shows the loadings for three factors.

Table 38: Loadings for Three Factors.

| | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| Words and Sentences (MLAT) | .091 | .987 | .131 |
| Sound Discrimination (PLAB) | .114 | .132 | .984 |
| Working memory - processing | .823 | .065 | .103 |
| Working memory - storage | .835 | .065 | .058 |

## 8.3 Analysis of data

Descriptive statistics were calculated for the performance of all groups on the four measures of language aptitude. Results are given in Table 39 below.

Table 39: Descriptive Statistics for Language Aptitude Tests.

| | Output-based instruction | | | | |
|---|---|---|---|---|---|
| | *M* | *SD* | *n* | Min. | Max. |
| Sound discrimination (PLAB) | 19.90 | 4.14 | 19 | 11.00 | 26.00 |
| Words & Sentences (MLAT) | 15.21 | 3.72 | 19 | 8.00 | 22.00 |
| WM processing | 20.00 | 5.26 | 19 | 10.50 | 28.00 |
| WM storage | 19.59 | 4.17 | 17 | 13.00 | 27.00 |
| | Structured input instruction | | | | |
| | *M* | *SD* | *n* | Min. | Max. |
| Sound discrimination (PLAB) | 18.43 | 5.04 | 21 | 10.00 | 27.00 |
| Words & Sentences (MLAT) | 14.57 | 4.00 | 21 | 9.00 | 23.00 |
| WM processing | 20.02 | 3.91 | 21 | 11.00 | 28.00 |
| WM storage | 15.91 | 3.97 | 21 | 8.00 | 23.00 |
| | Inductive instruction | | | | |
| | *M* | *SD* | *n* | Min. | Max. |
| Sound discrimination (PLAB) | 19.00 | 5.19 | 20 | 8.00 | 28.00 |
| Words & Sentences (MLAT) | 15.30 | 3.67 | 20 | 8.00 | 22.00 |
| WM processing | 19.80 | 4.61 | 20 | 11.00 | 27.00 |
| WM storage | 18.90 | 3.67 | 19 | 12.00 | 24.00 |

A oneway ANOVA failed to find a significant difference between the performance of the three instructional groups on the Sound and Discrimination subtest (PLAB), $F$ (2,59) = .465, $p$ = .603, the Words and Sentences subtest (MLAT), $F$ (2,59) = .224, $p$ = .800 or the working memory test designed to assess processing of information, $F$ ( 2, 59) = .014, $p$ = .986. However there was a significant difference between performance of the three groups on the working memory test designed to assess storage of information, $F$ (2,56) = 4.855, $p$ = .012. Posthoc analysis showed that the Output-based instruction and Inductive instruction groups performed significantly better than the Structured input group on this test.

Gain scores were calculated for each of the four language tests used in the study: listening comprehension test, reading comprehension test, written and oral production tests scored for pronoun frequency, accuracy of pronoun form and pronoun placement. For each test, two sets of gain scores were calculated, one that compared performance of students on the immediate posttest in relation to performance on the pretest and a second that compared performance on the delayed posttest in relation to performance on the pretest.

Gain scores were correlated with scores on the tests of language aptitude. The number of students for whom correlations were calculated varies, as not all students who participated in the instructional treatments were available to take the language aptitude tests. In addition, a number of students failed the sound discrimination subtest of the working memory test, designed to test storage of information, and hence were eliminated from this test (see 5.5.1.3).

Bivariate correlations using Pearson's product moment were calculated. An alpha level of .05 was set as the decision level for all correlations.

## 8.4 Results

### 8.4.1 Results for group as a whole

Correlations were first conducted for the three instructional groups as a whole ($N$ = 60). Six of the sixty correlations calculated were statistically significant. There were significant correlations between the performance of the group as a whole on the working memory test designed to assess processing of information and gain scores on the immediate and delayed written production posttests scored for accuracy of pronoun form ($r$ = .295, $p$ =.022; $r$ = .370, $p$ =.004) and accuracy of pronoun placement ($r$ = .284, $p$ = .028; $r$ = .307, $p$ = .017). There were significant correlations between the performance of the group as a whole on the Words and Sentences subtest of the MLAT and both gain scores of the listening comprehension immediate posttest ($r$ = .289, $p$ = .025) and gain scores of the delayed written production posttest scored for pronoun placement ($r$ = .295, $p$ = .022).

### 8.4.2 Results for Output-based instruction group

Table 40 presents correlations between gain scores and language aptitude scores for the Output-based (deductive) instruction group.

There were no significant correlations between gain scores on any language test and performance on the Words and Sentences subtest of the MLAT. There was a positive significant correlation between gain scores on the listening comprehension immediate posttest only and performance on the Sound Discrimination test of the PLAB ($r$ = .523*). There was a negative correlation between gain scores on the oral production immediate posttest scored for pronoun frequency and performance on this subtest of the PLAB ($r$ = -.500).

There was a significant correlation between gain scores on the written production immediate posttest scored for pronoun form and performance on the working memory test designed to test processing of information ($r$ = .489*). There were no other significant correlations between gain scores on any test and performance on either test of working memory.

Table 40: Correlations between Gain and Language Aptitude Scores for the Output-based (Deductive) Instruction Group.

| Test | Words and Sentences | | | Sound Discrimin. | | | WM - processing | | | WM - storage | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* |
| **Listening comprehension** immediate gain | .364 | .125 | 19 | .523* | .022 | 19 | .370 | .119 | 19 | .363 | .153 | 17 |
| delayed gain | .278 | .249 | 19 | .423 | .071 | 19 | .080 | .746 | 19 | .057 | .829 | 17 |
| **Reading comprehension** immediate gain | .397 | .092 | 19 | .188 | .442 | 19 | .414 | .078 | 19 | .307 | .231 | 17 |
| delayed gain | .236 | .331 | 19 | .226 | .351 | 19 | .205 | .400 | 19 | .079 | .763 | 17 |
| **Written production scored pronoun frequency** immed.gain | -.344 | .150 | 19 | .083 | .736 | 19 | -.159 | .517 | 19 | -.226 | .384 | 17 |
| delayed gain | -.175 | .474 | 19 | .208 | .393 | 19 | -.178 | .467 | 19 | -.335 | .189 | 17 |
| **Written production scored pronoun form** immediate gain | .165 | .499 | 19 | -.077 | .754 | 19 | .489* | .033 | 19 | .155 | .552 | 17 |
| delayed gain | .095 | .700 | 19 | .000 | .999 | 19 | .318 | .185 | 19 | .031 | .905 | 17 |
| **Written production scored pronoun placement** immed.gain | .099 | .685 | 19 | .150 | .541 | 19 | .411 | .081 | 19 | .188 | .471 | 17 |
| delayed gain | .191 | .433 | 19 | .148 | .546 | 19 | .263 | .276 | 19 | .007 | .980 | 17 |
| **Oral production scored pronoun frequency** immed. gain | .345 | .148 | 19 | -.500* | .029 | 19 | .195 | .424 | 19 | -.133 | .611 | 17 |
| delayed gain | .101 | .681 | 19 | -.227 | .349 | 19 | .070 | .775 | 19 | -.001 | .996 | 17 |
| **Oral production scored pronoun form** immediate gain | .273 | .258 | 19 | -.202 | .407 | 19 | .160 | .513 | 19 | -.239 | .355 | 17 |
| delayed gain | .007 | .976 | 19 | -.134 | .584 | 19 | .069 | .780 | 19 | -.279 | .279 | 17 |
| **Oral production scored pronoun placement** immed. gain | .343 | .151 | 19 | -.266 | .271 | 19 | .111 | .650 | 19 | -.228 | .379 | 17 |
| delayed gain | .077 | .754 | 19 | .110 | .655 | 19 | .265 | .273 | 19 | .009 | .973 | 17 |

* $p < .05$.

### 8.4.3 Results for Structured input group

Table 41 presents correlations between gain scores and language aptitude scores for the Structured input (deductive) instruction group.

There were significant positive correlations between gain scores on four written production tests (i.e., written production delayed posttest scored for pronoun frequency, *r* = .496*; written production immediate and delayed posttests scored for pronoun form, *r* = .461*, *r* = .461*; and written production immediate posttest scored for pronoun placement, *r* = .452*) and performance on the Words and Sentences subtest of the MLAT. There were no significant correlations between gain scores on any language test and performance on the Sound Discrimination subtest of the PLAB.

There were significant positive correlations between gain scores on five of the written production tests (i.e., written production delayed posttest scored for pronoun frequency, *r* = .495*; written production immediate and delayed posttests scored for pronoun form, *r* = .442*, *r* = .510*; and these same tests scored for pronoun placement, *r* = .519*, *r* = .542*), one oral production test (i.e., oral production immediate posttest scored for pronoun frequency, *r* = .547*) and performance on the working memory test designed to assess processing of information. Once again there were no positive correlations between gain scores on any test and scores on the working memory test designed to assess storage of information.

Table 41: Correlations between Gain and Language Aptitude Scores for the Structured Input (Deductive) Instruction Group.

| Test | Words and Sentences | | | Sound Discrimin. | | | WM - processing | | | WM - storage | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* |
| **Listening comprehension** immediate gain | -.049 | .834 | 21 | .052 | .823 | 21 | .155 | .502 | 21 | .035 | .881 | 21 |
| delayed gain | -.135 | .560 | 21 | .227 | .322 | 21 | .263 | .250 | 21 | .268 | .240 | 21 |
| **Reading comprehension** immediate gain | -.075 | .747 | 21 | -.220 | .339 | 21 | .087 | .707 | 21 | .046 | .844 | 21 |
| delayed gain | -.169 | .465 | 21 | -.372 | .096 | 21 | .215 | .348 | 21 | .012 | .958 | 21 |
| **Written production scored pronoun frequency** immed.gain | .282 | .215 | 21 | -.006 | .978 | 21 | .223 | .331 | 21 | -.141 | .542 | 21 |
| delayed gain | .496* | .022 | 21 | .059 | .801 | 21 | .495* | .022 | 21 | .096 | .679 | 21 |
| **Written production scored pronoun form** immediate gain | .461* | .035 | 21 | .264 | .247 | 21 | .442* | .045 | 21 | .129 | .577 | 21 |
| delayed gain | .461* | .035 | 21 | .364 | .105 | 21 | .510* | .018 | 21 | .031 | .895 | 21 |
| **Written production scored pronoun placement** immed.gain | .452* | .040 | 21 | .406 | .068 | 21 | .519* | .016 | 21 | -.026 | .911 | 21 |
| delayed gain | .414 | .062 | 21 | .429 | .052 | 21 | .542* | .011 | 21 | .220 | .337 | 21 |
| **Oral production scored pronoun frequency** immed. gain | .093 | .696 | 20 | .133 | .575 | 20 | .120 | .613 | 20 | -.090 | .705 | 20 |
| delayed gain | .048 | .841 | 20 | .070 | .771 | 20 | -.092 | .700 | 20 | .044 | .854 | 20 |
| **Oral production scored pronoun form** immediate gain | .300 | .199 | 20 | .355 | .124 | 20 | .547* | .013 | 20 | .095 | .690 | 20 |
| delayed gain | -.048 | .842 | 20 | .127 | .594 | 20 | .228 | .333 | 20 | .056 | .816 | 20 |
| **Oral production scored pronoun placement** immed. gain | .069 | .772 | 20 | .132 | .578 | 20 | .209 | .377 | 20 | -.061 | .798 | 20 |
| delayed gain | -.048 | .842 | 20 | .127 | .594 | 20 | .228 | .333 | 20 | .056 | .816 | 20 |

* $p < .05$.

In an attempt to account for the unique contribution of the independent variables (i.e., measures of language aptitude) to the variance in the dependent variables (i.e., gain scores on language measures) for the structured input group, a stepwise regression was carried out. Results showed that the independent variables accounted for a significant amount of variance on six tests, that is on the written production delayed posttest scored for pronoun frequency, the written production posttests scored for pronoun form and pronoun placement and the oral production immediate posttest scored for pronoun form. Results are given below.

Results in Table 42 show that the Words and Sentences subtest of the MLAT accounted for approximately 21% ($R^2$ = .213) in the variance of the written production immediate posttest scored for pronoun form.

Table 42: Results from Stepwise Regression Analyses of Written Production Immediate Posttest Scored for Pronoun Form.

| Step 1 | B | SE B | $\beta$ | *t* | Sig. | $R^2$ | *df* | *F* | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| Words & Sentences (MLAT) | .311 | .137 | .461 | 2.265 | .035 | .213 | 1,20 | 5.132 | .035 |

Table 43 shows that both working memory tests accounted for approximately 42% ($R^2$ = .416) of the variance of the written production immediate posttest scored for pronoun placement. However, it is interesting to note that the B weight was negative (B = -.288), meaning that lower scores on the working memory test designed to assess storage of information predicted higher gain scores on this written production test. The greater B weight for the working memory test designed to assess processing of information, B = .494, indicates that it makes a more important contribution to the criterion variable than the working memory test designed to assess storage of information, B = -.288 (Kachigan, 1991).

Table 43: Results from Stepwise Regression Analyses of Written Production Immediate Posttest Scored for Pronoun Placement.

| Step 2 | B | SE B | *β* | *t* | Sig. | $R^2$ | *df* | *F* | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| WM processing | .494 | .138 | .778 | 3.575 | .002 | | | | |
| WM storage | -.288 | .136 | -.462 | -2.123 | .048 | .416 | 2,20 | 6.399 | .008 |

Results in Table 44 show that the working memory test designed to assess processing of information accounted for approximately 30% ($R^2$ = .299) in the variance of the oral production immediate posttest scored for pronoun form.

Table 44: Results from Stepwise Regression Analyses of Oral Production Immediate Posttest Scored for Pronoun Form.

| Step 1 | B | SE B | *β* | *t* | Sig. | $R^2$ | *df* | F | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| WM processing | 3.700 | 1.336 | .547 | 2.770 | .013 | .299 | 1,19 | 7.673 | .013 |

Results in Table 45 show that the Words and Sentences subtest of the MLAT and the working memory test designed to assess processing of information accounted for approximately 40% ($R^2$ = .395) in the variance of the written production delayed posttest scored for pronoun frequency. The B weights show that both the Words and

Sentences subtest and the working memory test designed to assess processing of information made similar contributions to the criterion variable (B = .263, B = .269).

Table 45: Results from Stepwise Regression Analyses of Written Production Delayed Posttest Scored for Pronoun Frequency.

| Step 2 | B | SE B | *β* | *t* | Sig. | $R^2$ | *df* | *F* | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| Words & Sentences (MLAT) | .263 | .125 | .399 | 2.113 | .049 | | | | |
| $WM_{processing}$ | .269 | .127 | .398 | 2.108 | .049 | .395 | 2,20 | 5.882 | .011 |

Results in Table 46 show that the working memory test designed to assess processing of information accounted for approximately 26% ($R^2$ = .260) in the variance of the written production delayed posttest scored for pronoun form.

Table 46: Results from Stepwise Regression Analyses of Written Production Delayed Posttest Scored for Pronoun Form.

| Step 1 | B | SE B | *β* | *t* | Sig. | $R^2$ | *df* | F | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| $WM_{processing}$ | .361 | .140 | .510 | 2.585 | .018 | .260 | 1,20 | 6.681 | .018 |

Results in Table 47 show that the working memory test scored for processing of information accounted for approximately 30% ($R^2$ = .293) in the variance of the written production delayed posttest scored for pronoun placement.

Table 47: Results from Stepwise Regression Analyses of Written Production Delayed Posttest Scored for Pronoun Placement.

| Step 1 | B | SE B | *β* | *t* | Sig. | $R^2$ | *df* | F | Sig. |
|---|---|---|---|---|---|---|---|---|---|
| WM processing | .296 | .105 | .542 | 2.809 | .011 | .293 | 1,20 | 7.892 | .011 |

8.4.4 Results for Inductive instruction group

Table 48 presents correlations between gain scores and language aptitude scores for the Inductive instruction (input/output-based) group.

There were significant positive correlations between gain scores on the listening comprehension immediate posttest ($r$ = .513*), the written production delayed posttests scored for pronoun frequency ($r$ = .598**) and for pronoun form ($r$ = .564**) and performance on the Words and Sentences subtest of the MLAT. There was a significant negative correlation between gain scores on the oral production posttest scored for pronoun frequency and performance on this subtest of the MLAT ( $r$ = -.612**).

There were no significant correlations between gain scores on any language test and performance on either test of working memory.

Table 48: Correlations between Gain and Language Aptitude Scores for the Inductive Instruction (Input/output-based) Group.

| Test | Words and Sentences | | | Sound Discrimin. | | | WM - processing | | | WM - storage | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* | Pearson Correl. | Sig. | *n* |
| **Listening comprehension** immediate gain | .513* | .021 | 20 | -.260 | .267 | 20 | .088 | .712 | 20 | -.073 | .766 | 19 |
| delayed gain | .006 | .981 | 20 | -.294 | .208 | 20 | .126 | .598 | 20 | .124 | .612 | 19 |
| **Reading comprehension** immediate gain | .068 | .777 | 20 | -.067 | .780 | 20 | .109 | .648 | 20 | .113 | .646 | 19 |
| delayed gain | -.204 | .388 | 20 | -.194 | .412 | 20 | .247 | .294 | 20 | -.113 | .645 | 19 |
| **Written prod. scored pronoun frequency** immed.gain | .026 | .914 | 20 | .218 | .356 | 20 | -.054 | .822 | 20 | .279 | .248 | 19 |
| delayed gain | .598** | .005 | 20 | -.057 | .813 | 20 | .049 | .837 | 20 | .207 | .396 | 19 |
| **Written production scored pronoun form** immediate gain | -.069 | .773 | 20 | .241 | .305 | 20 | -.005 | .983 | 20 | .124 | .613 | 19 |
| delayed gain | .564** | .010 | 20 | -.172 | .469 | 20 | .433 | .057 | 20 | -.135 | .582 | 19 |
| **Written prod. scored pronoun placement** immed.gain | -.055 | .816 | 20 | -.064 | .787 | 20 | -.064 | .789 | 20 | .235 | .332 | 19 |
| delayed gain | -.060 | .802 | 20 | .277 | .237 | 20 | .250 | .288 | 20 | -.134 | .585 | 19 |
| **Oral production scored pronoun frequency** immed. gain | .018 | .942 | 19 | -.067 | .786 | 19 | .279 | .247 | 19 | -.289 | .244 | 18 |
| delayed gain | -.612** | .005 | 19 | -.023 | .926 | 19 | .240 | .323 | 19 | .024 | .926 | 18 |
| **Oral production scored pronoun form** immediate gain | -.084 | .731 | 19 | .407 | .084 | 19 | .125 | .611 | 19 | .011 | .965 | 18 |
| delayed gain | -.084 | .731 | 19 | .407 | .084 | 19 | -.370 | .119 | 19 | ° | ° | 18 |
| **Oral production scored pronoun placement** immed. gain | -.341 | .153 | 19 | -.184 | .450 | 19 | .125 | .611 | 19 | -.254 | .308 | 18 |
| delayed gain | [a] | [a] | 19 | [a] | [a] | 19 | [a] | [a] | 19 | [a] | [a] | 18 |

* $p < .05$; ** $p < .01$, [a] = No student in this group scored on this test, ° = No student who sat the memory test scored on this test.

### 8.4.5 Summary of results

Table 49 presents a summary of the significant correlations between gain scores on language tests and performance on language aptitude tests for each instructional group. All correlations are positive unless indicated in parentheses.

Table 49: Summary of Significant Correlations.

| Test | MLAT Words/Sent. | PLAB Sound dis. | Working memory Processing info. | Working memory Storage of info. |
|---|---|---|---|---|
| **Listening comprehension** | | | | |
| immediate gain | Ind. | Output | | |
| delayed gain | | | | |
| **Reading comprehension** | | | | |
| immediate gain | | | | |
| delayed gain | | | | |
| **Written production scored pronoun frequency** | | | | |
| immediate gain | | | | |
| delayed gain | SI/Ind. | | SI | |
| **Written production scored pronoun form** | | | | |
| immediate gain | SI | | SI/Output | |
| delayed gain | SI/Ind. | | SI | |
| **Written production scored pronoun placement** | | | | |
| immediate gain | SI | | SI | |
| delayed gain | | | SI | |
| **Oral production scored pronoun frequency** | | | | |
| immediate gain | | Output (-ve) | | |
| delayed gain | Ind. (-ve) | | | |
| **Oral production scored pronoun form** | | | | |
| immediate gain | | | SI | |
| delayed gain | | | | |
| **Oral production scored pronoun placement** | | | | |
| immediate gain | | | | |
| delayed gain | | | | |

*Note:* SI = Structured input group (deductive); Output = Output-based instruction group (deductive); Ind. = Inductive group (input/output-based).

There were more significant correlations for the Structured input group than for any other group, sixteen percent of the correlations conducted for this group being statistically significant. The majority of these correlations (six) were between gain scores on production tests (five written, one oral) and performance on the working memory test designed to assess processing of information. The remaining four significant correlations for the Structured input group were all between gain scores on written production tests (the written production immediate posttests scored for pronoun form and placement and the written production delayed posttests scored for pronoun frequency and pronoun form) and scores on the Words and Sentences subtest of the MLAT.

Only three (i.e., 5%) of the total correlations conducted for the Output-based instruction group were statistically significant.

A total of four (i.e., 7%) of the total number of correlations conducted for the Inductive instruction group were statistically significant. However three of these correlations were statistically significant at the .01 level. All were between gain scores on production tests and performance on the Words and Sentences subtest of the MLAT. Two of these were for the written production tests (i.e written production delayed posttests scored for pronoun frequency and form, $r$ = .598**, $r$ = .564**). The other, for the oral production delayed posttest scored for pronoun frequency, was a negative correlation ($r$ = -.621**).

There were no significant correlations for any group between language test gain scores and performance on the working memory test designed to assess storage of information.

## 8.5 Discussion

### 8.5.1 Relationship of independent variables

The fact that there was no statistically significant correlation between the Words and Sentences and Sound discrimination subtests demonstrates that these measures were, in fact, assessing skills that were not related. Furthermore, the fact that there were no statistically significant correlations between these two measures and either of the two working memory tests shows that these measures were assessing skills that were not related to those assessed by the working memory tests.

The significant correlation between the two memory tests ($r$ = .395**) indicates, however, that these two aspects of phonological loop function are related. This fits with the dual capacity model of working memory proposed by Baddeley and Hitch (1974), where there is a trade-off between the amount of information that can be stored and the efficiency with which information can be processed.

The fact that the Principal Component Factor analysis identifed one component is some evidence that the measures of language aptitude are testing a unitary construct. However, there is also evidence for three separate components of language aptitude in that the four different measures of language aptitude did load onto three separate factors when three factors were extracted (see Table 38). Factor 1 had high loadings for both memory tests, Factor 2 had high loadings for the Words and Sentences test (MLAT) and Factor 3 had strong loadings for the Sound discrimation test (PLAB). These results lend support to Skehan's model (1998) of three components of language aptitude, that is, phonemic coding ability, language analytic ability and memory.

8.5.2 Correlations between language aptitude and instructional outcomes for group as a whole

Six out of the sixty-four correlations that were conducted for the group as a whole were statistically significant, that is, 9% of correlations conducted. This was above the level that would be expected by chance. There was, furthermore, a clustering of results in that four of these six correlations were between gain scores on the written production tests and performance on the working memory test designed to assess processing of information. One of these was, moreover, statistically significant at the .01 level (written production delayed posttest scored for pronoun form, $r$ = .370**).

The significant correlations between gain scores on the written production tests and performance on the working memory test designed to assess processing of information lends some support to Skehan's model (1998) of information processing, which claims that it is the aptitude component of memory that is most crucial to the production of language output.

8.5.3 Relationship between output-based instruction and language aptitude

There were relatively few statistically significant correlations for this group, that is, only three out of a total of sixty-four correlations conducted. This small percentage (i.e., 5%) is not above the level of chance. There was, furthermore, no pattern to be observed in the way these correlations were distributed.

There is, therefore, little evidence that the instruction that students in this group received was especially beneficial to those students who did well on different measures of language aptitude. The students in this group made greater gains than the students in the Inductive group (see 6.4.2 and 6.4.3) and performed overall better than students in the Structured input group, especially on tests of production (see 7.4.5). The variability in individual performance within this group, as evidenced on Levene's test of homogeneity of variance, has already been discussed (see 6.4.5). However, the results presented here suggest that, for the most part, differences in individual gains did not correlate with differences in language aptitude. It would seem that this type of instruction tends to benefit all language learners. Furthermore, it seems to minimise or level out any effect that individual differences in language aptitude may have with respect to instructional outcomes.

8.5.4 Relationship between structured input instruction and language aptitude

As mentioned above (see 8.3.1), sixteen percent of the total number of correlations conducted for this group were statistically significant, well above the number that could be expected to occur by chance. There was, furthermore, a clustering, rather than a random distribution, of correlations (i.e., correlations between (a) the MLAT subtest and performance on four of the different scoring conditions of the written production tests; (b) the working memory test designed to assess processing of information and five of the different scoring conditions of the written production tests and one oral production test).

The significant correlations between gain scores for the Structured input group on written production immediate posttests scored for pronoun form and placement, written production delayed posttests scored for pronoun frequency and form and scores on the Words and Sentences subtest of the MLAT, demonstrate that those students with greater language analytical ability benefited more from structured input instruction in terms of being able to produce direct object pronouns in written form. Furthermore, stepwise regression showed that this subtest of the MLAT accounted for a significant amount of variance on two of these tests: 21% of the variance on the written production immediate posttest scored for pronoun form and 40% of the variance on the written production delayed posttest scored for pronoun frequency (along with the working memory test scored for processing of information, the B weights show that both tests made similar contributions to the criterion variable, B = .263, B = .269). The instruction that students in this group received did not involve them in activities requiring them to produce the target structure. It did, nonetheless, enable students to produce direct object pronouns on both written and oral tests. However, it is those students with a greater analytical ability who did better, at least on tests of written production. This result suggests that production of the target structure, in a situation where students had not had the chance to practise it, required an ability to analyse the structural patterns within language.

Results also show that those learners with greater working memory capacity for processing of information benefited more from Structured input instruction, in terms of production of the target structure. There were significant correlations between gain scores on all but one written production test (written production immediate posttest scored for pronoun frequency), the oral production immediate posttest scored for pronoun form, and scores on the memory test designed to assess processing of information. The stepwise regression analysis shows that learners' ability to benefit from structured input instruction, in terms of production of the target structure, depended to a greater extent on their working memory ability (for processing of information) than on their language analytic skills. This working memory test accounted for a significant amount of the variance on five of these tests: 40% of the variance on the written production delayed posttest scored for pronoun frequency (along with the MLAT subtest, both subtests made similar contributions to the criterion variable, B = .263, B = .269), 26% of the variance on the written production delayed posttest scored for pronoun form, 42% of the variance on the written production immediate posttest scored for pronoun placement (along with the working memory test assessing storage of information, although the greater B weight for the working memory test designed to assess processing of information, B = .494, indicates that it makes a more important contribution to the criterion variable) and 30% of the variance on the written production delayed posttest scored for pronoun placement and on the oral production immediate posttest scored for pronoun form. The MLAT subtest accounted for a significant amount of variance on two of these tests.

It is interesting to note that correlations between working memory tests and written production tests were greater for gain scores on delayed posttests, than on immediate posttests: written production test scored pronoun frequency, immediate gain, $r$ = .223, delayed gain, $r$ = .495; written production test scored pronoun form, immediate gain, $r$ = .442, delayed gain, $r$ = .510; written production test scored pronoun placement, immediate gain, $r$ = .519, delayed gain, $r$ = .542. The higher correlations for delayed rather than immediate posttest gain scores is evidence that students who had greater working memory processing capacity were more successful at maintaining longterm representations of the target language forms. This result is interesting especially when considered in relation to results of other studies. Mackey et al (2002) found that students with high working memory capacity were more likely to benefit from instructional treatment after a time interval and Ando et al (1992) found that learners' working memory scores did not correlate with learning on an immediate posttest but did correlate with performance on a delayed posttest (2 months after treatment). It may be that learners with enhanced working memory processing capacity were able to process input more deeply and so more successfully maintain long-term representations of the target language forms.

The better results on written production tests obtained by students in the Structured input group with greater working memory processing capacity, provide some evidence of Skehan's claim (1998) that students who are more effective input processors have greater working memory processing capacity (see 4.3). Students in this group worked with input only during instructional treatments. It was those students who did best on the test of working memory, designed to assess processing of information, who were able to benefit most from this type of instruction, as evidenced by the written production tests. VanPatten (2000a) allows a role for working memory within the input processing stage of language learning and claims that input which is held in working memory and hence is available for further processing becomes intake and can thus be accessed by the learner's developing language system. Skehan (1998) claims that those students with greater working memory capacity are better able to notice new forms and integrate these into their developing language system (see 4.3). There is, furthermore, a growing body of SLA research that suggests that individual differences in working memory may account for differences in L2 performance and acquisition (Mackey et al., 2002).

This study, however, provides little evidence to suggest that those students with greater working memory capacity were better able to integrate new language forms into their developing language system, in that there were no significant correlations on tests that required greater time pressure (i.e., listening comprehension test) and only one significant correlation (i.e oral production immediate posttest scored for pronoun form) on a test that required unplanned language use. Both the listening comprehension and oral production tests, which, in addition to imposing time pressure, required students to focus on both form and meaning, may be considered as more accurate measures of implicit language knowledge than the written production test, which students may have been able to complete by focusing on form alone. Any conclusions must, however, be tentative given the low reliability estimates for the listening comprehension tests and the small amount of data that the oral production tests provided. Another, perhaps more plausible, reason for the lack of statistically significant correlations between measures of language aptitude and the listening comprehension tests is that the instruction that students in the Structured input group received minimised the effect of individual learner differences, in much the same way that the instruction that students in the Output-based instruction group received benefited all types of learners.

8.5.5 Relationship between inductive instruction and language aptitude

Only four (i.e., 7%) of the total number of correlations conducted for the Inductive group were statistically significant. However, there was a clustering of results in that two correlations were between gain scores on written production tests and performance on the Words and Sentences subtest of the MLAT. Both of these were, moreover, statistically significant at the .01 level (written production delayed posttest scored for pronoun frequency, $r = .598$**; written production delayed posttest scored for pronoun form, $r = .564$**).

The fact that students who had greater language analytical ability gained more from inductive instruction is not surprising, given that students in this group were given no rule explanation but were engaged in activities that encouraged them to take an active role in hypothesis testing. Robinson (1997) also found that the Words and Sentences subtest of the MLAT correlated with learning in the implicit, rule-search and instructed conditions of his study, but that the strongest correlations were for those in the implicit condition. Task demands in Robinson's implicit condition required careful processing of the form of the stimulus sentences. In this study it is also interesting to note that the correlations were for delayed gain scores only, especially given the contrast with correlations for immediate gain scores ($r$ = .026, $r$ = -.069). These results suggest that these students needed time to consolidate learning of the target forms, before the benefits of instruction were evidenced on a test that required a focus on form.

There were no significant correlations between gain scores for any language test and working memory scores for this group. This is an interesting result, especially when considered in relation to other research that has related learning outcomes to language aptitude. Robinson (1997) found that memory correlated with learning only in the rule-search and instructed conditions of his study. There were no correlations in the implicit (memory task) and incidental (focus on meaning) conditions. Robinson chose, however, to test memory ability by using the paired-associates subtest of the MLAT. Ando et al (1992) found that students with larger working memory spans (as measured in their L1) benefited more from explicit, grammar oriented instruction, while those with smaller spans benefited more from the implicit, communicative instruction. In this study, only the group which received structured input (deductive) instruction produced significant correlations with working memory test scores. There was no evidence that students with lower scores on working memory tests performed better as a result of receiving inductive instruction (i.e., there were no significant negative correlations between gain scores on any language test and working memory scores).

8.5.6 Relationship between results and test design

The significant correlations, in particular for the Structured input instruction group, between scores on the written production tests and the working memory test designed to assess processing of information, need to be considered in relation to the design of the written production test. As described in 5.4.5.3, this test presented students with statements and questions on an overhead transparency. Students were told to rewrite the statements and respond to the questions replacing the underlined words with a pronoun. The working memory test (see 5.5.1.3) was designed to test the process used to recode nonauditory material in a form suitable for the phonological store. It is not surprising, then, that this memory test correlated significantly with a test that presented students with nonauditory input. There were no significant correlations, however, between performance on this memory test and the only other test that presented students with nonauditory input, that is the reading comprehension test. Ranta (2002) claims that tests, like the written production tests, that involve a degree of contextualisation and require students to split attention, in this case, to shift focus from the overhead transparency to the test sheet, place heavy demands on individual differences in working memory capacity. This is another reason why working memory processing capacity should correlate with performance on these tests. However, it is interesting that there were significant correlations for the Structured input group only. These results suggest that there was an interaction between working memory and instruction, and that results cannot be attributed to test design alone.

The majority of significant correlations in this study, that is, twelve out of a total of seventeen, were between gain scores on the written production tests and aptitude measures. This result suggests that the written production tests might have accessed explicit language knowledge to a greater extent than the other language tests. Krashen (1985) claims that only explicit learning is influenced by language aptitude and that implicit learning is immune to individual differences. Some studies have produced evidence, however, to suggest that aptitude may be relevant in both implicit and explicit learning conditions (De Graaff, 1997a; Reves, 1982).

### 8.5.7 Results for memory test designed to assess storage of information

There were no significant correlations between gain scores on any language tests and the memory test designed to assess storage of information. Although this memory test did enter into the stepwise regression for the written production immediate posttest scored for pronoun placement, the B weight was negative, B = -.288 (see below). It is interesting, therefore, to consider why there was no positive relationship between performance on this test and performance on the various language measures.

Papagno and Vallar (1992) claim that in learning unfamiliar words, temporary storage in the phonological loop may be useful as it may allow students to build up semantic relationships among items but that it is perhaps unnecessary at a later stage when semantic processes have been completed (see 4.6.1.2). The fact that the target language forms were already known to the students in this study (instruction focused on helping students to assign another meaning to these already familiar forms, see 5.4.2) suggests that storage in the phonological loop may not have played a significant role during instruction and testing. The lack of positive relationship between performance on the working memory test designed to assess storage of information and the various language measures could also be due to the fact that direct object pronouns in French require processing within, rather than across clauses, thus requiring that less information be stored in working memory. Gathercole and Baddeley (1993) claim that most adult language processing does not require the phonological loop and that the comprehension of clauses and sentences with simple syntactical and semantic structures proceeds on-line and without reference to phonological working memory representations of the message. They maintain, however, that there is some evidence for phonological loop involvement with long and syntactically complex material. In these situations the loop may provide a back-up representation for off-line consultation (see 4.6.1.2). The results of this study suggest that the level of processing that students were engaged in was not influenced by working memory storage capacity, but that it was sensitive to individual differences in the subvocal articulatory rehearsal process (i.e., the process used to recode nonauditory material in a form suitable for the phonological store and to maintain decaying representations in the phonological store, see 4.6.1.2).

Another reason why there was no positive relationship between performance on this test and performance on the various language measures may perhaps be explained by Baddeley and Hitch's model (1974) of working memory as a dual capacity system. They suggest that there will be a trade-off between the two components of the system, that is the processing and storage capacities, whereby one will allow the other to function. The fact that higher scores on the working memory test designed to assess processing of information correlated with higher gain scores on a number of tests suggests that there was a role for processing of information on these tests. This may have meant that there was less working memory capacity available for the storage of information. The fact that higher scores on the working memory test designed to assess processing of information predicted higher scores for the Structured input group on the written production immediate posttest scored for pronoun placement whilst, at the same time, lower scores on the working memory test designed to assess storage of information predicted higher scores on this test, is additional evidence in support of the hypothesis that there was a trade-off between the two components of working memory. Taken together, scores on these two tests accounted for approximately 42% of the variance on these tests (see Table 43).

## 8.6 Conclusion

The research question that this part of the study addresses, asked to what extent learners' ability to benefit from a particular instructional method depends on their language aptitude. A number of conclusions can be drawn:

1. Results suggest that the overall benefits of output-based instruction (deductive) were not related to differences in language aptitude. It would seem that output-based instruction levelled out any individual differences and favoured all types of learners.

2. Results showed that students who scored well on a working memory test designed to assess processing of information benefited most from structured input instruction when assessed on tasks requiring them to produce the target structure. Students in the Structured input group who scored well on a test of language analytical ability also performed well on (written) production tasks. This suggests that it is those students with

higher language analytic ability and greater working memory capacity who are most likely to produce the target structure, when they have not had the opportunity to produce it in instructional treatments. This relationship between success on production tasks and individual learner differences may account for some of the results of previous processing instruction research and structured input research, Benati, 2001; Cadierno 1995; Cheng, 1995; Collentine, 1998; DeKeyser & Sokalski, 1996; Y. Tanaka, 1996; VanPatten & Cadierno, 1993a; VanPatten & Sanz, 1995; VanPatten & Wong, 2001. In these studies, students in the Processing instruction/Structured input groups performed as well on production tasks as students in the Output-based instruction groups. The students in these groups may have had greater language aptitude. They were for example, in all but one study (Y. Tanaka, 1996), University students whereas, in the present study, the subjects were high school students and therefore may have manifested greater variation in working memory processing ability.

3. There was also some evidence that there were advantages over time, on written production tasks, for students with greater language analytical ability who had received inductive instruction (input/output-based).

4. The fact that the majority of correlations were between gain scores on the written production tests and aptitude tests suggests that the written production tests may have been accessing explicit language knowledge (Dekeyser, 2000; Krashen, 1985) although there is research evidence to

suggest that implicit learning may also be influenced by individual learner differences (De Graaff, 1997a; Reves, 1982).

5. Results suggest that the level of processing that students were engaged in, in this study, was influenced to a greater extent by working memory processing capacity than by working memory storage capacity (working memory storage capacity accounted for variance on only one test and higher scores were predicted for those students who had lower scores on this working memory test). This may have been because the target structure was already known to students and necessitated processing within, rather than across clauses. It thus required less information to be stored in working memory. This is further evidence that individual differences in working memory may play an important role in accounting for differences in L2 performance and acquisition (Mackey et al., 2002; Miyake & Freidman, 1998; Skehan, 1998).

# CHAPTER NINE

# CONCLUSION

## 9.1 Overview

This chapter will firstly present a summary of the main findings of the study. It will then investigate the ways in which the study has contributed to a theoretical understanding of how form-focused instruction may best foster learning. The methodological issues that are raised by the research findings of the study will be discussed. The pedagogical implications will then be considered so that conclusions can be drawn as to how teachers may most effectively implement form-focused instruction in the L2/foreign language classroom.

The chapter will conclude by considering the limitations of the study and possible further directions for future research.

## 9.2 Summary of main findings

The three research questions that this study addresses and the main conclusions that can be drawn from the results obtained are presented below.

### 9.2.1 Research question 1.

> What are the relative effects of deductive and inductive instruction on the acquisition of direct object pronouns in L2 French?

Results show that deductive instruction that includes explicit positive knowledge in the form of metalinguistic information (Zobl, 1995) and rule explanation, facilitates learning to a greater extent than inductive instruction that includes significantly less metalinguistic information and no explicit rule explanation but rather draws students' attention to language forms and involves them in hypothesis testing.

While students who received deductive instruction made greater gains, results indicate, however, that they may have gained explicit rather than implicit language knowledge. This conclusion is suggested by the following:

1. There was more variability among students' scores in the Deductive group than students' scores in the Inductive group.
2. The gains that students in the Deductive group made showed greater evidence of atrophy over time than gains that students in the Inductive group made.
3. Gains made by students in the Deductive group were most evident on tests that allowed students to focus on linguistic form and least evident on tests that allowed them to focus on meaning only.

Results also provide some evidence in support of Hulstijn and de Graaff's suggestion (1994) that there may be a greater effect for explicit rule explanation on the learning of syntactical than morphological language features. For example, the group that received inductive instruction performed better on measures of language production that assessed the morphological features of the target structure.

9.2.2 Research question 2.

What are the relative effects of structured input instruction and output-based instruction on the acquisition of direct object pronouns in L2 French?

Results show that both types of instruction enable students to make some gains on comprehension tests. However, there is some evidence for greater gains over time on comprehension tests by students who receive structured input instruction. The Structured input group made statistically significant gains over time on the reading comprehension tests whereas the Output-based instruction group did not.

Students who receive structured input instruction are also able to produce the target structure on production tests, even though they have never been engaged in any activity requiring them to produce the structure during the instructional treatments. Results indicate, however, that students who receive primarily meaning-oriented output-based instruction make greater gains on production tests than students who receive structured input instruction. The following reasons are suggested to account for the greater gains of these students on production tests.

1. Meaning-oriented output-based instruction that induces attention to form enables students to make form-meaning connections in the input they receive.
2. Output-based instruction enables students to produce the target structure with greater automaticity, as evidenced on tests that require a pressured response.

9.2.3 Research question 3

To what extent does learners' ability to benefit from a particular instructional method depend on language aptitude?

Results suggest that output-based instruction minimises any effect that individual differences in learner aptitude may have with respect to instructional outcomes.

There is evidence to indicate that students who have greater language analytical ability may gain more from inductive instruction over time when assessed on tests of written production.

Results show that students who have greater working memory capacity (for processing of information) and greater language analytical ability benefit most from structured input instruction when assessed on tests of written production. Learners' ability to benefit from structured input instruction, in terms of production of the target structure, depends however, to a greater extent on working memory ability (for processing of information) than on language analytic skills.

## 9.3 Theoretical implications of research findings

This discussion will address four main theoretical issues, a number of which, as will be seen, overlap in part.

### 9.3.1 Input

#### 9.3.1.1 Positive versus negative evidence

The importance of the role of input in the language acquisition process is highlighted by this study. Students who had worked uniquely with language input and not engaged in language output at any stage of production were nevertheless able to produce the target structure on measures of both written and oral production. However, students in this study were provided with different types of language input. A crucial question to consider is which type of language input best fosters intake. Intake is defined as input that has been noticed by students and stored in short-term memory.

In this study, students were provided with two main types of input: positive evidence and negative evidence (Long & Robinson, 1998). Input can contain positive evidence about what is possible in the L2 or it can contain negative evidence in the form of, for example, grammar rules and explicit error correction. In this study, all students received language input that contained examples of the target structure in context (positive evidence). Some of this input students received while they were working at activities that engaged them in language output (see 9.3.3). Students in all groups also received input in the form of explicit error correction (negative evidence). Table 50 indicates the type of input that students in the different instructional groups received. It also indicates whether students in these groups were required to produce language output, as well as receiving language input, during instructional treatments.

Table 50: Input that Students Received in Form-Focused Instructional Treatments

| Instructional comparison | Group | Input | | | Output | Results |
|---|---|---|---|---|---|---|
| | | Positive evidence | Negative evidence | | | |
| | | | Rule expl. | Corrective feedback | | |
| Deductive vs Inductive | Deductive | * | * | * | * | Significantly greater gains for Deductive group. |
| | Inductive | * | | * | * | |
| Structured input vs Output-based | Structured input | * | * | * | | Significant gains for both grps. on compre. & prod. tests. |
| | Output-based (Deductive) | * | * | * | * | Greater gains for Output grp. on prod. tests. |

In terms of input, a key variable that was manipulated in this study was the provision of negative evidence in the form of rule explanation[10], in that this was the one form of input that not all groups received. Results from this study, that show greater gains for both the Deductive and Structured input (Deductive) groups than for the Inductive group, indicate that rule explanation fosters learning. However the rule explanation that students in this study received was always accompanied by input that encouraged students to make form-meaning connections (see 9.3.3). Therefore, it can be hypothesized that rule explanation, in combination with input that contains positive evidence, leads to increased understanding and learning of the target structure. VanPatten and Oikkenon (1996) and Benati (2002) found little effect for explicit

[10] As rule explanation includes metalinguistic information, we will use the one term to refer to both.

grammar instruction on its own when it was contrasted with explicit instruction that included input-based activities. Benati (2002) found that students who worked at input-based activities only made greater gains than students who had received explicit grammar instruction but no practice activities.

Results also indicate that instruction which gives students minimal metalinguistic information and does not include rule explanation is more likely to facilitate the learning of morphological aspects of language, whereas instruction that includes this type of negative evidence input is more likely to foster learning of the syntactical aspects of language.

Conclusions must, however, be considered in relation to the population targeted, that is, high school learners. All of the other studies (reviewed in Chapter 2) that have operationalised deductive and inductive instruction in the way that they were in this study, have targeted adult populations. It is uncertain to what extent the results obtained in this study may be specific to a high school population.

#### 9.3.1.2 Input processing instruction

Results from this study have implications for the theoretical claims of input processing. In input processing instruction, students receive positive evidence input in the form of input-based activities and negative evidence input in the form of rule explanation and corrective feedback. However, the instruction is also strategy driven, in that instruction aims to direct students away from an unhelpful input processing strategy. The target structure chosen is one that has been demonstrated to cause processing problems for students according to VanPatten's principles of input processing.

In this study, results indicate that input-based instruction which targets a structure that is acoustically non-salient, is not superior to output-based instruction. VanPatten (2002a) states that his input processing principle P4 (i.e., Learners first process elements in sentence/utterance final position) "can be used to examine forms in a language to determine to what extent they are acoustically non-salient" and . . . "then PI (i.e., processing instruction) activities could be constructed for a good deal of structures and forms" (p. 768). In this study, students who worked at input-based activities that encouraged them to pay attention to the form of the target structure while processing it for meaning, did not achieve higher scores than students who received meaning-oriented output-based instruction. However, VanPatten claims elsewhere (personal communication, 2002) that P4 cannot be used to select structures for input processing instruction because it does not lead students to wrongly process input. It appears that not all the principles of input processing identified by VanPatten lend themselves to input processing instruction research. In this case, the applicability of input processing instruction is more circumscribed than it first seems. To date, only two principles of input processing (i.e., the first noun strategy [P1] and the lexical processing strategy [P3]) have been the subject of empirical investigation. The two original studies (VanPatten & Cadierno 1993a & b) and two further studies (VanPatten & Sanz, 1995; VanPatten & Oikkenon, 1996) that VanPatten identifies as "replications" (see 3.5) have, furthermore, all targeted the same structure, that is, direct object pronouns in L2 Spanish. This, together with the fact that input processing instruction is informed by a narrow set of principles of input processing that identify processing difficulties for students (only some of which can be used to inform research in input processing instruction), and that to date research has investigated only two of these suggests that claims about the effectiveness of input processing instruction and indeed, its usefulness, must necessarily be tentative. The superior gains that VanPatten (2002a) has claimed for input processing instruction seem hardly surprising if input processing instruction (a) can only target (a limited number of) structures that students are known to process wrongly and if (b) students in one group who receive information about this incorrect input processing strategy and undertake activities directing them away from it are compared with another group receiving neither.

### 9.3.2 Output

The model of language acquisition that informs mainstream second language acquisition puts forward three main processes (see 3.2). Instruction can target two of these three main processes, that is, (1) intake and (3) language production (R.Ellis, 2001). This study allows a comparison of the effectiveness of instruction that targets language input (input that is noticed by students and stored in short-term memory becomes intake) and instruction that targets language production.

Results show that gains for students in the Output-based instruction group were greater on tests that required a pressured response. This indicates that output has a role in encouraging automaticity in language use and provides some evidence for the hypothesis that skills develop when skills are practised (DeKeyser & Sokalski, 1996).

### 9.3.3 Form-meaning mappings

The results of this study indicate the importance of having students work at language activities that allow them to make form-meaning mappings. Students in the Structured input and Inductive instruction groups worked at input-based language materials (based on VanPatten, 1996) that they could not correctly complete, in the majority of cases, unless they correctly processed the targeted language form for meaning. The input-based activities that students in the Structured input group worked at, which provided students with input that constituted positive evidence (see 9.3.1.1), in conjunction with input that provided them with negative evidence (i.e., rule explanation and corrective feedback), led to significant gains for this group and enabled them to produce the target structure, whereas they had not had the chance to do so in instructional treatments.

However, the creation of form-meaning mappings by students was not restricted to those contexts where students were working with language input. It has been argued that a key reason for the success of output-based instruction in this study (in comparison with limited gains in input processing instruction/structured input studies where students in the Output-based instruction group were given mechanical language practice) is that the production practice activities allowed students to establish form-meaning connections because they were meaning-oriented and induced attention to form (see 7.4.3). The idea that requiring students to produce output may encourage students to process language more deeply has been suggested by Swain (1995). She argues that output may push the learner to move from the semantic processing prevalent in comprehension to the syntactic processing needed for production. In this study, it can be argued, the meaning-oriented nature of the majority of output-based activities enabled students to make form-meaning connections and fostered learning.

### 9.3.4 Language aptitude

The results of this study have implications for research in language aptitude. These will be dealt with below.

9.3.4.1 Skehan's model of language aptitude

This study provides some evidence that language aptitude is a unitary concept. A Principal Component Factor analysis performed on all the language aptitude measures used in the study identified one component. However, there is also evidence from the study for three separate components of language aptitude. The four different measures of aptitude did load onto three separate factors when three factors were extracted (see Table 38). This provides some support for Skehan's model (1998).

Skehan relates the three separate components of language aptitude to an information processing model of language acquisition (see 4.3). He associates each component of aptitude with a different stage of information processing, claiming that the aptitude component of memory is most crucial to the production of language output but that there is also a role for memory within the input stage. Results from this study provide support for Skehan's claim that those students who have greater memory capacity (for processing information) are more effective in completing language production tasks. There is also some evidence to suggest that students with greater memory capacity for processing of information are more effective processors of language input.

9.3.4.2 Working memory

As suggested in 9.3.4.1 above, there is evidence from this study to suggest that individual differences in working memory may play an important role in accounting for differences in L2 learning and performance.

The model of memory that inspired the research in this study was based on Baddeley's model (1999), which posits that there are three main components to working memory.

The tests used in this study were designed to assess phonological loop functioning and results provide evidence for the involvement of this component of working memory in language learning. They also provide some evidence (see 9.5.7) for a dual capacity model of working memory (Baddeley & Hitch, 1974). There was, for example, a significant correlation between the two measures of working memory used, and a stepwise regression analysis showed that higher scores on one working memory test and lower scores on the other predicted higher gain scores on the written production posttest scored for pronoun form (see 8.4.3, Table 43).

There is, however, little evidence to suggest that students with greater working memory capacity are better able to integrate new language forms into their developing language system, in that there were no significant correlations on the one test that, arguably, was the most likely measure of implicit language knowledge (i.e., listening comprehension test).

9.3.4.3 Language aptitude and input processing research

This study poses another challenge for research that has demonstrated the superiority of processing instruction over output-based instruction. Results suggest that instruction that targets language input and does not require students to engage in language output, may benefit learners who have higher language analytic ability and greater working memory capacity (for processing of information), at least when the effects of learning are measured on written production tasks (as the effects of a number of processing instruction studies are). In contrast, output-based instruction seems to minimise the effect of differences in language aptitude. We have already suggested (see 8.6) that the superior gains for processing instruction in these studies may be attributed to the fact that in all but one study (VanPatten & Oikkenon, 1996) the target population was University students. The students in these studies may well have had higher language aptitude.

9.3.5 Summary of theoretical implications of research

1. Input that provides students with negative evidence in the form of rule explanation, in combination with input that contains positive evidence, fosters L2 learning amongst high school students.
2. Engaging students in production of language output promotes automaticity of language use.
3. Language activities that enable students to create form-meaning mappings foster learning.
4. VanPatten's principles of input processing appear to have limited application in terms of specifying a range of language structures that cause processing difficulties for students and that are therefore amenable to processing instruction. There is tentative evidence to suggest that gains for students in processing instruction research to date may be attributed to individual differences in language aptitude.
5. There is evidence to support Skehan's model of three components of language aptitude, with a role for memory at the input and output stages of information processing.
6. The role of the phonological loop, one of the three main components of working memory, in language learning and language performance is underlined.

The evidence from this study suggests, however, that form-focused instruction promotes explicit language knowledge only (see 9.2.1). There is little evidence that form-focused instruction fosters the acquisition of implicit language knowledge. All students made limited gains on an oral production test that required unplanned language use. It is hypothesised that the limited duration of instructional treatments (135 mins.) was insufficient to promote the acquisition of implicit knowledge. (A related problem is the difficulty of specifying reliable measures of implicit language knowledge, see 9.4.1 below). The question arises as to what kind of L2 knowledge the instructional treatments contributed to.

## 9.4 Methodological issues raised by research

### 9.4.1 Difficulty of measuring implicit language knowledge

This study has highlighted the difficulty of designing reliable measures of implicit language knowledge. In Chapter 1, we presented an overview of the variation in opinion among researchers as to how implicit knowledge may be accessed. Most would, nonetheless, argue that measures that require the use of spontaneous, fluent and contextualised language are less likely to allow students to rely on explicit language knowledge. In this study, the difficulty of deciding just how much time pressure to exert in a written production test, so that all students would have time to write answers but none would have time to monitor their performance, was highlighted. The difficulty with the oral production test, which required the use of contextualised, unplanned language with some time pressure, was that there were relatively few obligatory occasions for use of the target structure. Furthermore, as discussed in Chapter 5 (see 5.4.5.4), it was impossible to be sure that students were unaware that this was a test of their ability to produce direct object pronouns, in which case they may have been able to access explicit language knowledge, especially on occasions where they paused before beginning or completing an utterance. An investigation of learner awareness would enable conclusions to be drawn about the learner-internal processes that come into play during test-taking and may be crucial in determining whether given measures are more likely to access explicit or implicit knowledge (Schmidt, 1994b).

### 9.4.2 Difficulty of distinguishing between input and output instruction

The input that students in this study received was not restricted to situations where they received rule explanation (negative evidence) from the instructor or worked at input-based activities (positive evidence) that did not require them to produce the target structure. We have already argued (see 9.3.3) that the activities that students in the Output-based instruction group were involved in when they worked at production practice activities, enabled them to make form-meaning mappings and thus also constituted input for language learning.

Thus far, our discussion of language input that students received has been restricted to input that was manipulated by the instructor. However, the students themselves provided another important source of input. Students in two instructional groups (i.e., Deductive [output-based] and Inductive instruction groups) were, at times, during instruction, engaged in production practice activities where they worked in pairs. The output that one student produced could have served as input that enhanced the learning of his/her classmate. A computer-based study would reduce the possibility that students working at output-based activities gain language input from other students, and allow for a more accurate comparison of the effects of having students work at input-based activities and output-based activities.

### 9.4.3 Difficulty of conducting experimental classroom research

The pilot study highlighted the difficulty of doing experimental classroom research with University students as the target population. Research of this nature requires that students attend all instructional and testing sessions in order for results to be included for analysis. In an instructional situation where students were not obliged to attend classes, it proved impossible to ensure an adequate sample size. (Giving students a financial incentive to attend classes over the period of the research project may have ensured consistent attendance. This was, however, not possible, and, when the project was planned it was not considered to be necessary). Moving the research project into a secondary school environment engendered, however, another set of problems. The researcher had considerably less control over factors that potentially impacted on the success of the project in a context in which she was a visitor, rather than a member of staff (as was the case in the University setting). She was, for example, considerably dependent on the goodwill of those teachers whose students were involved in the project. While all teachers were initially positive about the project and keen to have their students participate, there was, over time, some reluctance from some teaching staff to allow the withdrawal of students from classtime for language testing. Furthermore, in a large school where classroom space was at a premium, it was difficult to find rooms that could be used for language testing and the researcher was dependent on teaching staff to make these practical arrangements for her. On one occasion she arrived at a classroom, with a group of students, to find it already occupied. On another, she was told that a particular classroom would be "empty" only to find that it was indeed empty, to the extent that it did not even contain desks and chairs. Conducting the research in a high school did ensure a larger sample size, but nonetheless, student absence from class due to illness or other extracurricular activities (sports events etc.)

meant that a total of 26 students had to be excluded from the study. The short duration of the instructional treatments (i.e., 135 minutes) has been referred to as a limitation of the study. However, lengthening the instructional treatments would have led to a further reduction in sample size because it would have afforded increased possibility for student absence.

## 9.5 Pedagogical implications of research findings

The importance of giving students in a high school L2 learning environment, language input that provides them with both positive evidence and negative evidence, in the form of rule explanation, is highlighted by the results of this study. This conclusion runs counter to the current climate of L2 language teaching in New Zealand, where there is little emphasis on grammar. The New Zealand French curriculum (Ministry of Education, 2002), for example, makes only a passing reference to grammar. It specifies that, from time to time, the teacher will need to "use communicative grammar activities, which encourage students to practise grammar in contexts that reflect real-life communication as realistically as possible" (p.17) and then describes communicative grammar activities as involving "an information gap of some kind" (p.17). This reference, which includes no description of how these activities enable students to pay attention to language form, indicates a misunderstanding of what grammar is. Furthermore, the fact that this is the only mention of grammar in the curriculum document indicates that it has a low priority in the instructional context. This would suggest that teachers need to be educated to understand the importance of using rule explanation with students in order to foster language learning.

The fact that this study provides evidence of the value of input-based instruction as an instructional method is an encouraging result for the designers of any language programme that requires students to work autonomously and affords little or less opportunity for teacher or other-learner interaction, that is, that offers students fewer possibilities to engage in the production of language output. At a time when distance learning courses are an increasingly attractive option, allowing students who are unable to participate in a classroom learning environment the possibility of learning another language, it is reassuring for students and practitioners alike to be reminded of the crucial role that input plays in language learning. Students can be assured that an instructional method that allows them less opportunity to engage in language production, will nevertheless enable them to learn effectively. Educators need advice, however, as to how to design input-based activities that will most effectively foster learning.

Evidence suggests that classroom instruction should indeed give students opportunities to work with both language input and language output. Results from this study tentatively suggest that allowing students to work only at input-based activities may lead to greater long term gains on measures of comprehension. Engaging students in language production leads to greater gains in automaticity of language use. Another reason to engage students in activities that require them to produce language output is the evidence that indicates that this method of instruction may level out individual differences in language aptitude and hence benefit a wide range of learners.

Evidence from this study suggests that language activities that help students establish form-meaning connections foster L2 learning. Students make form-meaning mappings while engaging in activities that require them either to produce language output, provided that there is a focus on meaning, or that involve processing input. Teachers and educators need to know how to create activities that require students to focus attention on form and process form for meaning. They need to be shown how to design activities which students cannot correctly complete accurately unless they have correctly processed the targeted language form for meaning.

This study demonstrates that form-focused instruction that involves focus-on-forms promotes L2 learning. While it provides no evidence that a focus-on-forms approach to form-focused instruction, over a short period of time, leads to implicit language knowledge, we have discussed, in Chapter 1, the fact that form-focused instruction that is effective (i.e., informed by the guidelines given above) is more likely to act as a prime for implicit language knowledge (R.Ellis, 1995).

9.6 Limitations

A number of the weaknesses of this study have already been mentioned. In Chapter 5 (see 5.4.5.5) the poor reliability of the measures of comprehension, in particular, of the test of listening comprehension, was discussed.

The fact that a small percentage of output-based instruction materials were mechanical, as defined by Lee and VanPatten (1995), instead of being meaning-oriented as originally intended, has also been referred to (see 5.4.4.5). In Chapter 7 we have discussed the fact that not all input-based activities ensured that students were unable to perform the given language task correctly unless they processed the target structure for meaning.

It is regrettable that no retrospective reporting of student focus during test completion was incorporated in the research design of the study (see 9.4.1). Such information may have enabled conclusions to be drawn about whether tests more likely assessed explicit or implicit language knowledge.

## 9.7 Future research directions

There is a need for further research to investigate the effects of deductive and inductive instruction, as operationalised in this study, on other high school populations in order to determine to what, if any, extent the results obtained in this study were specific to the population utilised.

As mentioned above (see 9.4.2), a computer-based study would allow for a clearer comparison of the role of input and output in language learning in that it would eliminate the input that students engaging in output-based activities, may receive from other students in classroom-based research.

Further research is needed to ascertain whether engaging students in the production of language output enables them to make greater gains in automaticity of language use, as the results of this study suggest.

There is a need for additional research that investigates the relationship between the effectiveness of different instructional methods and individual differences in language aptitude. Results that suggest that meaning-oriented output-based instruction minimises the effect of individual differences in language learning need to be corroborated by further research evidence.

## 9.8 Conclusion

This study has underlined the effectiveness of form-focused instruction that involves focus-on-forms in a high school L2 learning environment. Research findings allow conclusions to be drawn as to those aspects of form-focused instruction that are most likely to foster L2 learning. They thus make a valuable theoretical contribution to SLA understanding and research but also have important implications for those involved in teacher education and L2 language programme design.

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## APPENDIX A: ETHICS FORMS

### Participant Information Sheet

Title: Form-focused instruction

To: The Principal
………. College

I am a doctoral student at the University of Auckland working in the area of Applied Linguistics. In particular, I am interested in researching how to best teach grammatical structures to foreign language learners.

I would like to further research that I have been conducting at the University of Auckland by extending it to a secondary school setting. I have chosen ……….. College because of the unusually (in comparison with many other secondary schools) large numbers of students opting to study French. I am also familiar with the school, having had the privilege of attending tutorial sessions with ……….. during my completion of a Secondary teacher retraining certificate in 1999. I also did some French teaching at that time in the Languages department and am currently registered as a teacher. I would plan to run this project, which will investigate the relative merits of different instructional methods in the teaching of grammatical forms, in the fourth term of this current school year.

Each of the four 4th form French classes will receive a particular type of instruction over a period of 3 class lessons only. I plan to carry out the teaching myself. Class lessons will be audiotaped so that there is a record of the teaching procedure followed. Students will be tested prior to the instruction to verify that they have no (or limited) knowledge of the structures taught. They will be tested after the instruction and once more at the end of the term to ascertain the longterm effects of the different instructional methods. Tests will be of short duration (20 minutes) and may involve a recording of oral production. All testing will take place during class time. Test scores will not count towards students' course assessment and final grade for French.

The instruction that students receive as part of this research project will be fully integrated into their normal teaching programme although they will be introduced to the target structure slightly in advance of their current class schedule. One of the four classes will function as a control group. Students in this class will receive instruction that is part of their normal teaching programme. Classes will be randomly selected to receive instruction in the target structure or constitute the control group. In the event that any class was disadvantaged with respect to another in terms of the benefits gained from a particular teaching method, they would receive additional instruction as part of their normal timetabled programme.

Parents'/guardians' consent to allow students to participate in this study will be obtained in writing. This decision is of course voluntary and they are free to decline involvement without giving any reason. They may also withdraw students from the research project at any time without giving any reason. They are also free, should they so decide, to withdraw any information/data provided up until the end of Term 4, 11 December 2000. Students who are not permitted to participate in the study will still receive the instruction as part of their class teaching programme.

Information gained from this study may be published but students' names will not appear in any publication nor will the name of the school. No name will be recorded on any data relating to this study stored within the department. All participants will be assigned a number, thus ensuring anonymity.

Teachers in the Languages department who are to be involved in this study will be given a Participant Information Sheet and asked to sign as Assent Form.

It is expected that this study will help second language teachers ascertain which instructional methods best result in mastery of language structures. The benefits to future students of French will be a greater emphasis on these methods in course design and teaching.

Thank you very much for your time. If you are happy for this study to be conducted at ………….. College please sign the attached Assent Form. If you have any queries or wish to know more please, phone me or write to me.

Rosemary Erlam
Department of French
The University of Auckland
Private Bag 92019
Auckland

Tel. 3737 599 X7121/3 [e-mail: r.erlam@auckland.ac.nz]

Main supervisor : Professor Rod Ellis
Institute of Language Teaching & Learning
The University of Auckland
Private Bag 92019
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Tel. 373 7599 extn.4876

Co-supervisor: Mrs Glenn Ekambi
Department of French
The University of Auckland
Private Bag 92019
Auckland
Tel. 373 7599 extn.7610

For any queries regarding ethical concerns please contact:

The Chair, The University of Auckland Subjects Ethics Committee
The University of Auckland, Research Office - Office of the Vice Chancellor, Private Bag 92019, Auckland. Tel. 373 7599 extn.7830

**Approved by the University of Auckland Human Subjects Ethics Committee on October 11 2000 for a period of 6 years, from 2000/to/2006. Reference 2000/004.**

**ASSENT FORM**

**THIS ASSENT FORM WILL BE HELD IN THE FRENCH DEPARTMENT FOR A PERIOD OF SIX YEARS**

Title: **Form-focused instruction**

Researcher: **Rosemary Erlam**

I agree/do not agree to this research being conducted in the Languages department at ………….. College. (delete one)

Signed:

Principal
…………. College

Date:

**APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE**

on October 11 2000 for a period of 6 years, from 2000/to/2006. Reference 2000/004.

Participant Information Sheet

Title: Form-focused instruction

To: Teaching staff
Languages department
………… College

I am a doctoral student at the University of Auckland working in the area of Applied Linguistics. In particular, I am interested in researching how to best teach grammatical structures to foreign language learners.

I would like to further research that I have been conducting at the University of Auckland by extending it to a secondary school setting. I have chosen ………. College because of the unusually (in comparison with many other secondary schools) large numbers of students opting to study French. I would plan to run this project, which will investigate the relative merits of different instructional methods in the teaching of grammatical forms, in the fourth term of this current school year.

Each of the four 4th form French classes will receive a particular type of instruction over a period of 3 class lessons only. I plan to carry out the teaching myself and have current registration as a N.Z teacher. Class lessons will be audiotaped so that there is a record of the teaching procedure followed. Students will be tested prior to the instruction to verify that they have no (or limited) knowledge of the structures taught. They will be tested after the instruction and once more at the end of the term to ascertain the longterm effects of the different instructional methods. Tests will be of short duration (20 minutes) and may involve a recording of oral production. All testing will take place during class time.

The instruction that students receive as part of this research project introduces them to the target structure slightly in advance of their current class schedule. All teaching will be appropriate to an adolescent population and aim as much as possible to integrate with their normal teaching programme. In the event that any class was disadvantaged with respect to another in terms of the benefits gained from a particular teaching method, I would offer additional instruction as part of their normal timetabled programme.

Parents'/guardians' consent to allow students to participate in this study will be obtained in writing. This decision is of course voluntary and they are free to decline involvement without giving any reason. They may also withdraw students from the research project at any time without giving any reason. They are also free, should they so decide, to withdraw any information/data provided up until the end of Term 4, 11 December 2000. Students who are not permitted to participate in the study will still receive the instruction as part of their class teaching programme.

Information gained from this study may be published but students' names will not appear in any publication nor will the name of the school. No name will be recorded on any data relating to this study stored within the department. All participants will be assigned a number, thus ensuring anonymity.

It is expected that this study will help second language teachers ascertain which instructional methods best result in mastery of language structures. The benefits to future students of French will be a greater emphasis on these methods in course design and teaching.

Thank you very much for your time. If you have any queries or wish to know more, please phone me or write to me.

Rosemary Erlam
Department of French
The University of Auckland
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Auckland

Tel. 3737 599 X7121/3 [e-mail: r.erlam@auckland.ac.nz]

Main supervisor : Professor Rod Ellis
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For any queries regarding ethical concerns please contact:

The Chair, The University of Auckland Subjects Ethics Committee
The University of Auckland, Research Office - Office of the Vice Chancellor, Private Bag 92019, Auckland. Tel. 373 7599 extn.7830

**Approved by the University of Auckland Human Subjects Ethics Committee on October 11 2000 for a period of 6 years, from 2000/ to /2006. Reference 2000/04.**

**ASSENT FORM**

**THIS CONSENT FORM WILL BE HELD IN THE FRENCH DEPARTMENT FOR A PERIOD OF SIX YEARS**

Title: **Form-focused instruction**

Researcher: **Rosemary Erlam**

I agree/do not agree to this research being conducted in the Languages department at ………….. College. (delete one)

Signed:

HOD/Teacher
Languages department
………….. College

Date:

**APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE**

on October 11 2000 for a period of 6 years, from 2000/to/2006. Reference 2000/004.

Participant Information Sheet

Title: Form-focused instruction

To: Parents/guardians of students of French at ………….. College

I am a doctoral student at the University of Auckland working in the area of Applied Linguistics. In particular, I am interested in researching how to best teach grammatical structures to foreign language learners.

I would like to further research that I have been conducting at the University of Auckland by extending it to a secondary school setting. I have chosen ………….. College because of the unusually (in comparison with many other secondary schools) large numbers of students opting to study French. I am also familiar with the school, having had the opportunity to attend tutorial sessions with ……………. during my completion of a Secondary teacher retraining certificate in 1999. I also did some French teaching at that time in the languages department and am currently registered as a teacher. I would plan to run this project, which will investigate the relative merits of different instructional methods in the teaching of grammatical forms, in the fourth term of this current school year. The project has the full support and cooperation of all staff of the Languages department.

Each of the four 4th form French classes will receive a particular type of instruction over a period of 3 class lessons only. Class lessons will be audiotaped so that there is a record of the teaching procedure followed. Because of the way the microphone will be placed to focus primarily on the teacher, this recording should not allow for identification of any student during participation in class activities. Students will be tested prior to the instruction to verify that they have no (or limited) knowledge of the structures taught. They will be tested after the instruction and once more at the end of the term to ascertain the longterm effects of the different instructional methods. Tests will be of short duration (20 minutes) and may involve a recording of oral production. All testing will take place during class time. Test scores will **not** count towards student's course assessment and final grade for French.

The instruction that students receive as part of this research project will be fully integrated into their normal teaching programme although they will be introduced to the target structure slightly in advance of their current class schedule. All teaching will be appropriate to an adolescent population. One of the four classes will function as a control group. Students in this class will receive instruction that is part of their normal teaching programme. Classes will be randomly selected to receive instruction in the target structure or consitute the control group. In the event that any class was disadvantaged with respect to another in terms of the benefits gained from a particular teaching method, I would offer additional instruction as part of their normal timetabled programme.

Your decision to allow students to participate in this study is of course voluntary and you are free to decline involvement without giving any reason. You may also withdraw students from the research project at any time without giving any reason. You are also free, should you so decide, to withdraw any information/data provided up until the end of Term 4, 11 December 2000. Students who are not permitted to participate in the study will still receive the instruction as part of their class teaching programme.

Information gained from this study may be published but students' names will not appear on any publication nor will the name of the school. No name will be recorded on any data stored within the department and relating to this study. All participants will be assigned a number, thus ensuring anonymity.

It is expected that this study will help second language teachers ascertain which instructional methods best result in mastery of language structures. The benefits to future students of French will be a greater emphasis on these methods in course design and teaching.

Thank you very much for your time. If you have any queries or wish to know more, please phone me or write to me.

Rosemary Erlam
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**Approved by the University of Auckland Human Subjects Ethics Committee on October 11 2000 for a period of 6 years, from 2000/ to /2006. Reference 2000/04.**

**CONSENT FORM**
**(Please return in stamped addressed envelope)**

**THIS CONSENT FORM WILL BE HELD IN THE FRENCH DEPARTMENT FOR A PERIOD OF SIX YEARS**

Title: **Form-focused instruction**

Researcher: **Rosemary Erlam**

. I allow/do not allow _____________ (student's name) to participate in this research study. (delete one)

. I understand that the speech of participating students may be audio taped.

Signed:

Date:

**APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE**

on October 11 2000 for a period of 6 years, from 2000/to/2006. Reference 2000/004.

Participant Information Sheet

Title: Form-focused instruction

To: Students of French at …………. College

I am a student at the University of Auckland researching how to best teach grammatical structures to students of French.

I would like to invite you to participate in a research project that will take place during the Term 4 of this school year. This project will try to find out which teaching methods best help you learn how to understand and use certain language structures in French.

Your class will receive a particular type of teaching over a period of 3 class lessons only. These class lessons will be audiotaped so that there is a record of the teaching procedure followed. You will be tested prior to the teaching to check that you don't already know what we are trying to teach you. You will be tested after the instruction and once more at the end of the semester to see if your learning has changed with time. All tests will be in class time and will be short (20 minutes). They may involve you being tape-recorded speaking French. Test scores will NOT count towards your class assessment or final exam in French.

Your decision to be a part of this study is voluntary and you are free to decline without giving any reason. If you decide not to participate in the study you will still attend class as normal and receive the teaching as part of your regular teaching programme.

This study will help teachers of French know how they can teach you better!

Thank you very much for your time and help in making this study possible.

Ms R. Erlam

**ASSENT FORM**

**THIS CONSENT FORM WILL BE HELD IN THE FRENCH DEPARTMENT FOR A PERIOD OF SIX YEARS**

Title: **Form-focused instruction**

Researcher: **R. Erlam**

. I agree/do agree to be part of this research study. (delete one)

. I understand that I may be tape-recorded speaking French.

Signed:

Date:

**APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE**

on October 11 2000 for a period of 6 years, from 2000/to/2006. Reference 2000/004.

# APPENDIX B: INSTRUCTIONAL MATERIALS

## Input-based activities

Input-based activity one – written input

**Which sentence best describes each picture[11]? Circle the letter that corresponds to your choice.**

What is the man saying?

1.(a) Ne me regarde pas comme ça. (b) Ne te regarde pas comme ça.

2.(a) Ils se réparent. (b) Ils les réparent.

[11] Every effort has been made to trace the source of all pictures used during instructional treatments. A reference list on page 331 documents the sources of the majority of pictures used.

What is the dog thinking?

3.(a) Le petit garçon ne l'aime pas (b) Le petit garçon ne m'aime pas.

What is the girl thinking?

4.(a) Nos grands-parents nous gâtent. (b) Nos grands-parents vous gâtent.

Input-based activity two – oral input

The pictures that students saw and the sentences they heard are given below. For each one they had to decide which sentence best described the picture.

1.(a) Le lit le réveille.  (b) Le lit me réveille.

What is Juliet thinking?

2.(a) Est-ce qu’il veut m’épouser?  (b) Est-ce qu’il veut l’épouser?

What is he thinking?

3.(a) Qui t'appelle? (b) Qui m'appelle?

4.(a) Elle l'embrasse. (b) Elle m'embrasse.

Input-based activity three – written input

**Select the picture that best corresponds to the sentences below. Circle the appropriate letter.**

1.(a) (b)

Je te déteste.

2. (a) (b)

Il les invite au cinéma.

3. (a) (b)

Ils l’appellent.

4. (a) (b)

Elle les salue.

Input-based activity four – oral input

The pictures that students saw and the sentences they heard are given below. For each one they had to decide which sentence best described the picture.

1. (a) Elle veut l'ouvrir. (b) Elle veut les ouvrir.

What does the institutrice say?

2. (a)Vous voilà! (b) Te voilà!

3. (a) La secrétaire les écoute.   (b) La secrétaire l'écoute.

What is the girl thinking?

4. (a) Elles ne nous aiment pas.   (b) Elles ne m'aiment pas.

Input-based activity five – reading comprehension

# Invitation

**Read the following dialogue.**

Charles: Je **t'**invite au concert jeudi soir.

Camille: Très volontiers.

Charles: Et mes parents **nous** invitent à dîner chez eux samedi soir.

Camille: Je regrette, je suis prise samedi.

(text adapted from Magnan et al., 1999)

**Who do the pronouns listed below refer to? Circle the correct pictures. Note that you may need to circle more than one picture.**

t'

Charles Camille les parents de Charles

nous

Charles Camille les parents de Charles

Input-based activity six – written input

**Select the picture that best corresponds to the sentences below. Circle the appropriate letter. (N.B suivre - to follow)**

1.(a) (b)
Elle la regarde.

2.(a) (b)
Il ne peut pas le trouver.

3.(a) (b)
Elle le suit.

4.(a) (b)
Il la salue.

Input-based activity seven – oral input

The pictures that students saw and the sentences they heard are given below. For each one they had to decide which picture best corresponded to the sentence.

**1.Elle la veut.**

**2.Elle le regarde.**

**3.Il l’écoute.**

**4.Il la suit.**

Input-based activity eight – reading comprehension

# Lettre

Monsieur Blanchard invite la mère de sa femme à passer quelques jours chez eux. Mais Madame Martin ne peut pas accepter l'invitation. Voici la lettre qu'elle écrit.

Useful vocab: fleurir- to flower tous les quatre ans- every four years

remercier- to thank

Monsieur,

Merci de votre invitation de venir passer quelques jours chez vous. J'aime beaucoup ma fille, donc je **vous** remercie de **m'**avoir invitée à venir **la** voir. Mais je ne peux pas accepter. Voici pourquoi: mon cactus rose va probablement fleurir. C'est une plante très rare qui fleurit tous les quatre ans. Je suis déjà une très vieille femme et je suis certaine de ne pas **le** voir refleurir une autre fois . . . .

(text adapted from Magnan et al., 1998)

**Who/what do the pronouns listed below refer to? Circle the correct answer in each case.**

1.vous

| | | | |
|---|---|---|---|
| Madame Martin | Monsieur Blanchard | la fille de Mme Martin | le cactus |

2.m'

| | | | |
|---|---|---|---|
| Madame Martin | Monsieur Blanchard | la fille de Mme Martin | le cactus |

3. la

| | | | |
|---|---|---|---|
| Madame Martin | Monsieur Blanchard | la fille de Mme Martin | le cactus |

4. le

| | | | |
|---|---|---|---|
| Madame Martin | Monsieur Blanchard | la fille de Mme Martin | le cactus |

Input-based activity nine – affectively oriented

## Etes-vous bon(ne) étudiant(e)?

| | | oui | non |
|---|---|---|---|
| **le professeur** | je l'écoute toujours en classe. | | |
| **la télévision** | je ne la regarde pas le soir. | | |
| **mes devoirs** | je les fais toujours le soir. | | |
| | si je ne les comprends pas je pose des questions en classe | | |
| **le livre de français** | je l'apporte toujours en classe | | |
| **le vocabulaire** | je l'apprends souvent | | |
| **mes camarades de classe** | je les aide s'ils ont des problèmes en classe | | |

Combien de OUI?

5-6 Vous êtes étudiant(e) modèle.
3-4 Pas mal! Mais pas encore un(e) bon(ne) étudiant(e)
0-2 Vous avez des progrès à faire.

Input-based activity 10 – consciousness raising (written input)

**In the following decide whether the underlined sentences are correct or not correct. If you think a sentence is incorrect, try and decide why.**

**Vendeuse:** Vous désirez Mademoiselle?

**Nathalie:** Je cherche un agenda. Il coûte, combien, cet agenda-là?

**Vendeuse:** Soixante francs.

**Nathalie:** Je peux la regarder?

**Vendeuse:** Bien sûr!! Voilà le!

**Nathalie:** Merci. Oui je le prends. Vous acceptez la carte visa?

**Vendeuse:** Non, on le n'accepte pas. Vous avez une carte bleue?

**Nathalie:** Oui, le voilà.

**Vendeuse:** Ça fait soxante francs. Voilà mademoiselle. Je le remercie.

Input-based activity 11 – consciousness raising (written input)

**Jane is talking to Sophie. But they say some things incorrectly. Underline the sentences where they make mistakes.**

| | |
|---|---|
| **Sophie:** | Et ce weekend tu vas au cinéma avec Marc. C'est qui, Marc? |
| **Jane:** | Cest un ami. Je la aime bien. |
| **Sophie:** | C'est un ami ou ton petit ami? Tu l'aimes? |
| **Jane:** | J'aime le bien mais je ne suis pas amoureuse de lui. |
| **Sophie:** | Et lui, il t'aime? |
| **Jane:** | Je ne sais pas, je pense qu'il m'aime. |
| **Sophie:** | Comment est-il? Est-ce que tu as des photos de lui? |
| **Jane:** | Non, mais viens au cinéma avec nous. Tu peux rencontrer nous devant le cinéma à 6 heures. |
| **Sophie:** | Qu'est-ce que vous allez voir? |
| **Jane:** | Un film d'amour – Notting Hill. |
| **Sophie:** | Ah bon, Marc aime les films d'amour? |
| **Jane:** | Non, il le déteste mais moi, je refuse de voir les policiers. Je n'aime pas les du tout. |

Input-based activity 12 – consciousness raising (oral input)

**Henri asks David some questions in French. But David has had a bit too much to drink! When he speaks French he makes some mistakes. For each question that Henri asks below listen to the answer that David gives and decide whether it is correct ( √ ) or false ( X ).**

**Question 1:** David, est-ce que tu trouves le français facile?

**Answer 1 :** *Je trouve le très difficile*[12].

**Q 2:** Est-ce que tu trouves les examens difficiles?

**A2:** *Ah oui, je les trouve très difficiles aussi.*

**Q 3:** David, comment est-ce que tu trouves le campus de l'université d'Auckland?

**A 3:** *Je le ne trouve pas très joli.*

**Q 4:** Et qu'est-ce que tu penses de la politique néo-zélandaise?

**A 4:** *Oh la, la -je trouve la* **très** *ennuyeuse.*

**Q 5:** Et David, comment est-ce que tu trouves les Français?

**A 5:** *Je le trouve sophistiqués.*

**Q 6:** Et moi, est-ce que tu me trouves sophistiqué?

**A 6:** *Non, je ne te trouve pas très sophistiqué du tout.*

**Q 7:** Ce n'est pas vrai!! Est-ce que tu penses que les néo-zélandais sont sophistiqués?

**A 7:** *Oui, je trouve ils très sophistiqués, beaux, sympas . . . .*

**Q 8:** Et les Americains?

**A 8:** *Je les trouve sympas mais pas beaux et sophistiqués comme nous!*

**Q 9:** Et la bière australienne?

**A 9:** *Je le déteste!!*

**Q 10:** Tu la détestes? Et la bière néo-zélandaise?

**A10:** *Ça, c'est autre chose! Je l'aime beaucoup.*

[12] The sentences in italics were presented to students orally.

Production activities

Production activity one – written

**Rewrite the following sentences replacing the underlined direct objects with the correct pronoun.**

1. (a) La fille regarde la souris.

   (b) La souris regarde la fille.

2. La femme mange les chocolats.

3. Tout le monde regarde le journal.

4. La fille écoute la radio.

5. Je veux embrasser la jolie fille.

Production activity two – oral

# Rassure-moi!

**Imagine your boyfriend/girlfriend is asking for lots of reassurance.**

**Jouez les rôles avec un(e) partenaire.**

**Modèle:** Est-ce que tu **me** trouves belle/beau?
Oui, mon amour, je **te** trouve belle/beau

1.Est-ce que tu m'adores?

2.Est-ce que tu me comprends?

3.Est-ce que tu m'admires?

4.Est-ce que tu me trouves intelligent(e)?

5.Est-ce que tu vas m'aimer demain?

6.Est-ce que tu vas me trouver sexy dans dix ans?

7.Est-ce que tu vas toujours m'adorer?

8. Est-ce que tu **m'écoutes**???!!!

Production activity three – written

Paul ne trouve pas ses affaires dans la salle de classe. Son ami l'aide à les trouver.

**Fill in the gaps.**

1. Où est mon stylo? _____ voilà.
2. Où est ma montre? _____ voilà.
3. Où est ma chaise? ______ voilà.
4. Où est mon crayon? _____ voilà.
5. Où sont mes cahiers? _____ voilà.
6. Et mes livres? _____ voilà.
7. Et le professeur, où est-il? _____ voilà.
8. Et moi, où suis-je? Paul, tu exagères!! ______ voilà, dans la salle de classe!!

Production activity four – oral

**Imagine you are going to have a party and you are talking about who you are going to invite to the party.**

**Je vais avoir une fête.**

**Fill in the gaps with the appropriate pronoun.**

| | |
|---|---|
| Est-ce que tu invites Paul? | Oui, je _____ invite. |
| Est-ce que tu invites Camille? | Oui, je _____ invite. |
| Est-ce que tu invites tes amis? | Oui, je _____ invite. |
| Tu invites tes parents? | Non, je ne ______ invite pas. |
| Tu m'invites, moi? | Euh, oui, je ____ invite. |

Production activity five – written

**To find out what sort of student you are, answer the questions replacing the underlined words with the correct direct object pronouns.**

## Etes-vous bon(ne) étudiant(e)?

Est-ce que tu écoutes le professeur en classe?

Est-ce que tu regardes la télévision tous les soirs?

Est-ce que tu fais toujours tes devoirs?

Si tu ne comprends pas tes devoirs est-ce que tu poses des questions en classe?

Est-ce que tu apportes toujours ton livre de français en classe?

Est-ce que tu apprends souvent ton vocabulaire?

Est-ce tu aides tes camarades de classe s'ils ont des problèmes?

Combien de OUI?

5-6 Vous êtes étudiant(e) modèle.
3-4 Pas mal! Mais pas encore un(e) bon(ne) étudiant(e)
0-2 Vous avez des progrès à faire.

Production activity six – written

**Ne vous repétéz pas! Remplissez les vides avec le pronom convenable.**

1. Mon ami veut voir les plages de Normandie. Il va ________ visiter pendant son voyage en Europe.
2. Pendant ses vacances, Daniel ne veut pas aller voir sa cousine. Il ne _________ aime pas beaucoup.
3. Voilà l'autobus. Vous devez ___________ prendre pour aller en ville.
4. Ou est le guide Michelin? Je veux _________ lire.
5. Ma tante habite à Trois-Rivières. On va _________ voir pendant nos vacances au Québec.
6. Ou est le lac Leman? ________ voilà.

Production activity seven – written

**Read the following dialogues and fill in the missing pronouns.**

**1/ Charles:** Je _______ invite au concert jeudi soir.

**Camille:** Merci beaucoup. C'est très gentil.

**Charles:** Et mes parents ________ invitent, toi et moi, chez eux samedi soir.

**Camille:** Je regrette, je suis prise samedi.

(text adapted from Magnan et al., 1998)

**2/ Sylvie:** Est-ce que tu aimes Pierre?

**Françoise:** Je ne suis pas amoureuse mais je ______ aime bien.

**Sylvie:** Et lui?

**Françoise:** Je pense qu'il ______ aime.

**Sylvie:** Bien sûr!!! Il est très amoureux. Il veut _______ épouser.

Production activity eight – written

# Sondage.

**Answer the following questions replacing the underlined words with a direct object pronoun.**
**You can choose from among the adjectives below.**

| | | | |
|---|---|---|---|
| facile | difficile | cool | ennuyeux(se) |
| délicieux(se) | génial | fantastique | passionnant(e) |

1/ Comment trouves-tu X College?

Je ______________________________________________

2/ Comment trouves-tu le français?

Je ______________________________________________

3/ Comment trouve-tu les examens?

Je ______________________________________________

4/ Comment trouves-tu le rap?

Je ______________________________________________

5/ Comment trouves-tu la vie à Auckland?

Je ______________________________________________

6/ Comment trouves-tu les films américains?

Je ______________________________________________

Production activity nine – oral

## Qu'est-ce que tu aimes?

**Answer the following questions.**

*Modèle:* Est-ce que tu aimes les films d'amour?

Oui, je **les** aime.

*ou* Non, je ne **les** aime pas.

Est-ce que tu aimes ton cours de français?
de maths?
d'informatique?
de ?

Est-ce que tu aimes ton prof de français?
de?

Est-ce que tu aimes ton frère?
ta sœur?
tes parents?

Est-ce que tu aimes les films d'aventure?
d'amour?
de ?

Est-ce que tu aimes le jazz?
le rock?
le rap?
le reggae?
le ?

Production activity ten – written

## Je vais le faire demain.

Vous invitez votre ami(e) à faire beaucoup de choses, mais il/elle n'est pas libre.

Modèle: regarder la télévision (ce soir/demain)
Veux-tu regarder **la** télé ce soir?
Je ne peux pas **la** regarder ce soir. Je vais **la** regarder demain.

1. écouter mon nouveau compact (maintenant/tout à l'heure)
2. étudier ton français (aujourd'hui/demain matin)
3. préparer le dîner (ce soir/après demain)
4. mettre la cassette de Céline Dion (cet après-midi/demain)
5. regarder la vidéo de mes vacances (maintenant/un autre jour)
6. manger cette salade (ce soir/demain soir)
7. acheter les compacts de Portishead (ce matin/demain)

APPENDIX C: TEST MATERIALS

**Name:**

Written Production Test A

You will see a series of sentences on the overhead projector. For each one write out the whole sentence replacing the underlined word(s) with a pronoun. You will only see each sentence for **12** seconds. Then there will be a pause of **10** seconds for you to complete your answer before the next sentence.

e.g. you will see: **Luc** aime les escargots. (12 sec)

you will write: **Il** aime les escargots. (10 sec)

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

8. ______________________________

Please turn over.

Now you will see a series of questions on the overhead projector. Reply to each question replacing the underlined word(s) with the appropriate pronoun. You are given the start to each question.

e.g. on your sheet you will see: Oui, ____________________

you will see on the OHP: Est-ce que **<u>Monsieur Dubrac</u>** veut venir ce soir?

you will write: Oui, **<u>il</u>** veut venir ce soir.

9.

Oui, je __________________________________________________

10.

Non, mon chat ____________________________________________

11.

Oui, je___________________________________________________

12.

Oui, ils __________________________________________________

Written Production Test A
(sentences displayed on overhead projector)

1. Je mange <u>le gâteau</u> tout de suite.

2. <u>Raoul</u> se lève à 8 heures.

3. J'écoute <u>les informations</u> tous les soirs.

4. Jean ferme <u>la fenêtre</u>.

5. <u>Monique et Guy</u> aiment jouer aux échecs

6. Je n'aime pas <u>Mme Dubrac</u>.

7. Elle regarde <u>tous les étudiants</u>.

8. Je vais acheter <u>le cadeau</u> demain.

9. Est-ce que tu fais <u>tes devoirs</u> ce soir?

10. Est-ce que votre chat <u>vous</u> aime?

11. Est-ce que tu veux accompagner <u>mes enfants</u>?

12. Est-ce que tes parents <u>vous</u> rencontrent devant le cinéma, toi et Anne?

**Name:**

Written Production Test B

You will see a series of sentences on the overhead projector. For each one write out the whole sentence replacing the underlined word(s) with a pronoun. You will only see each sentence for **12** seconds. Then there will be a pause of **10** seconds for you to complete your answer before the next sentence.

e.g. you will see: **Luc** aime les escargots. (12 sec)

you will write: **Il** aime les escargots. (10 sec)

1. ______________________________________________

2. ______________________________________________

3. ______________________________________________

4. ______________________________________________

5. ______________________________________________

6. ______________________________________________

7. ______________________________________________

8. ______________________________________________

Please turn over.

Now you will see a series of questions on the overhead projector. Reply to each question replacing the underlined word(s) with the appropriate pronoun. You are given the start to each question.

e.g. on your sheet you will see: Oui, ____________________

you will see on the OHP: Est-ce que **Monsieur Dubrac** veut venir ce soir?

you will write: Oui, **il** veut venir ce soir.

9.

Non, je ________________________________________________

10.

Oui, il ________________________________________________

11.

Oui, je________________________________________________

12.

Oui, il ________________________________________________

Written Production Test B
(sentences displayed on overhead projector)

1. Je cherche mon stylo partout.

2. Je veux regarder ta cassette video ce soir.

3. Anne se réveille tous les matins à 6 heures.

4. Les étudiants aiment beaucoup leur professeur.

5. Ils rencontrent les voisins.

6. Je ne vois pas le tableau.

7. J'invite Martin au cinéma.

8. Nathalie et Sophie jouent au tennis.

9. Est-ce que tu connais  tes voisins?

10. Est-ce que le professeur t' écoute?

11. Veux-tu inviter tes copains?

12. Est-ce qu'il vous accompagne à l'aéroport, toi et Albert?

**Name:**

Written Production Test C

You will see a series of sentences on the overhead projector. For each one write out the whole sentence replacing the underlined word(s) with a pronoun. You will only see each sentence for **12** seconds. Then there will be a pause of **10** seconds for you to complete your answer before the next sentence.

e.g. you will see: **Luc** aime les escargots. (12 sec)

you will write: **Il** aime les escargots. (10 sec)

1.

__________________________________________________________

2.

__________________________________________________________

3.

__________________________________________________________

4.

__________________________________________________________

5.

__________________________________________________________

6.

__________________________________________________________

7.

__________________________________________________________

8.

__________________________________________________________

Please turn over.

Now you will see a series of questions on the overhead projector. Reply to each question replacing the underlined word(s) with the appropriate pronoun. You are given the start to each question.

e.g. on your sheet you will see: Oui, ______________________

you will see on the OHP: Est-ce que **<u>Monsieur Dubrac</u>** veut venir ce soir?

you will write: Oui, **<u>il</u>** veut venir ce soir.

9.

Oui, je ________________________________________________________

10.

Non, mon amie _________________________________________________

11.

Oui, je________________________________________________________

12.

Oui, il ________________________________________________________

Written Production Test C
(sentences displayed on overhead projector)

1. Je rencontre Anne et Nathalie devant le cinéma.

2. J'écoute le bulletin météorologique à la radio.

3. Nathalie veut inviter son petit ami.

4. Marc et Sophie vont au musée demain matin.

5. Marie-Hélène ferme sa valise tout de suite.

6. M. Martin ne regarde pas les enfants.

7. Pierre prend son petit déjeuner à 7 heures.

8. J'aime beaucoup leur chien.

9. Est-ce que tu regardes les publicités à la télé?

10. Est-ce que ton amie t'invite au restaurant?

11. Est-ce que tu veux rencontrer mes amis?

12. Est-ce qu'il vous cherche, toi et David?

Reading Comprehension Test A

La machine à écrire ou l'ordinateur?[13]

**Please read the following passage. The picture will help you with some of the words that you may not know. Other words you may need are given below.**

**André**: Je n'aime pas l'ordinateur - c'est trop compliqué!
Moi, je préfère la machine à écrire.

**Benoît**: Pourquoi? Avec l'ordinateur, je corrige facilement mes fautes. Regarde l'écran - voilà une faute. Je la corrige - comme ça! Maintenant je vais imprimer mon devoir de maths.

**(corriger-to correct)**
**(imprimer-to print)**

**André**: Attention! –ton pied!! Tu vas débrancher l'ordinateur!
Tu vas perdre ton devoir!

**(débrancher-to unplug)**

**Benoît**: Pas de problème. J'ai une copie sur une autre disquette.
Voilà un autre avantage des ordinateurs!!

**André:** Oui, oui, je vois bien. Mais ça ne change rien. L'ordinateur, je n'aime pas ça.
Qu'est-ce que tu vas faire cet après-midi, Benoît?

**Benoît:** Je vais taper mes devoirs de français et écrire une lettre.
Puis, je vais l'imprimer. Et après, il faut aller à la fête de Stéphanie.

**(taper-type)**

**André**: Stéphanie? C'est l'amie de Marc?

[13] Every effort has been made to trace the source of all pictures used during testing episodes. A reference list on page 331 documents the sources of the majority of pictures used.

**Benoît:** Oui, ils sont tous les deux dans notre cours de sociologie.

**André:** Ah oui, je les connais. Surtout Marc parce qu'il parle tout le temps en cours! Le prof ne l'aime pas mais je les trouve **très** sympas.

**Benoît:** Eh, bien . . toute la classe fête l'anniversaire de Stéphanie. C'est chez elle et ses parents sont en vacances! Elle nous invite. Tu viens?

**André**: Euh non! J'ai encore sept pages à taper. Tu as raison –

l'ordinateur est plus pratique que la machine à écrire! Je te retrouve à minuit.

**Benoît**: A plus tard alors. Désolé, mais je ne peux pas t'aider. J'ai beaucoup à faire cet après-midi. J'ai rendez-vous avec Nathalie. Elle m'attend chez son amie, Anne. Je vais les accompagner à la fête.

**(désolé-sorry)**
**(attendre-to wait for)**

(text adapted from Golding, P. & Jeantet, R., 1995)

Name:

Now choose the <u>best</u> answer to the following questions. Put a tick next to your answer.

1.What does Benoît demonstrate to André on the computer screen?
(a) correcting a mistake he's made
(b) his maths homework
(c) correcting several of his mistakes
(d) how to print his assignment

2. Why does the idea of losing his assignment not worry Benoît?
(a) he has just printed it
(b) because he knows that he didn't really unplug the computer
(c) he has a backup of his assignment
(d) he is lucky to have more than one computer to work on

3.What things does Benoît intend to do before he goes to the party?
(a) type his French homework, write a letter and print them
(b) type his French homework, write a letter and print the letter
(c) type his French homework and write a letter
(d) print his maths homework

4. What is André's opinion of Marc?
(a) Marc is always talking in class and André finds that a pain.
(b) André doesn't like Marc.
(c) André likes Marc but not Stéphanie.
(d) He likes both Stéphanie and Marc.

5.What is Stéphanie celebrating?
(a) her birthday
(b) the first anniversary of going out with Marc.
(c) her parents' return from their holiday
(d) a reunion with the whole class

6. Who is invited to Stéphanie's party?
(a) just Benoît
(b) Benoît and his parents
(c) Benoît and André along with the other students in the sociology class
(d) anyone that wants to come

P.T.O

7.What will André do at midnight?
(a) type up his assignment on the typewriter
(b) find someone to go to the party with
(c) meet up with Benoît at the party
(d) go to another party

8.What is Benoît sorry about?
(a) he is too busy and doesn't have time to relax
(b) he can't help André
(c) he is overworked and doesn’t know who to ask for help
(d) he is late for his meeting with Nathalie

9. What is Nathalie doing at Anne’s place?
(a) waiting for Anne
(b) waiting for her friends
(c) waiting for Benoît and his friends
(d) waiting for Benoît

10.Who is Benoît going to the party with?
(a) Anne
(b) Nathalie
(c) Anne and Nathalie
(d) Anne and Nathalie and their friends

Reading Comprehension Test B

Des notes importantes

**Please read the following passage.**

Michel et Bernard étudient à l'Université et ils habitent dans le même appartement à Paris. Il est neuf heures du soir et ils sont chez eux. Bernard entre dans la chambre de Michel.

**Bernard:** Qu'est-ce que tu fais?

**Michel:** Je cherche mon livre de biologie. D'habitude il est rangé avec mes cahiers de classe. Mais, je ne le trouve pas. Je suis très énervé. Est-ce que tu l'as, par hasard? Tu prends souvent mes affaires.

**(rangé-put away)**
**(énervé-annoyed)**
**(affaires- belongings)**

**Bernard:** Non, je ne l'ai pas. Je ne touche jamais à tes affaires! Mais si tu ne le trouves pas tu peux prendre mon livre. Je l'ai dans ma chambre. Il est dans mon sac.

**Michel:** Merci Bernard**,** mais ce n'est pas seulement mon livre que je cherche. Ce sont aussi les notes qui sont dedans. Ce sont des notes très, très importantes.

**(dedans-inside)**

**Bernard:** Ah bon, je comprends. . Tu les cherches parce que si tu ne les trouves pas, tu vas avoir du mal à préparer l'examen. Mais tu peux avoir mes notes. Euh . . . est-ce que je les ai ici ou est-ce qu'elles sont à la Fac? Tiens, je pense qu'elles sont dans mon sac. Je vais le chercher.

**(avoir du mal-to find it hard to)**

**Michel:** Mais non, tu ne comprends pas . . . . Ecoute, tu connais Anne?

**Bernard:** Anne Marin?

**Michel:** C'est ça.

**Bernard:** Oui, je la connais. Je connais sa sœur Sylvie aussi. Je les trouve très belles.

**Michel:** En fait, les notes qui sont dans mon livre, eh bien . . . c'est son adresse et son numéro de téléphone.

**Bernard:** Ah, maintenant je comprends. Tu veux l'inviter à la fête chez Sophie demain soir, mais tu ne peux pas parce que tu n'as pas son numéro de téléphone. Eh bien, je vais t'aider à le trouver.

**Michel:** Merci Bernard. D'abord on va chercher dans ma chambre. Et puis on va chercher dans ta chambre! Après, le salon. Toi, tu commences par là . . . .

**Name:**

Now choose the best answer to the following questions. Put a tick next to your answer.

1.Where does the dialogue take place?
(a) at the University in the evening
(b) at Michel's apartment
(c) in the apartment they live in
(d) in the bedroom they share

2.Why is Michel annoyed?
(a) because he can't find his class workbooks
(b) because he can't find his biology book
(c) because things haven't been put away as usual
(d) because it is after 9 p.m and he still has homework to do

3. What does he ask Bernard?
(a) if he can help him look for the book
(b) if he has any of his class workbooks
(c) if he has his biology book
(d) if he has taken his things, as he often does

4. What does Bernard say he has in his bedroom?
(a) Michel's biology book
(b) his own biology book
(c) his bag of notes
(d) some of Michel's things

5.What does Bernard originally think needs to be found before Michel can study for his exam?
(a) Michel's own book
(b) Michel's biology notes
(c) the notes Michel has left at the Fac
(d) an exam paper Michel has left inside his book

6. What does Bernard say he will go and get for Michel?
(a) his own notes
(b) his bag which he hopes contains his notes
(c) Michel's notes
(d) Michel's bag

P.T.O

7. Who does Bernard think is beautiful?
(a) Anne Marin
(b) the sister he knows personally
(c) both Sylvie and Anne
(d) Sylvie's sister

8.What plan does Bernard think Michel has regarding Sophie's party?
(a) to invite him
(b) to ring up Sophie to get Anne's number
(c) to invite Anne and Sylvie
(d) to invite Anne

9.Now that he understands the real problem what is Bernard going to help Michel find?
(a) Anne's telephone number
(b) Sophie's telephone number
(c) Anne's address
(d) his biology notes

10. Where are they going to start looking?
(a) in Bernard's bedroom
(b) in Michel's room
(c) in the living room
(d) wherever Bernard wants to begin

Reading Comprehension Test C

La soirée internationale

**Please read the following passage.**

*Jean-Loup et Benjamin arrivent à une soirée internationale. Il y a des musiciens africains fantastiques et un saxophoniste américain qui joue du jazz. Jean-Loup et Benjamin l'écoutent.*

*Puis Benjamin va chercher des boissons. Il revient avec deux verres de vin à la main mais il glisse et . . . . patatras, le voilà par terre!* **(glisse-slips)**
**(patatras-crash)**

**Benjamin:** Zut!! Aië! Que je suis bête! Il y a des taches de vin partout. Regarde ma veste - et puis mon pantalon! Ah non, il faut le laver.
**(taches-stains)**

**Jean-Loup:** Ma mère peut le faire ce soir. Elle aime toujours t'aider. Tiens – voilà Madeleine. Et ses amis!

*Jean-Loup les regarde pendant quelques minutes.*

**Jean-Loup:** Benjamin, regarde les filles là-bas. Est-ce que tu vois la fille en rouge? Tu la trouves belle?

**Benjamin:** Oui, très belle. Qui est-ce?

**Jean-Loup:** C'est Madeleine. Elle est très intelligente et très gentille aussi. Et son amie, Brigitte, est très sportive comme toi. Est-ce que tu veux que je les invite à jouer au tennis avec nous le week-end prochain?

**Benjamin:** Non, je vais faire de la planche à voile avec Caroline et Julie.

**Jean-Loup:** Julie, c'est ton amie américaine, n'est-ce pas? Mais Caroline? C'est qui? Comment est-elle?

**Benjamin:** Eh bien, euh . . . euh . . . elle est belle, intelligente, sympa -.
*(Benjamin devient rouge comme une tomate)*

**Jean-Loup:** Benjamin, non ce n'est pas possible! Tu es amoureux!

**(amoureux-in love)**

**Benjamin:** Non, non . . . bien sûr que non. Je l'aime beaucoup mais je ne suis pas amoureux.

Mais chut!!! Les voilà ! **(chut! Shush!)**

(text adapted from Charvier-Berman, E. & Cummings, A., 1997)

**Name:**

Now choose the best answer to the following questions. Put a tick next to your answer.

1.What do Jean-Loup and Benjamin do when they first arrive at the soirée internationale?
(a) they listen to the jazz musicians
(b) they listen to the African musicians
(c) they listen to the American saxophonist
(d) Jean-Loup talks and Benjamin listens

2. What happens to Benjamin on his way back from getting the drinks?
(a) he slips and ends up on the ground
(b) he drops the glasses of wine
(c) he trips someone else up with his hand
(d) he crashes into someone else

3. What will Jean-Loup's mother do for Benjamin?
(a) take his dirty clothes to the launderette
(b) wash the wine stains out of his vest
(c) wash the wine stains out of his vest and trousers
(d) wash the wine stains out of his trousers

4.What does Jean-Loup do after he sees Madeleine?
(a) he watches her for a few minutes
(b) he watches her and her friends
(c) he checks out what is happening at the party
(d) he helps Jean-Loup back to his feet

5.What does Jean-Loup asks Benjamin's opinion about?
(a) if he thinks that the girls are pretty
(b) if he thinks that the girl in red is pretty
(c) if he likes the red dress Madeleine is wearing
(d) which girl he thinks is the prettiest

6. What exactly does Jean-Loup suggest for the weekend?
(a) inviting Madeleine and her friends to play tennis with them
(b) inviting Madeleine to play tennis with them
(c) inviting Madeleine and one of her friends to play tennis
(d) that Benjamin plays tennis with Brigitte

P.T.O

7. What is Benjamin planning to do instead?
(a) go cycling with Caroline and Julie
(b) go windsurfing with Caroline and Julie
(c) go sailing with Caroline and Julie
(d) go abseiling with Caroline and Julie

8. Who does Benjamin describe as beautiful, intelligent and kind?
(a) Caroline
(b) Julie
(c) his American friend
(d) Julie and Caroline

9. Is Benjamin in love? What exactly does he say about his feelings?
(a) he is not in love
(b) he likes Caroline a lot but he is not in love
(c) he likes both girls a lot but is not in love with either of them
(d) he is very embarrassed and is not very sure of what he feels

10. Benjamin is embarrassed and tells Jean-Loup to be quiet. Why?
(a) because he is drawing attention to him at the party
(b) because Caroline is coming towards them
(c) because Caroline and Julie are coming towards them
(d) because all his friends have just arrived and it’s a secret

## Listening Comprehension Test A

The pictures that students saw and the sentences they heard for test A are given below.

1 (a) Il regarde la tous les soirs.
(b) Il la regarde tous les soirs.
(c) Il se regarde tous les soirs.
(d) Il regarde elle tous les soirs.

2 (a) Il l’aime.
(b) Elle aime le.
(c) Il aime la.
(d) Elle l’aime.

3 (a) Il promène sur la plage.
(b) Il promène le chien sur la plage.
(c) Il promène le garçon sur la plage.
(d) Il se promène sur la plage.

4 (a) Il me n’écoute pas.
(b) Il ne m’écoute pas.
(c) Il n’écoute pas moi.
(d) Il s’écoute.

5 (a) Charles voit le.
(b) Charles voit les.
(c) Charles le voit.
(d) Charles les voit.

6 (a) Agnès ne peut pas la fermer.
(b) Agnès ne peut pas fermer la.
(c) Agnès ne la peut pas fermer.
(d) Agnès ne peut pas les fermer.

7 (a)Maxine est grande et forte.
(b) Maxine est grand et fort.
(c) Maxine est petite et mince.
(d) Hubert est grand et fort.

8 (a) Le crabe le pince au pied.
(b) Le crabe se pince au pied.
(c) Le crabe les pince au pied.
(d) Le crabe la pince au pied.

9 (a) Il va pousser elle.
(b) Il va la pousser.
(c) Il va les pousser.
(d) Il va le pousser.

10 (a) Ils lui écoutent.
(b) Ils écoutent elle.
(c) Ils l'écoutent.
(d) Elle les écoutent.

11 (a) Elle appelle lui.
(b) Elle appelle le.
(c) Elle l'appelle.
(d) Elle s'appelle.

12 (a)Ils la regardent.
(b) Ils le regardent.
(c) Elle les regarde.
(d) Elle le regarde.

Listening Comprehension Test B

The pictures that students saw and the sentences they heard for test B are given below.

1 (a) Elle réveille à 8 heures.
(b) Elle se réveille à 8 heures.
(c) Elle la réveille à 8 heures.
(d) Elle me réveille à 8 heures.

2 (a) Le vieux couple nous n’aime pas.
(b) Le vieux couple n’aime pas nous.
(c) Le vieux couple ne nous aime pas.
(d) Le vieux couple ne vous aime pas.

3 (a) Je déteste te. Moi aussi, je déteste te.
(b) Je te déteste. Moi aussi, je te déteste.
(c) Je toi déteste. Moi aussi, je toi déteste.
(d) Je me déteste. Moi aussi, je me déteste.

4 (a) Elle cherche les partout.
(b) Elle cherche le partout.
(c) Elle le cherche partout.
(d) Elle les cherche partout.

5 (a) Le client veut le.
(b) Le client le veut.
(c) Les clients le désirent.
(d) Le client veut les.

6 (a) La voisine regarde il.
(b) La voisine regarde le.
(c) La voisine le regarde.
(d) La voisine se regarde.

7 (a) Il fait beau.
(b) Il pleut.
(c) Il fait vent.
(d) Il fait froid.

8 (a) Il ne sait pas le faire.
(b) Il ne le sait pas faire.
(c) Il ne sait pas comment faire le.
(d) Il le sait faire.

9 (a) Elles l'écoutent.
(b) Il les écoute.
(c) Il écoute elles.
(d) Elles lui écoutent.

10 (a) Ils les regardent.
(b) Ils la regardent.
(c) Ils le regardent.
(d) Elles la regardent.

11 (a) Elle lui accompagne au bal.
(b) Il les accompagne au bal.
(c) Il accompagne elle au bal.
(d) Il l'accompagne au bal.

12 (a) Le chien le chasse.
(b) Le chien les chasse.
(c) Le chien chasse le.
(d) Le chien se chasse.

## Listening Comprehension Test C

The pictures that students saw and the sentences they heard for test C are given below.

1 (a) Elles le regardent.
   (b) Elles regardent le.
   (c) Elles regardent les.
   (d) Il les regarde.

2 (a) Les escargots, il les n'aime pas.
   (b) Les escargots, ils ne l'aiment pas.
   (c) Les escargots, il ne les aime pas.
   (d) Les escargots, il n'aime pas les.

3 (a) Elle fait un vélo.
(b) Elle fait le vélo.
(c) Elle fait du vélo.
(d) Elle fait de la moto.

4 (a) Est-ce qu'elle aime moi?
(b) Est-ce qu'elle aime me?
(c) Est-ce qu'elle m'aime?
(d) Est-ce qu'il s'aime?

5 (a) Les musiciens les regardent.
(b) Les spectateurs les regardent.
(c) Les spectateurs regardent les.
(d) Ils regardent eux.

6 (a) Elle l'invite au restaurant.
(b) Il l'invite au restaurant.
(c) Elle les invite au restaurant
(d) Elle lui invite au restaurant.

7 (a) Il réveille à 9h30.
(b) Il se douche à 9h30.
(c) Il se réveille à 9h30.
(d) Il le réveille à 9h30.

8 (a) Il la va acheter.
(b) Il va les acheter.
(c) Il les va acheter.
(d) Il va acheter elles.

9 (a) Ils la trouvent.
(b) Ils les trouvent.
(c) Ils trouvent lui.
(d) Ils le trouvent.

10 (a) Il se coupe.
(b) Elle se coupe.
(c) Il coupe la.
(d) Il la coupe.

11 (a) Elle le regarde.
(b) Elle regarde la.
(c) Elle la regarde.
(d) Elle les regarde.

12 (a) Il ne veut pas la voir.
(b) Elle ne veut pas le voir.
(c) Il ne la veut pas voir.
(d) Elle ne le veut pas voir.

Oral Production Test A[14]

[14] These picture sequences were made expressly for the purpose of the study. Some of the individual pictures used were taken from the sources referenced on page 331.

Oral Production Test B

Oral Production Test C

List of references for pictures used in Appendices B and C.


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## APPENDIX D: REFERENCES TO DIRECT OBJECT PRONOUN PLACEMENT

These excerpts are taken from the transcriptions of instructional treatments. In each case the researcher was directing the discussion. Those words that are italicised were spoken by students.

**Deductive group**

**Day one** (part of introduction of direct object pronouns)
1/Elle les regarde. O.K. What do you notice about where the direct object pronoun goes – where does it go in the sentence? Yes? Be a bit more precise – can you tell me exactly where it goes in the sentence? Yes? *before the verb.* Before the verb, that's where it goes in the sentence. Which is a bit bizarre, because in English it goes after the verb – we say 'I watch television, I watch it'. In French you say 'I it watch'. That's just how it is – it doesn't seem silly to them – it seems a bit bizarre to us.

(part of explanation as to how to complete a written exercise)
2/ No. I a. You will write out, start writing out la fille and you will replace the underlined word, words with the right direct object pronoun. You will have to think about where it goes in the sentence.

(part of explanation as to how to complete a written exercise)
3/ Don't forget that the direct object pronoun goes in front of the verb so that is where you will put it when you write the sentence.

4/ Elle veut ouvrir les cadeaux. Elle veut les ouvrir. Where does the direct object pronoun go in relation to the infinitive in that sentence? Yes? *in between the verb and the infinitive*? in between the verb and the infinitive, that is where it goes there.

(in response to a question a student has asked during a correction of an oral exercise students have completed in class)
5/ why is it not j'adore te? What is the rule that we just learnt*???* No *??* That it has to go before the verb. *Why?* That's just the rule – I'm sorry I don't know – that's what the rule is in French, O.K?

**Day two –** (correcting together a written exercise students have completed in class)
6/ Remember the ne pas goes around the whole thing – it is like the direct object pronoun is married to the verb – it's always right next to the verb and anything else goes around it.

**Inductive group**

**Day two –** (completing an exercise together in class)
1/ O.K here's the sentence – il regarde la. Correct or not? Il regarde la. There is a problem with it – it is not quite correct. Does anyone know what it should be? It should be *should be il la regarde* il la regarde – the pronoun should be in front of the verb.

(completing an exercise together in class)
2/ O.K. Here's a girl – elle ne le veut pas embrasser. Right or not? *Oui*. There's a problem with where this is in the sentence. Where should it be? Elle ne veut pas l'embrasser. Should be there.

**Day three –** (completing an exercise together in class)
3/ The second sentence – Voila le - is it correct or not? *No.* What should it be? *Le voila* Le voila. Tres bien.

4/ The next one – Merci. . . oui je le prends – correct or not? *Correct.* Correct right – le is the agenda so that's correct and the le is in the right place.

5/ O.K Vendeuse – non, on le n'accepte pas – correct or not. *Not correct.* Not correct, why? Oh, not quite right . . nearly you've got the right idea – the le is in the wrong place – but who can tell me where it should go. *Before the on.* No, not before the on. It should go after the ne – on ne l'accepte pas.

6/ O.K. J - j'aime le bien – what's the problem with this one here – *le is in the wrong place* – le is in the wrong place – what should it be? No . . je . . that one's right – l'aime je l'aime je l'aime - yeah – that's where the le should go there.

7/ O.K Jane - Viens au cinema avec nous. Tu peux rencontrer nous devant le cinema. Right or wrong? O.K – there's a little problem – the nous is in the wrong place – where should it be? *Before the.* Before the? Yeah, tu peux **nous** rencontrer. Who got it right? Why didn't you tell me?

8/ O.K mais moi, je refuse de voir les policiers, je n'aime pas les du tout. Right or wrong? Je n'aime pas les du tout. Right – it's the right pronoun but it is in the wrong place - where should it go? *Before the pas* no, not before the pas – *between the ne and the aime* - great – je ne can you help me – je ne *l'aime ah les* les aime pas du tout (on board).