The relationship between individual differences, training in second language aural comprehension strategies and performance in year 9 Indonesian language students

Wendy L. Young
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“The relationship between individual differences, training in second language aural comprehension strategies and performance in year 9 Indonesian language students.”

Dissertation for the degree of Doctor of Philosophy

by
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1820951

Bachelor of Education
Master of Education

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March, 2006
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Abstract

There are three distinct but interrelated parts to this research. The first part measures language learning strategies (LLS) and other individual differences (IDs), as well as the relationship between LLS and the other IDs of year 9 students of Indonesian as a foreign language (L2). The second part measures differences in use of LLS between the control and experimental groups, and then over time. The third part measures the effects of training in LLS on listening comprehension.

The study had three main aims. One was to determine the relationship between participants’ LLS use and their language learning background, affective factors, learning styles and aptitude. A second was to determine changes to strategy use following training in certain LLS. The third was to find what changes occurred to strategy use following the training.

Participants were year 9 students (control=18, experimental=19) learning Indonesian (L2) as a foreign language (FL). The IDs of these participants were measured using the Strategy Inventory for Language Learning (SILL) (Oxford, 1986); Affective Survey (Ehrman, 1991); Learning Style Questionnaire (LSQ) (Reid, 1987) and Learning Style Profile (LSP) (Keefe, 1988); and the Modern Language Aptitude Test (MLAT) (Carroll & Sapon, 1959). Training in the experimental group was in two cognitive and two meta-cognitive listening strategies as proposed by Chamot, Kupper and Impink-Hernandez (1988a), following Wenden’s (1991) guidelines.

Results of the ID tests showed that although participants had about one year’s experience of the L2, average ability, and positive attitudes towards L2 learning, they were mostly boys who did not necessarily consider the L2 important. They were not strong users of LLS; they made an effort, were motivated and confident learners, but disliked tests and were reluctant to use the L2 outside the classroom. They favoured
small group and kinesthetic learning, as well as verbal learning processes and morning study, but were easily distracted.


Significant changes occurred over time in participants’ use of most LLS, although a linear increase occurred for only one strategy, ‘inferencing’, while a quadratic trend (increase followed by decrease) occurred for all strategies. No significant differences in strategy use occurred between the control and experimental groups.

Aural test results fluctuated, with an overall linear decrease. This decline in the experimental group indicated that this particular strategy training program was unsuccessful in improving proficiency.

Training generated no increase in LLS use nor improved aural comprehension. Further, the relationship between IDs and LLS appears complex, varying with individual learners. For example, positive affective factors (motivation, effort, authentic use of L2) were linked to use of LLS; the type of LLS, the training conditions, and the task type (aural tests) appeared not to complement participants’ learning style. It seems strategy choice is influenced by various IDs; hence, caution is needed when considering what, or even whether, strategy training programs should be implemented for young adolescent learners. Programs that enhance other IDs (e.g., motivation, learning style) may be more efficient or beneficial.
I certify that this thesis does not, to the best of my knowledge and belief:

(i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;

(ii) contain any material previously published or written by another person except where due reference is made in the text; or

(iii) contain any defamatory material.

Signed: ..............................................

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Candidate for the degree of Doctor of Philosophy
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Wendy Young
November 2004
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List of Abbreviations

AMTB - Attitude/Motivation Test Battery (Gardner, Clément, Smythe, & Smythe, 1979)
ANOVA - analysis of variance
AS - Affective Survey (Ehrman, 1991)
CLT - communicative language teaching
CALLA - Cognitive Academic Language Learning Approach (Chamot & O’Malley, 1986)
DLAB - Defense Language Aptitude Battery (Petersen & Al-Haik, 1976)
EFL - English as a foreign language
ESL - English as a second language
EMLAT - Modern Language Aptitude Test - Elementary version (Carroll & Sapon, 1967)
FD/FI - field dependence/field independence (a measure of learning style) (Witkin, 1981)
FL - foreign language
GLL - good language learner (Naiman, Frohlich, Stern & Todesco, 1978)
GEFT - group embedded figures test (used to measure FD/FI) (Witkin & Goodenough, 1981)
IDs - individual differences
L1 - first language
L2 - foreign language; in this study - Indonesian
LCPC - Learning Channel Preference Checklist (O'Brien, 1990)
LEP - limited English proficiency
LLS - language learning strategies
LOTE - language other than English
LSP - Learning Style Profile (Keefe, 1988)
LSQ - Learning Style Questionnaire (Reid, 1987)
MBTI - Myers-Briggs Type Indicator (Myers & McCaulley, 1985)
MLAT - Modern Language Aptitude Test (Carroll & Sapon, 1959)
MS - Motivation Survey (Rainey, 1991)
NASSP - National Association of Secondary School Principals
SD - standard deviation
NCLRC - National Capital Language Resource Center
SILL - Strategy Inventory for Language Learning (Oxford, 1986)
SL - second language
SLA - second language acquisition
SPSS - Statistical Program for the Social Sciences
TL - target language
1. Introduction

In recent decades various factors that impact on second language acquisition (SLA) have been investigated. These have included factors considered to be either innate or environmental factors, as well as teaching and learning approaches such as those deemed to be content-based and student-centred. The approach of this study is interactionist, taking the perspective that characteristics of the learner, including individual learner differences and, particularly, learning strategy use, as well as the learning environment, contribute to SLA.

How the learning environment, including pedagogical approaches, can improve learning is another aspect of this research. The study of language learning strategies forms one branch of SLA research begun in the late 1970s and 1980s, a period in which the focus moved from language-centred approaches towards student-centred approaches to teaching and learning. Learning strategies are learner controlled, and so this branch of study follows a student-centred learning approach. How much learners themselves can improve their learning and performance through modifying their individual differences constitutes part of such an approach. Although the importance of student-centred approaches to teaching is acknowledged, this study concerns improving learning, particularly by focusing on strategy use. Thus in this study the role of the teacher is considered as representing a pedagogical aspect of environmental influences in student learning only.
The Background To The Study

1.1 Language learning strategies.

Language learning strategies are “the techniques or devices which a learner may use to acquire knowledge” (Rubin, 1975, p. 43). Oxford (1989, p. 235) calls strategies “behaviours or actions which learners use to make language learning more successful, self-directed and enjoyable”.

Early studies of learning strategies (e.g., Naiman, Frohlich, Stern, & Todesco, 1978; Rubin, 1975; Stern, 1975; Wong Fillmore, 1976) determined what strategies language learners used, and which were used by the more effective learners. These studies and others (O’Malley, Chamot, Stewner-Manzanares, Kupper, & Russo, 1985) codified strategies into taxonomies based on classifications such as ‘direct’ and ‘indirect’ (Rubin, 1981) or ‘meta-cognitive’, ‘cognitive’ and ‘socio-affective’ (O’Malley, Chamot, Stewner-Manzanares, Kupper et al., 1985).

The efficacy of strategy use was also considered (Bialystok, 1981; Bialystok & Frohlich, 1978; Naiman et al., 1978; Politzer, 1983; Politzer & McGroarty, 1985), results generally indicating a positive correlation to performance. Appropriate combinations of strategies and their correspondence to task type also seem related to performance (Chamot & Kupper, 1989; O’Malley, Chamot, Stewner-Manzanares, Russo, & Kupper, 1985; Skehan, 1998). At the same time, however, problems with data collection techniques were recognised (e.g., Politzer & McGroarty, 1985).

With the aim of improving second language (SL) learning, this line of research was applied to pedagogical practice and learners were trained to use effective strategies (Bialystok, 1983; Cohen & Aphek, 1980; Cohen & Aphek, 1981; Holec, 1981; Moulden, 1978, 1980; O’Malley, Chamot, Stewner-Manzanares, Russo et al.,
1985; Wenden, 1982). These studies involved various tasks focusing on different language modes (listening, speaking, reading, writing, vocabulary). Research on the outcomes of this application indicated that two aspects of training favoured improved performance. These were integrating strategy training with the regular language program, and making learners aware of the strategies they used (meta-cognition).

1.1.2 Listening strategies.

Common listening strategies have been identified by various researchers (e.g., Chamot, Kupper, & Impink-Hernandez, 1988a, 1988b; Fujita, 1984; Laviosa, 1991; O’Malley, Chamot & Kupper, 1989). However, little research has been conducted into how strategy training affects listening comprehension. The few studies that have been conducted include O’Malley, Chamot, Stewner-Manzanares, Russo et al. (1985); Rubin, Quinn and Enos (1988); Viswat and Jackson (1994); and Thompson and Rubin (1996). These are summarised in Table 1.

Table 1

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<tr>
<td>O’Malley, Chamot, Stewner-Manzanares, Russo &amp; Kupper, 1985</td>
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<td>Rubin, Quinn and Enos 1988</td>
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<td>Viswat and Jackson 1994</td>
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Problems emerging from the earlier studies included too rapid a period of training and content which was too difficult. The later studies produced better results as these shortcomings were addressed by researchers. However, Viswat and Jackson’s study may have been compromised by the motivational influence of one particular teacher who had contact with three of the classes tested, but not the fourth. Nevertheless, the trend in these studies indicates integration of fully-informed multiple strategy training over relatively long periods favours improved aural comprehension.

1.1.3 Individual differences.

It has been suggested that individual learner differences (IDs), as opposed to universals in language learning (Diller, 1981), also impact the way in which a second language is learned. Although a comprehensive theory of IDs in SLA does not yet exist (Oxford, 1990b; Skehan, 1991), Ellis (1994) has classified three groups of IDs: (a) learner beliefs, (b) affective states, and (c) general factors. General factors, also called demographic variables by Oxford (1990b), include aptitude, gender, motivation, personality, learning style and age. They are considered to be relatively stable, whilst learner beliefs and affective states are considered less so. How any IDs, and how demographic variables in particular, relate to learning conditions, strategy choice and strategy training, remains unclear.

1.2 The Purpose of the Study

There are two primary approaches to SLA research. One is a research-then-theory approach (Long, 1986; McLaughlin, 1987, cited in Skehan, 1989). Most
research into SLA has followed this approach in exploring how people learn a second language. This includes studies examining what strategies learners employ when learning a second language (e.g., Naiman, Frohlich, Stern, & Todesco, 1978; Rubin, 1981). Some researchers, however, when looking at learning strategies, have taken the next step, that of training students to use such strategies with the aim of improving their learning (see Brown & Perry, 1991; Cohen & Aphek, 1980; O’Malley, Chamot, Stewner-Manzanares, Russo et al., 1985; Wenden, 1987b). Such work adopts the second approach to SLA research. This is a theory-then-research approach (Long, 1985; McLaughlin, 1987 cited in Skehan, 1989). Such research explores performance outcomes following instructional input. According to Ellis (1994) not enough of this form of research has yet been done.

The current study adopted both approaches. Firstly, following a theory-then-research procedure, it aimed to improve learning by encouraging students to take a more autonomous role in the learning process through implementing meta-cognitive and cognitive learning strategies. The learning strategies tested were listening comprehension strategies, into which little research had been done earlier (O’Malley, Chamot, Stewner-Manzanares, Russo et al., 1986; Rubin et al., 1988; Thompson & Rubin, 1996). The second focus of this study followed a research-then-theory approach. It aimed to extend the corpus of the limited research (Nyikos, 1987) into the relationships between certain IDs and language strategy training. Specifically, the study aimed to determine what, if any, changes occurred to language learning strategies following training in them, and whether such changes may be attributed to the training.

1.3 The Significance of the Study
This study is significant for several reasons. Firstly, it expands the limited research into strategy training for listening comprehension for learners of other languages, particularly for FL learners who are rarely able to augment their listening skills beyond the classroom. The research considers academic-type, decontextualised, discrete aural comprehension practice and testing, that is, formal learning activities in formal learning settings. Next, the study considers learners of Indonesian as a FL, a language rarely studied. In addition, it is one of few longitudinal studies conducted into strategy training. Finally, it adds to the limited research into possible links between individual learning differences and strategy use.

1.4 Research Questions

There were three research questions for this study.

1. What is the relationship between students’ language learning strategy use and language learning background, affective factors, learning styles and aptitude?

2. What changes occur to strategy use following training in certain language learning strategies?

3. Does training over one semester in meta-cognitive and cognitive language learning strategies improve aural comprehension in year 9 FL students?

For the purpose of clarity, each of these questions is considered separately in this study, namely Part 1, Part 2 and Part 3 (see Table of Contents).

1.5 Definition of Terms

1.5.1 Second Language and Foreign Language

Second Language Acquisition (SLA) has been used as a widely encompassing term, covering all aspects of learning one or more language(s) other than the mother
tongue. However, distinctions have also been made such as naturalistic versus instructed (Ellis, 1994), spontaneous versus guided (Klein, 1986, cited in Ellis, 1994) and natural acquisition versus formal learning (Krashen, 1981). Similarly, the distinction between acquisition and learning has been considered with a variety of environmental and social factors impacting on the definitions. Although this study does not closely consider this complexity of definition, it recognises that various researchers use different terms.

In this study a second language (SL) refers to a language other than the mother tongue that is used in the learner’s community, and foreign language (FL) means a language not typically used in the learner’s community, but typically studied in a classroom. In this study the participants learned Indonesian as a foreign language, in the classroom and in an environment where Indonesian was not typically used in their community. At times the abbreviation L2 is also used to refer to this language.

1.5.2 Learning strategies.

The term ‘learning strategies’, has sometimes been substituted with ‘learner strategies’ in the literature. In this study the term ‘learning strategies’ and ‘language learning strategies’ are used. Learning strategies have been variously defined over the years (Dansereau, 1986; Oxford, 1989, 1990a; Rigney, 1978; Rubin, 1975). They refer to general learning. On the other hand, language learning strategies (LLS) are techniques used to acquire knowledge, gain success and enjoy the learning of a second language. They are self-controlled, can be general or specific, cognitive or affective.

Language learning strategies have been classified as (a) meta-cognitive, cognitive, or socio-affective (e.g., Brown & Palinscar, 1982; Chamot, 1987;
O’Malley, Chamot, Stewner-Manzanares, Kupper et al., 1985) or (b) direct or indirect (e.g., Oxford, 1990a; Rubin, 1975, 1981).

1. Meta-cognitive strategies are those which “involve thinking about the learning process, planning for learning, monitoring of learning while it is taking place, and self-evaluation of learning after the learning activity” (Chamot, 1987, p. 72).

2. “Cognitive strategies involve manipulation or transformation of the material to be learned; in other words, the learner interacts directly with what is to be learned” (Chamot, 1987, p. 72).

3. ‘Affective’ means “of the feelings; emotional” (Macquarie Study Dictionary, 1988, p. 13, p. 633) and affective learning involves attitudes, values and behaviours, while social behaviour involves two-way interaction between two or more people. Socio-affective strategies are behaviours employed so that social interaction and the learner’s affective state enhance learning.

4. Direct strategies are “strategies that directly involve the target language” as they “require mental processing of the language” (Oxford, 1990a, p. 37).

5. Indirect strategies “provide indirect support for language learning through focusing, planning, evaluating, seeking opportunities, controlling anxiety, increasing cooperation and empathy and other means” (Oxford, 1990a, p. 151).

Learning strategy research is described in section 2.1.

1.5.3 Individual differences.

Individual learner differences (IDs) are the distinctive characteristics of each learner which vary from individual to individual. These characteristics impact upon the way in which each individual learns a second language. They differ from universals, which are the consistent ways in which all learners learn a second language. Individual differences are further described in section 2.2.
In the following chapter a review of the literature is provided. Next, there is a
description of the methodology of the research. The findings for each of the three
parts to the study are given in chapters four, five and six. Chapter four presents the
results of the tests of participants’ individual differences (IDs) and correlations of
their IDs to strategy use. Chapter five describes the reported changes to strategy use
amongst participants. Chapter six reports the results of participants’ aural
comprehension performance over the research period. Finally, a conclusion for the
entire study is presented.
2. Review Of Literature

Larsen-Freeman and Long (Ehrman, 1991) say,

“While on the one hand it is agreed that language learning is a complex process, on the other hand researchers sometimes continue to employ rather simple univariate analyses, such as simple correlations between a single individual variable and learner performance on some language proficiency measure. As d’Anglejan and Renaud (1985) rightly point out, learner variables inevitably overlap and interact with others, suggesting that we are not getting a true measure of a factor if we isolate it from all the others” (Larsen-Freeman & Long, 1991, p. 214).

They continue, however,

“Progress in understanding SLA will not be made simply by identifying more and more variables that are thought to influence language learners. …. Perhaps what will serve the field best at this point is setting our sights higher: attempting to explain SLA, rather than merely describing it” (p. 214-5).

Therefore, one of the aims of this study was, not only further to describe, but further to explain second language acquisition (SLA). This was done by exploring the interrelationship of those individual factors deemed in the literature to be important to SLA, and in particular, how these relate to the use of language learning strategies.

A second aim of this study was to put into practice the theory that training learners in appropriate strategies improves proficiency in SLA, and to determine how successful such practice may be. Further, the specific strategies taught in this study focused on aural comprehension, a skill considered less frequently developed in a FL classroom learning environment than in an immersion environment as experienced by SL or first language learners. Thus this study should add to the corpus of literature considering how learners acquire a second language, how certain individual differences impact on their learning, and particularly, whether or not and how strategy use and strategy training affects aural comprehension skills in a formal learning environment.
2.1 Learning Strategies Studies

As theory and research into second language learning progressed through the 1970s and 1980s away from language-centred approaches and towards more student-centred learning, language learning strategies (LLS) became the focus of researchers’ attention. The rationale for this was to better understand how learners learn was one step towards improving teaching practices. Although initial research into learner strategies was aimed at recording strategies used by any second language learner, it was also considered important to look at the ways successful learners gained their new language (Naiman, Frohlich, & Stern, 1975; Rubin, 1975; Stern, 1975), with a view to teaching these ways to all learners of a second language.

2.1.1 Early research - identifying strategies.

The earliest studies of LLS led to the development of taxonomies of learning strategies, including classifications such as indirect and direct learning strategies (Oxford, 1985; Rubin, 1981), meta-cognitive and cognitive strategies and socio-affective strategies (O’Malley, Chamot, Stewner-Manzanares, Russo, & Kupper, 1985). Studies of ‘good language learners’ (GLL) were conducted by Rubin (1975) and Naiman, Frohlich, Stern, and Todesco (1978) who recorded which strategies students identified using in their second language (L2) learning. As a result Rubin (1981) presented a taxonomy of L2 learning strategies with two broad categories (a) *direct*, including clarification/verification; monitoring; memorisation; guessing/inductive inferencing; deductive reasoning; practice; and (b) *indirect*, including creating opportunity for practice; using production tricks. Naiman et al. (1978) also nominated five categories of strategies that the adolescent GLL used: (a) active task approach, (b) realisation of language as a system, (c) realisation of
language as a means of communication and interaction, (d) management of affective demands, and (e) monitoring.

Wong Fillmore (1976) conducted ethnographic research into pre-school children acquiring a second language and classified two groups of learning strategies (a) social strategies - three were identified, and (b) cognitive strategies - five were identified (Ellis, 1994; Skehan, 1989). This suggested there was an age-related factor in strategy use.

The study by O’Malley, Chamot, Stewner-Manzanares, Kupper and Russo (1985) categorised three types of language learning strategies. The first was executive or meta-cognitive strategies (thinking about learning, planning, monitoring, self-evaluation) and the second was operative or cognitive strategies (direct manipulation/transformation of learning materials). This categorisation was based on information-processing theory, stemming from cognitive theories of general learning processes (Anderson, 1980). In addition, their study indicated that socio-affective strategies were part of the learner’s repertoire, which had been recognised in earlier studies (Naiman et al., 1978; Wong Fillmore, 1976). Strategies monitoring language form, classed as meta-cognitive by O’Malley, Chamot, Stewner-Manzanares, Kupper et al. (1985) were observed by Chesterfield and Chesterfield (1985), who studied strategies used by young children, classifying 12 strategies from more to less frequently used. The initial and most frequently used were receptive strategies; later strategies enabled or maintained interactions; and the least frequent strategies, used only by older, presumably more cognitively developed children, were the strategies monitoring language form.

Since these early studies, further investigation has expanded or elaborated the taxonomies (Chamot, 1987; Chamot & Kupper, 1989; O’Malley & Chamot, 1990;
Oxford, 1990a; Wenden, 1991), with large numbers of sub-strategies classified under
broader categories. For example, based on Rubin’s (1981) two categories of learning
strategies, indirect and direct, Oxford (1990a), divided strategies into 6 sub-
categories, with a total listing of 62 strategies. This range of strategies, and the
problem in defining or interpreting the definitions within the range, can cause
difficulties in comparative research (Chaudron, 1988; Chesterfield & Chesterfield,
1985; Ellis, 1994; Skehan, 1989). However, Skehan (1989), who recognised such
problems, nevertheless considered that enough had been done for further research to
be conducted into the causal role of strategies. Moreover, he added that the
proliferation of strategy training programs available required rigorous empirical
research into their effectiveness (Skehan, 1998).

2.1.2 Strategy use and proficiency.

Following strategy identification research came investigations into the
relationship between learning strategies and language proficiency. Studies by
Naiman et al. (1978), Bialystok and Frohlich (1978), Cohen and Aphek (1981),
Politzer (1983), Padron and Waxman (1988) and Mangubhai (1991) indicated a
positive correlation between strategy use and language proficiency. However, other
studies were inconclusive (Bialystok, 1981; Politzer & McGroarty, 1985) suggesting
problems with data collection techniques (Ellis, 1994). Another problem was a lack
of uniformity regarding definitions (see section 2.1.1) and methods of investigation
(Chaudron, 1988; Ellis, 1994).

Amongst the earliest studies, Naiman et al. (1978) investigated three strategies
in high school French classes. Two, ‘self-initiated repetitions’ and ‘self-corrections’,
were observed in the classroom and the third, ‘attitudes towards correcting others’,
obtained via interviews. Comparing the strategies with two proficiency measures,
listening comprehension and imitation, results showed a significant correlation only with ‘attitudes towards correcting others’. As classroom observation has been shown to be a less reliable method of data collection than participant report (Cohen, 1987; Gaiës, 1983; O’Malley, Chamot, Stewner-Manzanares, Kupper et al., 1985), this may have affected the lack of correlation with the other two strategies.

Using a questionnaire, Bialystok and Frohlich (1978) investigated the perceived frequency of use of three learning strategies (practising, inferencing and monitoring) by intermediate level high school French students. They found that on measures of reading, listening and grammar there was a significant correlation with reported strategy use. They concluded that, of the language learning variables open to manipulation, these three strategies were the most likely to improve achievement in language learning. However, in a follow-up study, in which students indicated the frequency of use of similar strategies for reading and listening tasks, Bialystok (1981) found results regarding the correlation of strategy use to proficiency were inconclusive. Ellis (1994) suggests this may have been due to unreliable data collection techniques used in the questionnaire.

Similar outcomes occurred in studies by Politzer. In one study involving university students of intermediate French, Spanish and German, Politzer (1983) used a self-report questionnaire and found a significant correlation between strategies associated with asking the teacher for explanations, and teacher-allocated grades. However, the Politzer and McGroarty (1985) study of beginner intensive ESL students also used a self-report questionnaire which they acknowledge may have been unreliable; the correlation of strategy use to proficiency gave few significant results. They concluded, however, that clusters of strategy use seemed to have greater correlation to proficiency, a conclusion similar to those of Wenden (1982) and
O’Malley, Chamot, Stewner-Manzanares, Russo et al. (1985) regarding combination in strategy training (see section 2.1.3).

One study by Padron and Waxman (1988) differed from those already discussed in that it suggested a correlation between strategy use and proficiency for ‘negative’ learning strategies. Seven reading strategies considered ‘positive’ and seven considered ‘negative’ were listed for students of English as a second language (ESL) in grades 3 to 5. Students indicated frequency of use on a Likert-scale. A significant correlation with performance resulted for only two strategies, both of which were ‘negative’, that is, the correlation was with strategies relating to low achievement. This result may indicate that use of inappropriate strategies may interfere with achievement in reading.

In contrast to the data collection method used in the studies above, Mangubhai (1991) did not list strategies for his beginner adult students of Hindi to consider, but allowed them to report their strategy use via concurrent think-aloud, immediate retrospective and post-task discussion procedures. Following the Total Physical Response methodology (Asher, 1977) Mangubhai used three types of listening tasks to measure proficiency. Results showed significant differences between ‘high’ and ‘low’ achievers in terms of type and frequency of strategy use. The more successful students relied on memory strategies, focusing on ‘chunks’ of information and on meaning first, form later, and demonstrated little reliance on translation.

Other studies correlating strategy use with proficiency have occurred in vocabulary learning. For example, Cohen and Aphek (1981) identified 11 types of vocabulary association strategies used by beginner, intermediate and advanced learners, concluding that any attempt at mnemonic association aided vocabulary retention. Although knowledge of vocabulary is essential to L2 learning, a problem
with vocabulary strategy use is that it is generally limited to discrete items, rather than to functional language use. This was noted in Cohen and Aphek’s study where beginners used listing strategies while intermediate students preferred contextual vocabulary learning. Functional language use is also related to the skills of listening, speaking, reading and writing and combinations of them.

Of the investigations cited above, Padron and Waxman (1988) and O’Malley, Chamot, Stewner-Manzanares, Russo et al. (1985) studied second language students of English while Cohen and Aphek (1981) considered students of Hebrew as a second language. All the remainder focused on strategy use and proficiency of students who studied a foreign language (FL), including French (four of seven studies), Spanish, German and Hindi. None studied Indonesian as FL or as a L2.

Since these early studies, a variety of later studies have confirmed the positive relationship between use of LLS and proficiency, while others have indicated the complexity of the interrelationship between proficiency and strategy use. Those studies reporting positive correlations between proficiency and strategy use include Oxford, Park-Oh, Ito, and Sumrall (1993), Green and Oxford (1995), Teng (1998) and to a limited extent by Oxford and Ehrman (1995). However, Purpura (1997) showed that some LLS positively affect proficiency, others negatively affect proficiency and still others have no effect on proficiency at all. Oxford (1994) considers appropriate “orchestration” of LLS an important factor in effective strategy use, an idea supported by Goh (2002) and Ehrman, Leaver and Oxford (2003).

2.1.3 Research into strategy training.

In spite of the conflicting results attesting to efficacy of strategy use, language strategy training became the next step in strategy research. By teaching strategies used by ‘good language learners’, language strategy training has been aimed at
improving performance in L2 learners. Results have been mixed, although they
generally indicate that a combination of strategies and integration of strategy training
with the regular classroom program may be useful, especially for the four macro-
skills listening, speaking, reading and writing. Certain pedagogy has incorporated
this, albeit in an ad hoc manner. Whether or not this is warranted is open to
conjecture as the following studies indicate.

Wenden (1987b) cited four studies of early second language learner training.
They were by Moulden (1978, 1980) (speaking), Hosenfeld, Arnold, Kirchofer,
(reading, listening, writing, speaking). Unfortunately, the efficacy of training was not
formally assessed in the studies of the first three researchers. Moulden and Hosenfeld
et al. made no assessment, while Holec suggested that students’ and teachers’
opinions were positive, but no formal assessment was undertaken. Wenden did
employ an efficacy measure, but results were generally negative, which she suggested
was due to a lack of integration of training with the regular learning program.

By contrast, training in vocabulary learning strategies conducted by Cohen
Positive conclusions were also reached by O’Malley, Chamot, Stewner-Manzanares,
Russo et al. (1985) following their training program in vocabulary learning, listening
and speaking tasks based on information-processing theory. They taught
experimental groups combinations of meta-cognitive and/or cognitive and socio-
affective strategies. They suggest that a combination of meta-cognitive and cognitive
strategies is important, as a lack of meta-cognition about cognitive strategies will fail
to give learners direction or an ability to review their learning (O’Malley, Chamot,
Stewner-Manzanares, Russo et al., 1985).
It should be noted that the early studies by Moulden, Hosenfeld, Holec and Wenden, were of learners of a foreign language (FL) not of a second language (L2). The later studies did focus on L2 learners and indicated more conclusive results (Brown & Perry, 1991; Cohen & Aphek, 1980; O’Malley, Chamot, Stewner-Manzanares, Russo et al., 1985). However, none of these were undertaken with Indonesian language learners.

2.1.4 Strategies measures.

A range of measurement instruments has been used to record strategy use by language learners. Early studies (Naiman et al., 1978; Rubin, 1981; Wong Fillmore, 1976) used interview and observation to record strategies used by language learners, with mixed success. Immediate retrospective think-aloud procedures (Chamot & Kupper, 1989) and diary-writing (Rubin, 1981) have also been used and are recommended by Chamot (1998). Similarly, questionnaires, particularly Likert-type, have also been utilised by strategy researchers. For example, Politzer (1983) used a questionnaire to indicate frequency of use of selected behaviours, based on research of GLLs. Oxford, Nyikos and Ehrman (1988) and Politzer and McGroarty (1985) used another questionnaire based on his earlier instrument with new items added. Birch (2001) collected quantitative data using a Likert-scale instrument based on Chamot and O’Malley’s three categories of learning strategies, meta-cognitive, cognitive and socio-affective (Chamot, 1993). Purdie and Oliver (1999) developed their own Likert-scale questionnaire, based on tools used by O’Malley and Chamot (1990) and Oxford (1989). Oxford’s SILL questionnaire has also been widely used (Ehrman & Oxford, 1988, 1989; Englert, 1985; Griffiths, 2003; Oxford & Burry-Stock, 1995; Oxford & Ehrman, 1989; Oxford & Nyikos, 1989; Tamada, 1996; Teng, 1998).
Strengths and weaknesses of these instruments have been proffered. Oxford and Burry-Stock (1995) described advantages and disadvantages of various data collection methods. For example, they suggested that interviewing resulted in detailed data but was very time-consuming; observation was relatively easily utilised in the classroom but failed adequately to identify cognitive and meta-cognitive strategies; immediate retrospective narrative by students conveyed strategy use as well as various other important learning factors such as motivation and style, but students did not remember all the strategies they used; and Likert-scale instruments were quick, easy, cost-effective, non-threatening, confidential and provided immediate feedback to students.

Chamot and her associates considered the advantages and disadvantages of questionnaires, guided interviews, retrospective think-aloud reporting and diary-writing (Chamot & Kupper, 1989; O’Malley & Chamot, 1990). They suggested that questionnaires or guided interviews would allow participants to present the widest range of data about their strategy use, whilst think aloud techniques were limited by the specific nature of the learning task. Similarly, they said that in utilising such techniques a wide range of data can be collected, or more specific data collected for one language skill (such as listening comprehension), depending on the requirements of the study. Difficulties in data collection arise when training of the participants is necessary so that they are able both to understand and to perform the data-producing activity. These problems come both with think-aloud activities, and with diary writing activities which may require the participants to focus on a specific strategy or group of strategies when writing the diary.

By contrast, O’Malley and Chamot (1990) suggested data collection techniques that do not require participant training are easier, and often faster, to
administer. These include the Likert-scale type instruments. For example, they considered Oxford’s (1986) Strategy Inventory for Language Learning (SILL) which emerged from the taxonomy of learning strategies produced by Oxford (1985). This taxonomy incorporated the majority of strategies discovered through earlier research which was large, with sub-categories that O’Malley and Chamot argued overlap, but which allowed her later to produce the SILL. O’Malley and Chamot described how the SILL was modified and tested, and concluded that it seemed to be a reasonable instrument for interpretation of strategy use.

Oxford and Burry-Stock (1995) discussed the reliability of some Likert-scale instruments which measured strategy use, including the SILL. They reported reliability data was unavailable for the Likert-scale instruments by Chamot et al (1987), Padron and Waxman (1988) but for Politzer and McGroarty (1985) reliability was 0.51, 0.61 and 0.63 (Cronbach’s alpha). However, they presented a broad summary of justification of Oxford’s SILL over a 15 year period, suggesting it had strong utility, reliability, content validity, criterion-related validity (predictability and concurrent) and construct vailidity (i.e., strategy use to proficiency). According to Griffiths (2003) the SILL’s reliability is 0.89 to 0.98 (Cronbach’s alpha). This makes it one of the most comprehensive and easiest instruments to use.

Nevertheless, Gu, Wen and Wu (1995) warn that caution is required when using Oxford’s SILL with learners, arguing that the Likert-scale label ‘frequent’ is a relative, not absolute, term, and thus is subject to variation according to the focus of the participant completing the questionnaire. They issued four parallel questionnaires to university students with instructions that required participants’ focus to differ slightly each time. The first questionnaire gave no instructions other than those of the original SILL, the second required participants to respond comparing themselves with
their peers, the third asked them to compare their present behavioural frequency with their own past learning experience in high school, and the fourth asked them to check their frequency of strategy use by comparing such frequency with that of their other language skills. Results showed that participants’ responses differed significantly for 13 of the 20 items. They conclude, therefore, that researchers using the SILL or any other Likert-type instrument should ensure that clear instructions require participants to focus appropriately. Despite this, like earlier researchers, Tamada (1996) and Hsiao and Oxford (2002) claim that, although the SILL is not completely adequate and that modifications would be useful, it is still the best instrument to measure LLS.

2.1.5 Listening.

Listening is amongst the first of the skills developed by a language learner who learns within the target language (TL) environment. Whether the learner be a first language or a second language learner immersed in the TL (i.e., outside the classroom) there is a wealth of auditory input available. By contrast, the extent of comprehensible input is usually less in a FL classroom environment, resulting in a more restricted encounter with audible language for the learner. The assumption that understanding is enhanced when there is abundant comprehensible input means a foreign language learner who aims to communicate verbally faces a potential disadvantage.

This problem raises an awareness of the need for learners and teachers to enhance the FL classroom environment so that they may attempt to overcome some of the relative disadvantages such a FL learner has in the area of listening. Contextualising the target language, perhaps by using visual materials (Ur, 1984), is one way of doing this. Strategy training for listening comprehension may be another.
Indonesian as a foreign language has been selected as a language relevant for Australians to learn due to Australia’s geographical proximity to Indonesia and, as such, is promoted as a language for communication in both spoken and written forms *(Syllabus manual: Year 11 and Year 12 subjects. Vol. 3, Languages Other Than English, 1999)*. (There is no formal state syllabus/rationale available for Year 9 Indonesian.) The first objective in teaching the language in Western Australian high schools at Year 12 level is that students are able to “listen to and understand standard Indonesian as spoken clearly at normal speed by a background speaker” *(Syllabus manual: Year 11 and Year 12 subjects. Vol. 3, Languages Other Than English, 1999, p. 173)*. Consequently, promotion of comprehensible auditory input for these learners is important. Training in listening strategies, therefore, may prove to be a worthwhile endeavour to improve learners’ listening comprehension; and early introduction of such training is favourable as a way to establish good habits.

As indicated in section 2.1.3, second language strategy training programs have been limited in number and range, with listening training one of the least frequently conducted programs. For example, Chamot (1993) cites the limited L2 strategy training studies conducted in vocabulary learning and reading, indicating listening has been a focus only of her own studies with colleagues (O’Malley & Chamot, 1990; O’Malley, Chamot, Stewner-Manzanares, Russo et al., 1985), a view also presented by O’Malley (1987). Similarly, O’Malley and Chamot (1990) report that studies of training in comprehension strategies have focused more frequently on reading than on listening.

Among the existing studies of training in listening comprehension, few have considered FL learning, with FL learners and teachers more likely to have stressed reading and writing over listening and speaking (Chamot, 1993; Cohen, 1990).
Moreover, teachers’ familiarity with learning strategies and training in such strategies, have been limited (O’Malley, Chamot, Stewner-Manzanares, Russo et al., 1985) and what training they may have provided to students is likely to have been associated with a traditional product rather than with a process syllabus. However, as communicative language teaching (CLT) has emerged, the importance of listening comprehension has been recognised. In fact, such an approach is advocated in Australian FL programs (Batt, 2003; Beale, 2002; Dyson, 2002; Ferguson, 2000; Harbon, 2001; Malcolm, 2001; Mangubhai, Dashwood, & Howard, 2000; Shopen & Hickey, 2003; Zhong & Low, 1995), an example of which is presented in the WA Indonesian syllabus (e.g., *Syllabus manual: Year 11 and Year 12 subjects. Vol. 3, Languages Other Than English*, 1999).

2.1.6 Identifying listening strategies.

As mentioned in section 2.1.1, following identification of general language learning strategies, researchers studied more specific strategies. The strategies investigated were generally those classified under the sub-categories already constructed, such as direct, indirect, meta-cognitive, cognitive and socio-affective. However, as research into strategy use and proficiency (see section 2.1.2) clearly indicates, a learner’s proficiency may be superior in one or more specific aspect of the language such as vocabulary, structure, or the macro-skills, writing, reading, speaking and listening. Thus, specific language learning strategies can be utilised to enhance a learner’s understanding and use of vocabulary, structure, writing, reading, speaking and listening.

There have been only a few studies specifically identifying listening strategies. These include early studies by Fujita (1984), Chamot, Kupper, and Impink-Hernandez (1988a, 1988b), O’Malley, Chamot and Kupper (1989), Mangubhai (1991) and
Laviosa (1991). (Also see Table 6 for a summary.) Since these studies, Bacon (1992) tested university Spanish learners’ listening comprehension strategies, and Vandergrift (1997) tested 16-17 year old French L2 learners’ listening comprehension strategies, but no new strategies were identified. Vandergrift concluded cognitive and social constraints modified strategy use, however, his study was of listening in two-way communication, rather than as one-way reception only. A brief outline of the studies of one-way reception listening strategies follows.

Fujita (1984) listed the strategies used by successful and unsuccessful listeners, as shown in Table 2.

<table>
<thead>
<tr>
<th>Successful</th>
<th>Unsuccessful</th>
</tr>
</thead>
<tbody>
<tr>
<td>pick/select topic from listening passage</td>
<td>listen for knowns/familiar ideas</td>
</tr>
<tr>
<td>pick/select main ideas</td>
<td></td>
</tr>
<tr>
<td>pick/select key factors throughout</td>
<td>no self-monitoring</td>
</tr>
<tr>
<td>confirm (monitor) hypothesis/predictions</td>
<td>attend to form</td>
</tr>
<tr>
<td>attend to meaning</td>
<td></td>
</tr>
</tbody>
</table>

Note: Based on Fujita (1984).

Chamot, Kupper and Impink-Hernandez (1988a, 1988b) also explored strategies used by students in listening comprehension. A summary of the favoured strategies are shown in Table 3.
Another study in this area was conducted by O’Malley, Chamot and Kupper (1989). They sought to determine which listening strategies were used by high school students. The students included those considered to be both effective and ineffective learners. They reported their listening strategies using think-aloud protocols. Basing a theoretical approach on cognitive psychology theory (Anderson, 1985), O’Malley and Chamot (1990) considered three stages of cognitive processes involved in the students’ listening comprehension:

(a) Perceptual Processing – focusing on the sounds heard;
(b) Parsing – comprehending ‘chunks’ of meaningful language (e.g., phrases);
(c) Utilization – relating the language heard to existing knowledge.

Results showed significant differences between behaviours of effective and ineffective listeners, as shown in Table 4.

Table 3

*Most Favoured Listening Strategies*

<table>
<thead>
<tr>
<th>Meta-cognitive</th>
<th>Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective attention</td>
<td>Note-taking</td>
</tr>
<tr>
<td>Self-monitoring</td>
<td>Elaboration (from world knowledge, personal experience or self-questioning)</td>
</tr>
<tr>
<td>Problem identification</td>
<td>Inferencing</td>
</tr>
<tr>
<td></td>
<td>Summarizing</td>
</tr>
<tr>
<td></td>
<td>Grouping (listening for larger chunks)</td>
</tr>
</tbody>
</table>

Note: Based on (O’Malley & Chamot, 1990)
Table 4

*Common Behaviours of Effective and Ineffective Students in Listening Comprehension*

<table>
<thead>
<tr>
<th></th>
<th>Effective</th>
<th>Ineffective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceptual Processing</strong></td>
<td>Maintained concentration</td>
<td>Distracted by unknown word/phrase</td>
</tr>
<tr>
<td></td>
<td>Aware of inattention</td>
<td>Stopped, unaware of inattention</td>
</tr>
<tr>
<td></td>
<td>Attempt to refocus</td>
<td>No attempt to refocus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long passages - attempted to translate, so missed later portions</td>
</tr>
<tr>
<td><strong>Parsing</strong></td>
<td>Listened to larger chunks</td>
<td>Listened to smaller chunks</td>
</tr>
<tr>
<td></td>
<td>Listened to individual words only when no wider comprehension</td>
<td>Word-by-word comprehension</td>
</tr>
<tr>
<td></td>
<td>Inferred meaning from context</td>
<td>No inferencing</td>
</tr>
<tr>
<td></td>
<td>Combined chunks to seek overall meaning</td>
<td></td>
</tr>
<tr>
<td><strong>Utilization</strong></td>
<td>Used world knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used personal experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used self-questioning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used elaborations to support inferencing</td>
<td></td>
</tr>
</tbody>
</table>

Note: Based on O’Malley & Chamot (1990).

However, similarities also existed between the two type of learners. For example both effective and ineffective listeners used bottom-up strategies, although the effective listeners used both bottom-up and top-down strategies depending on the difficulty of content. For example, they used top-down for overall meaning and bottom-up for identifying specific linguistic features. This can be seen from behaviours listed in the Parsing phase in Table 4. Goh’s (2000) study, which looked at difficulties reported by listeners, supports these results in that although both better and weaker listeners experienced difficulties in the perceptual processing and parsing stages, the weaker listeners did not report utilisation difficulties while the better listeners did. Goh concludes that this was due to the better listeners more often progressing to the utilisation stage, while the weaker listeners remained at the more basic levels of listening comprehension.

Mangubhai’s (1991) study, was undertaken to measure the correlation between general language strategy use and proficiency. However, as the learners investigated
followed a course based on Total Physical Response methodology (Asher, 1977), in effect, the strategies they used, at least in the initial stages, were listening strategies. As in the above study reported by O’Malley and Chamot, Mangubhai was able to compare effective and ineffective listeners, naming them ‘high achievers’ and ‘low achievers’. In addition, his study identified three types of learning (listening) strategies, depending on the learner’s focus: on form, on meaning or on memory. These results are summarised in Table 5.

Table 5

*Differences in Strategy Use by High and Low Achievers, with Reference to Learner Focus (Form, Meaning, Memory)*

<table>
<thead>
<tr>
<th>High Achievers</th>
<th>Low Achievers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less focus on meaning compared to memory</td>
<td>More focus on meaning compared to memory</td>
</tr>
<tr>
<td>More focus on memory compared to meaning</td>
<td>Less focus on memory compared to meaning</td>
</tr>
<tr>
<td>Less focus on words (form) compared to meaning</td>
<td>More focus on words (form) compared to meaning</td>
</tr>
<tr>
<td>Less translation to L1 (form)</td>
<td>More translation to L1 (form)</td>
</tr>
<tr>
<td>More practising (memory)</td>
<td>Less practising (memory)</td>
</tr>
</tbody>
</table>

Note: Based on Mangubhai (1991).

Laviosa (1991) examined what listening strategies were used by students of Italian as a FL. Based on the Faerch and Kasper (1983) model, she analysed the intellectual process involved in problem-solving in communication. The process identified had four stages: (a) perception of the problem, (b) planning the problem-solving process, (c) selection of strategy, and (d) solution. In her study nine problems, three planning processes and seven strategies were identified. The strategies were contextual inferencing, seeking confirmation of or rejecting wrong hypotheses, using background knowledge (world or topic), associating (new ideas to
previous content), selecting (focusing on important items/content and rejecting perceived irrelevant information), vocalisation/visualisation (repeating or visualising spelling), and using cognates. These are similar to the strategies in the research on listening strategies, as described above, including studies of both FL students (Chamot et al., 1988a, 1988b; Fujita, 1984; Laviosa, 1991) and ESL students (O’Malley and Chamot, 1990; O’Malley, Chamot and Kupper, 1989). The similarities include an attention to meaning over individual words, and selective attention to specific information. In addition, researchers suggest that effective listeners also use their background knowledge to confirm or reject predictions, and use repetition/visualisation of audible input to enhance memory (see Table 6).

Table 6

*Similarities in Listening Strategies Identified by Research*

<table>
<thead>
<tr>
<th>Fujita</th>
<th>Chamot and colleagues</th>
<th>Mangubhai</th>
<th>Laviosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>attend to meaning</td>
<td>combined chunks to seek overall meaning; grouping</td>
<td>less focus on words compared to meaning</td>
<td></td>
</tr>
<tr>
<td>pick topic; pick main ideas</td>
<td>aware of inattention; selective attention; attempt to refocus</td>
<td></td>
<td>selecting (focusing on important items/content and rejecting perceived irrelevant information)</td>
</tr>
<tr>
<td>confirm (monitor) hypothesis/predictions</td>
<td>self-monitoring; used self-questioning</td>
<td></td>
<td>seeking confirmation of or rejecting wrong hypotheses</td>
</tr>
<tr>
<td></td>
<td>used elaborations to support inferencing</td>
<td></td>
<td>contextual inferencing</td>
</tr>
<tr>
<td></td>
<td>used world knowledge; used personal experience</td>
<td></td>
<td>using background knowledge (world or topic)</td>
</tr>
<tr>
<td>pick/select key factors throughout</td>
<td>used world knowledge; used personal experience; used elaborations to support inferencing</td>
<td></td>
<td>associating (new ideas to previous content)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>more practising (memory)</td>
<td>vocalisation/visualisation (repeating or visualising spelling)</td>
</tr>
<tr>
<td></td>
<td>used world knowledge; used personal experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>used world knowledge; used personal experience</td>
<td>using cognates</td>
</tr>
</tbody>
</table>
The problem of extent and definition of strategies mentioned in section 2.1.1 can also be seen here. The strategies reported in these few studies reflects the diverse range of strategies (including their names and definitions) described within various taxonomies. Consequently, there appears to be a need for shared terminology. Apart from this difficulty, the selection of ‘best strategy’ is also problematic. Notwithstanding the work described above, the question remains as to which strategies are best for developing listening proficiency. This question is now addressed.

2.1.7 Listening strategy use and proficiency.

Studies investigating listening strategy use and language proficiency are fewer than studies of general language strategy use and language proficiency. However, they reflect the mixed results of studies in the more general language learning area.

The study by Bialystok (1981) investigated how strategies used in reading and listening tasks correlated with proficiency. A questionnaire was issued to high school students of L2 French, listing four strategies, two for reading tasks: functional practice (reading for meaning) and inferencing (cloze sentences); and two for listening tasks: functional practice (listening comprehension) and monitoring (determining which sentences heard are in/correct). The results were inconclusive. Ellis (1994) suggests that this may have been due to unreliable data collection procedures used in the questionnaire.

Mangubhai (1991) investigated strategies used by adult learners, in this case learning Hindi as their L2. He employed three types of listening tasks to measure proficiency: following oral commands, sentence repetition and listening comprehension. Results showed a positive correlation between achievement and strategy use. However, as the teaching approach was Total Physical Response
(Asher, 1977), a concise and limited formulaic procedure, it did not really reflect classroom programs that, in the main, aim to incorporate the full range of language skills (including speaking, reading and writing).

It is preferable that further research into the correlation of listening strategy use with language proficiency be undertaken in a setting reflecting a broader base of classroom programs, especially those utilising all language skills.

Both stage or level of learning, and age or level of cognitive development influence choice of strategy, with learners using different strategies at different levels, although generally they use more strategies at higher levels (Oxford, 1994). One focus of learning strategy training programs is to discover whether or not this can be modified by teaching strategies to students. The attempt to do so requires prior selection of appropriate learning strategies, in this case, appropriate listening comprehension strategies.

Research into strategy training has found that combinations of appropriate strategies enhances learning of a language, but little research into strategy combinations specifically for listening skill improvement has occurred. However, Chamot and Kupper (1989) found that L2 listening comprehension improves when learners combine the strategies of elaboration, inferencing, selective attention, and self-monitoring. Chamot et al. (1988b) defined these four strategies in the following ways: (see Table 7)
Table 7

**Strategies That Improve Listening Comprehension When Combined**

<table>
<thead>
<tr>
<th>Elaboration</th>
<th>Meta-cognitive Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive Strategies</strong></td>
<td><strong>Self-monitoring</strong></td>
</tr>
<tr>
<td>• relating new information to prior knowledge;</td>
<td>• checking, verifying or correcting one’s comprehension or</td>
</tr>
<tr>
<td>• relating different parts of new information to each other;</td>
<td>performance in the course of a language task</td>
</tr>
<tr>
<td>• making meaningful personal associations to information presented;</td>
<td>Examples are:</td>
</tr>
<tr>
<td>Examples are:</td>
<td>a. <em>Comprehension</em> monitoring: checking, verifying or correcting</td>
</tr>
<tr>
<td>a. <em>Personal</em> elaboration: making judgement about or reacting personally</td>
<td>one’s understanding</td>
</tr>
<tr>
<td>to the material presented</td>
<td>b. <em>Production</em> monitoring: checking, verifying or correcting</td>
</tr>
<tr>
<td>b. <em>World</em> elaboration: using knowledge gained from experience in the</td>
<td>one’s language production</td>
</tr>
<tr>
<td>world</td>
<td>c. <em>Auditory</em> monitoring: using one’s ‘ear’ for the language</td>
</tr>
<tr>
<td>c. <em>Academic</em> elaboration: using knowledge gained in academic situations</td>
<td>(how something sounds) to make decisions</td>
</tr>
<tr>
<td>d. <em>Between parts</em> elaboration: relating parts of the task to each other</td>
<td>d. <em>Visual</em> monitoring: using one’s ‘eye’ for the language</td>
</tr>
<tr>
<td>e. <em>Questioning</em> elaboration: using a combination of questions and</td>
<td>(how something looks) to make decisions</td>
</tr>
<tr>
<td>world knowledge to brainstorm logical solutions to a task</td>
<td>e. <em>Style</em> monitoring: checking, verifying or correcting</td>
</tr>
<tr>
<td>f. <em>Self-evaluative</em> elaboration: judging self in relation to materials</td>
<td>based upon an internal stylistic register</td>
</tr>
<tr>
<td>g. <em>Creative</em> elaboration: making up a story line or adopting a clever</td>
<td>f. <em>Strategy</em> monitoring: tracking use of how well a strategy</td>
</tr>
<tr>
<td>perspective</td>
<td>is working</td>
</tr>
<tr>
<td>h. <em>Imagery</em> elaboration: using mental or actual pictures or visuals to</td>
<td>g. <em>Plan</em> monitoring: tracking how well a plan is working</td>
</tr>
<tr>
<td>represent information; coded as a separate category, but viewed as a</td>
<td>h. <em>Double-check</em> monitoring: tracking, across the task,</td>
</tr>
<tr>
<td>form of elaboration</td>
<td>previously undertaken acts or possibilities considered</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inferencing</th>
<th>Selective Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>• using available information to guess the meanings or usage of</td>
<td>• deciding in advance to attend to specific aspects of language</td>
</tr>
<tr>
<td>unfamiliar language items associated with a language task, to predict</td>
<td>input or situational details that assist in performance of a</td>
</tr>
<tr>
<td>outcomes, or to fill in missing information</td>
<td>task;</td>
</tr>
<tr>
<td>Note: Based on Chamot, Kupper and Impink-Hernandez (1988b).</td>
<td>• attending to specific aspects of language input during task</td>
</tr>
</tbody>
</table>

Although L2 strategy training has been limited (Chamot, 1993), some
judgements have been made about how to implement effective strategy training.
Suggestions have included general frameworks or principles to be followed when
considering a training program (Chamot & Kupper, 1989; Wenden, 1987b), as well as
specific procedures for teaching language learning strategies (Ellis & Sinclair, 1989;
O’Malley & Chamot, 1988, 1990; Rubin & Thompson, 1982). The following
considers the principles and programs developed by Rubin and Thompson (1982), Ellis and Sinclair (1989), Chamot et al. (1993), Oxford (1990a), and Wenden (1987b).

An instructional program in language learning strategies for ESL and EFL students was prepared by Ellis and Sinclair (1989). Their program is based on certain principles including: (a) strategy training must focus on the process of learning rather than on the content of learning; (b) strategy training must be ‘informed’ training; (c) meta-cognitive and cognitive strategies should be taught; and (d) strategies can be taught separately or integrated with the regular learning program.

Each of the six language components covered in the training program provides information about and/or practice in certain strategies, as shown in Table 8.

Unfortunately, Ellis and Sinclair do not clearly indicate which meta-cognitive or cognitive strategies are taught as part of their program. Thus, the labels given to the strategies in Table 8 are inferred from the brief description they give for each skill.

Table 8
*Strategies Included by Ellis and Sinclair for Each Skill in Their Training Program*

<table>
<thead>
<tr>
<th>Skill</th>
<th>Meta-cognitive Strategies</th>
<th>Cognitive Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extending Vocabulary</td>
<td></td>
<td>Grouping</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elaboration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note-taking</td>
</tr>
<tr>
<td>Dealing with Grammar</td>
<td>Self-evaluation</td>
<td>Deduction</td>
</tr>
<tr>
<td>Listening</td>
<td>Selective attention</td>
<td>Inferencing</td>
</tr>
<tr>
<td>Speaking</td>
<td>Advance preparation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self-evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organisational planning</td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>Advance organisation</td>
<td>Inferencing</td>
</tr>
<tr>
<td></td>
<td>Self-evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selective attention</td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td>Self-evaluation</td>
<td>Transfer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note-taking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Imagery</td>
</tr>
</tbody>
</table>

Note: Based on Ellis and Sinclair (1989).
Chamot et al. (1993) offered five judgements about strategy training programs: (a) that teachers can implement strategy training in class; (b) that to do so, teachers need support via workshops, etc.; (c) that teachers perceive strategy training as an extra, not regular, task; (d) that students enjoy strategy training but believe it more useful if integrated with class activities; and, (e) that students are confused by strategy overload and that they vary in strategy preference. It seems appropriate, therefore, in conducting strategy training research, to try and avoid these potential problems. Firstly, to avoid possible concerns outlined in (a), (b) and (c), a researcher, rather than a regular classroom teacher not versed in learning strategies, should conduct the strategy training. Secondly, training in a limited number of strategies, integrated into the regular program, may help overcome the difficulties outlined in (d) and (e).

In order to improve students’ learning strategies for better L2 outcomes Chamot (1987) suggests that teachers should: 1) find out what strategies their students were using, for example via diary use or interviews; 2) direct students’ learning strategies in various contexts both in and out of class; 3) intervene in less able students’ TL production or add to more able students’ repertoire by teaching strategies; and, 4) compare strategies used by good and poor learners via ‘think aloud’ groups so poor students can hear what strategies good students use. These suggestions have been incorporated into the Cognitive Academic Language Learning Approach (CALLA) developed by Chamot and O’Malley (Chamot & O’Malley, 1986, 1987; O’Malley, 1988; O’Malley & Chamot, 1988, 1990). This is a program directed at upper elementary and secondary school limited English proficiency (LEP) students, integrating academic language use with whole curriculum content (e.g., science, mathematics, social studies, literacy). O’Malley and Chamot (1990) say that general learning strategies or core learning strategies are useful for LEP students to
learn both language and content. The CALLA program is based on cognitive theory (Anderson, 1985), and its implementation follows five processes, as outlined in Table 9.

Table 9

Framework for CALLA Learning Strategy Instruction

<table>
<thead>
<tr>
<th>Process</th>
<th>Purpose of process</th>
<th>How process conducted</th>
</tr>
</thead>
</table>
| 1. Preparation  | Develop students’ awareness of different strategies | Small group retrospective interviews  
Teacher models think-aloud then students practise think-aloud  
Discussion after small group/think-aloud activities |
| 2. Presentation | Develop student knowledge of strategies         | Provide rationale for strategy use  
Describe/name strategies  
Model strategies |
| 3. Practice     | Develop student skills in using strategies for academic learning | Cooperative learning tasks  
Think-alouds while problem solving  
Peer tutoring in academic tasks  
Group discussions |
| 4. Evaluation   | Develop student ability to evaluate own strategy use | Immediately after task writing the strategies used  
Discussing strategy use in class  
Keeping dialogue journals (with teacher) on strategy use |
| 5. Expansion    | Develop transfer of strategies to new tasks     | Discussions on meta-cognitive, motivational aspects of strategies  
Additional practise on similar academic tasks  
Assignments to use strategies in tasks related to students’ cultural background |

Note: Based on O’Malley and Chamot (1988).

The CALLA is a well-organised and comprehensive program of learning strategy training. However, it is specifically aimed at LEP students seeking to improve their literacy across an upper elementary or lower secondary whole curriculum. It is not aimed at teaching foreign language learning strategies in a non-target language environment.

Oxford’s (1990a) training program, on the other hand, presents an 8 step model, as shown in Table 10, designed specifically for students learning a foreign language.
Table 10

*Oxford’s Eight Step Model for Language Strategy Training*

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Determine learners’ needs and time available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>Select strategies well</td>
</tr>
<tr>
<td>Step 3</td>
<td>Consider integration of strategy training</td>
</tr>
<tr>
<td>Step 4</td>
<td>Consider motivational issues</td>
</tr>
<tr>
<td>Step 5</td>
<td>Prepare materials and activities</td>
</tr>
<tr>
<td>Step 6</td>
<td>Conduct ‘completely informed training’</td>
</tr>
<tr>
<td>Step 7</td>
<td>Evaluate the strategy training</td>
</tr>
<tr>
<td>Step 8</td>
<td>Revise the original strategy</td>
</tr>
</tbody>
</table>

Note: Based on (Oxford, 1990a).

Oxford recommends her SILL (Strategy Inventory for Language Learning) be used in Step 1 to determine what strategies students may already have. This is less time-consuming than the suggestions of interviews, discussions and think-aloud activities made by O’Malley and Chamot (1988). In step 2 of her model, Oxford says either a ‘broad focus’ or a ‘narrow focus’ can be used, where the former has the advantage of allowing for maximisation of learning through the use of multiple strategies. However, a narrow focus requires less overall training time as only one or two strategies are taught. This reduces the chance of students being overloaded with too many strategies at once in the training program and “allows more precise assessment of the effectiveness of the strategy training” (p. 205). Integration of training with the regular learning program (Step 3) allows students to see the relevance of strategies, as they are used directly in the classroom context. This, Oxford says, allows students to see meaningfulness in the strategies, which leads to better memorisation of the strategies. Such an approach accords with listening
strategy training research conducted by O’Malley, Chamot, Stewner-Manzanares, Russo et al. (1985) and Thompson and Rubin (1996).

Wenden (1987b) said that when developing learner training activities or materials one should consider: (a) making explicit the purpose of training; (b) what strategies to teach; (c) how to evaluate the outcomes; and, (d) integrating strategy and language training. With respect to (a), she cites research by Brown, Bransford, Ferrera, and Campione (1983) who show ‘blind’ training, that is, students trained in strategies without knowing why or how they are useful or how they can be transferred, can lead to one-off success but not to strategy maintenance or transfer. By contrast, informed training, that is, instruction in strategies coupled with information about their usefulness and their expected effects, has proven more effective. In considering Wenden’s point (b), Brown et al. (1983) showed that metacognitive strategy training is necessary in conjunction with cognitive strategy training. Other researchers have supported this view (Chamot & Kupper, 1989; O’Malley, Chamot, Stewner-Manzanares, Russo et al., 1985). The third consideration (c), evaluation, according to Wenden, occurs in three areas (i) task improvement, or whether students are better at the language skill practised using strategies, (ii) maintenance, or whether students are continuing to use learned strategies on similar tasks later, and (iii) transfer, or whether students are using learned strategies in different subject areas. Finally, Wenden presents guidelines for establishing a strategy training program, summarised in Table 11.
Table 11

Guidelines for a Strategy Training Program

1. Inform students of the value of the program.

2. Provide training in both meta-cognitive and cognitive strategies.

3. Integrate training with regular learning program, and consider:
   - range and specificity of strategies (should all concepts/skills taught, or should only one objective be taught?)
   - autonomy of students (should strategy practice provided in class, or should students take full responsibility for implementing strategies?)
   - learners’ needs (is there adequate training time? do strategies match course objectives? are students on side?)

4. Evaluate training, and consider:
   - student attitudes (is their appreciation of strategy use/language learning changed?)
   - skill acquisition
   - task improvement
   - maintenance
   - transfer

Note: Based on (Wenden, 1987b).

Later, Wenden (1991) produced a guidebook for teachers of foreign languages, on how to employ learning strategies. In this she gives guidelines and objectives that are more specific than those recorded in her earlier work. These are shown in Table 12.
### Wenden’s Guidelines and Objectives for Strategy Training

<table>
<thead>
<tr>
<th>Guidelines for strategy training</th>
<th>Objectives for strategy training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Informed</strong> strategy training should be informed</td>
<td>1. Introduce the concept ‘strategy’</td>
</tr>
<tr>
<td><strong>Self-regulation</strong> students should know how to regulate their strategy use</td>
<td>2. Determine strategies used by students</td>
</tr>
<tr>
<td><strong>Contextualised</strong> strategies should be presented in the context of the language, language skills and students’ experience</td>
<td>3. Demonstrate and name strategy</td>
</tr>
<tr>
<td><strong>Interactive</strong> teachers should monitor and assist students’ strategy practice</td>
<td>4. Provide in-class practice</td>
</tr>
<tr>
<td><strong>Diagnosis</strong> teachers must determine strategies used by students and teach new strategies accordingly</td>
<td>5. Explore the significance of the strategy</td>
</tr>
<tr>
<td></td>
<td>6. Practise in authentic settings</td>
</tr>
<tr>
<td></td>
<td>7. Evaluate outcomes of practice sessions</td>
</tr>
<tr>
<td></td>
<td>8. Provide cyclical review</td>
</tr>
</tbody>
</table>

Note: Based on Wenden (1991).

Wenden’s guidebook gives ‘an action plan’ for teaching the strategy ‘inferencing’, each of the eight sessions/teaching periods in the plan following the objectives listed in Table 12. She also guides teachers through the process of determining new action plans for other learning strategies to be taught.

The components of the strategy training programs suggested by Chamot and her colleagues, by Oxford, and by Wenden are summarised in Table 13.
Table 13

**Principles and Practices of Strategy Training in Programs by Chamot et al., Oxford and Wenden**

<table>
<thead>
<tr>
<th>Principle/Practice</th>
<th>Included by:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chamot</td>
</tr>
<tr>
<td>Training in language learning strategies can improve student performance</td>
<td>✓</td>
</tr>
<tr>
<td>Teachers perceive strategy training as an extra, not regular, task and need support to implement it</td>
<td>✓</td>
</tr>
<tr>
<td>Determine strategies used by students</td>
<td>✓</td>
</tr>
<tr>
<td>(e.g., diaries/interviews)</td>
<td></td>
</tr>
<tr>
<td>Determine what strategies students need</td>
<td>✓</td>
</tr>
<tr>
<td>(consider strategy preferences; avoid strategy overload)</td>
<td></td>
</tr>
<tr>
<td>Conduct informed training</td>
<td>✓</td>
</tr>
<tr>
<td>Develop students’ awareness of different strategies</td>
<td>✓</td>
</tr>
<tr>
<td>(e.g., use ‘think aloud’ groups so poor students can hear what strategies good students use)</td>
<td></td>
</tr>
<tr>
<td>Consider integration of strategy training</td>
<td>✓</td>
</tr>
<tr>
<td>Consider student motivation</td>
<td>✓</td>
</tr>
<tr>
<td>(do not overload students; consider strategy preference)</td>
<td></td>
</tr>
<tr>
<td>Prepare materials and activities</td>
<td>✓</td>
</tr>
<tr>
<td>(via ‘action plans’)</td>
<td></td>
</tr>
<tr>
<td>Provide strategy practice</td>
<td>✓</td>
</tr>
<tr>
<td>(i.e., develop student skills)</td>
<td></td>
</tr>
<tr>
<td>Evaluate</td>
<td>✓</td>
</tr>
<tr>
<td>(i.e., students evaluate own strategy use)</td>
<td></td>
</tr>
<tr>
<td>Develop transfer of strategies to new tasks</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ✓ indicates principle/practice included; blank indicates principle/practice not mentioned; information in brackets is for the purpose of clarification.

Although each of the three programs closely parallels the other two, Wenden’s (1991) seems to have advantages for FL strategy training. Firstly, Chamot’s CALLA
focuses on cross-curricular language development, not on foreign language
development. Secondly, Oxford’s program does not include such specific guidelines
for training procedures as do Wenden’s ‘action plans’. However, an advantage of
Oxford’s program is that SILL is a simpler, less time-consuming method of
determining students’ current learning strategies than either Wenden’s or Chamot’s
individual or group retrospective interviews and discussions or diary records.

2.1.8 Research into listening strategy training.

All programs in listening strategy training are based on the premise that an
effective training program will result in improved aural proficiency. The few studies
into listening strategy training that have occurred to date suggest there are three
important requirements for training to be effective. They are: (a) for training to run
over an extended period; (b) for there to be integration of the training procedures with
the regular learning program; and, (c) for the language materials to have a level of
difficulty appropriate to the learners’ language level. Four such studies are considered
here. The study by O’Malley, Chamot, Stewner-Manzanares, Russo et al. (1985)
considered ESL students. That by Viswat and Jackson (1994) looked at students of
EFL while the two by Rubin and colleagues (Thompson & Rubin, 1996; Rubin, Quin,
& Enos, 1988) researched FL students. (N.B. Also see p. 3 for a summary of these.)

O’Malley, Chamot, Stewner-Manzanares, Russo et al. (1985) conducted
strategy training for listening (5 minute lectures on an academic topic) in high school
ESL classes which resulted in modest, but not statistically significant, improvements
in comprehension. Even so, O’Malley and Chamot (1990) suggested a number of
possible reasons why such training was not greatly effective: specifically they pointed
to the rapidity of the training program (8 sessions over two weeks, totalling less than
two hours of strategy instruction), and the difficulty of the material.
Rubin et al. (1988) conducted listening strategy training in high school Spanish classes using video as the input medium. There was an enhancement in aural comprehension for all experimental groups by contrast to control groups for only one of the four videos. The researchers suggested that this was because this one video was the most difficult, and as a consequence, it required the use of strategies, implying that strategy use was unnecessary for comprehension of the other three videos. Even so, the researchers considered this experiment not strongly demonstrative of the principle that strategy training improves comprehension.

A more successful study by Thompson and Rubin (1996) used video materials in teaching meta-cognitive and cognitive listening strategies to third year university students of Russian. The proposition that strategy training would improve student listening comprehension performance was confirmed. However, Thompson and Rubin believed that the significant results could have been enhanced had the language level of the materials been closer to the students’ level of comprehension, especially for materials where audio content was not coupled with visual reinforcement. Another factor to be considered here is that confirmation of the hypothesis occurred only through aural comprehension testing using video which was the medium of both the instruction and practice. Tests of listening comprehension using audio material only produced results which did not reach levels of significance.

The study by Viswat and Jackson (1994) of 150 first and second year Japanese university students of EFL trained over 9 weeks in strategies showed improved accuracy in cloze listening exercises by trained participants. However, the authors recognised that this result was true for classes with the same teacher but not for a class with a different teacher. They also recognised the importance of individual learner differences (IDs) on strategy use amongst students.
So far research into listening strategy training has produced mixed results which, although not refuting the argument that such training can be successful, are not yet convincing. Factors such as extended training, training within a regular classroom program, level of difficulty of content, length of aural materials, combination of aural and visual input, as well as the affective influence of the trainer have clouded the results. The studies to date thus indicate that further research is necessary.

2.2 Individual Differences

Individual learner differences (IDs) are acknowledged as important variables in SLA (Ellis, 1994; Larsen-Freeman & Long, 1991; Selinker, 1972; Skehan, 1989). There is a range of IDs including age, gender, motivation, aptitude, personality, and cognitive style (Ellis, 1994; Oxford, 1990b; Skehan, 1989).

Ellis (1994) classifies IDs into three types: (a) learner beliefs, such as the nature of language learning, how important language learning aptitude is, and which are the best learning strategies; (b) affective states, such as fear versus confidence, or learner anxiety due to learner competitive style; and, (c) general factors, including age, strategy use, learning style, aptitude. (These are labelled ‘demographic variables’ by Oxford, 1990b.) It is clear that the three types of IDs are interrelated. Ellis also suggests that beliefs and affective states change with experience. One such change in experience may be strategy training. However, the implication is that IDs in the third group are less likely to change with experience. There has been little research into this area and, therefore, Ellis’ implication remains open to dispute.

Both Oxford (1990b) and Skehan (1991) point out that there is as yet no comprehensive theory of individual differences in SLA. We do not know enough about the relationships between IDs nor how they affect or are affected by learning
conditions. It is acknowledged by learning strategy researchers (O’Malley & Chamot, 1990; Oxford, 1990b) that IDs are related to strategy choice, though exactly how remains unanswered. As with other aspects of this area, little research has been conducted into the relationship between IDs and strategy training.

### 2.2.1 Gender

Gender differences have been investigated in relation to strategy use in numerous studies (e.g., Bacon, 1992; Ehrman & Oxford, 1989; Oxford & Ehrman, 1989; Oxford, Nyikos, & Ehrman, 1988; Oxford et al., 1993; Politzer, 1983) with results indicating some significant differences between male and female learners. One study into the effects of strategy training and gender was conducted by Nyikos (1987) who studied the effects of four L2 vocabulary learning strategies upon German vocabulary recall. Results showed significant differences for males and females, with males outperforming females if colour plus pictures were used in vocabulary recall strategies and females outperforming males if colour only was used to recall vocabulary.

Politzer (1983), researching the correlation of student behaviours with language achievement, reported that females showed a greater use of social behaviours. Oxford and Nyikos (1989) examined strategy preference showing females more often used general study strategies, formal rules, and input/conversation elicitation strategies than did males. These results were confirmed in a study by Ehrman and Oxford (1989) indicating females were more likely than males to use general study strategies, strategies to search for and communicate meaning, functional/authentic language use, and self-management strategies. Suggestions were made in the conclusions of these studies that strategy choice by males and females reflect their respective social orientations. Later research by Bacon (1992) showed
females monitored their listening comprehension more than males, and males seemed to translate more often than females. Bacon and Finnemann (1992) found females transferred (using L1), used auditory representation and inferred more often than males. Though not reaching significance, the study by Oxford et al. (1993) showed a tendency for females’ strategy use to be more frequent than that of males. Studies by Watanabe (1990), Green (1991) and Noguchi (1991) confirmed the proposition that females use as least as many and usually more strategies, more often, than do males.

One of the few studies comparing gender following strategy training was conducted by Nyikos (1987). She studied four groups of students of German each trained in a different vocabulary learning strategy. Results showed that in a final standard vocabulary recall test females achieved better results than males in two of the groups, males performed better than females in one group and in the last group there was no difference in male and female results. No conclusive explanation was given as to why these results occurred. However, Oxford et al. (1988) made several suggestions for further research to be conducted into gender differences and strategy use, including strategy training.

2.2.2 Age

Relatively few studies have been conducted into the influence of age upon SLA and strategy use. This may be because in general little research has been conducted with young learners, perhaps because researchers have more ready access to their own university students and adult learners.

Results of the few investigations into how age affects strategy use have varied. Wong Fillmore (1976) showed that very young learners favoured more social strategies over cognitive or meta-cognitive strategies in a natural setting, whilst Purdie and Oliver (1999) investigating 9 to 12 year olds in classroom settings showed
learners reported greater use of meta-cognitive strategies. Oxford (1986) and Ehrman and Oxford (1989) showed that adults used more sophisticated strategies than young learners. However, they concluded that age may be less influential on strategy choice than motivation. Ellis (1994) reported that adults are able to employ cognitive learning strategies whilst young learners are not able to do so, possibly due to their stage of cognitive development. Despite this, the process of acquisition of language structure is no different for either age group (Harley, 1986 and Cancino et al., 1978, cited by Ellis, 1994). The implication is that age may not be as influential in strategy choice when the aim is developing language proficiency. Nevertheless, there remains a lack of evidence into the relationship between strategy training and age, even though age remains an important focus of SLA research (see Harley, 1986; Long, 1990; Purdie & Oliver, 1999).

Reid (1987), though not directly considering the effect of language strategy training, looked at age differences in relation to learning style. She cited Ramirez and Castenada (1974) and Barbe and Milone (1981) who indicated that children changed their learning styles as they grew older/developed cognitively. However, she also cited several other studies contending that changes were possible even in adult learners, especially when these changes were made to the language content, task or strategy used. This indicates the need for investigations into how changes to strategy use may affect learners of differing age groups.

2.2.3 Motivation.

Another ID affecting SLA is motivation, of which there have been a number of models proposed over the years, varying according to differing notions of what motivation may be. The differences in the way motivation is defined continues and as a consequence theories and instruments to measure motivation are varied, as is
opinion on the extent to which motivation impacts SLA. Some of the theories of motivation are considered here. Further, how the term is defined and the complexities of the relationship with IDs is explained.

Of the range of research and theories about motivation, the socio-educational model propounded by Gardner and associates (Clément, Smythe, & Gardner, 1978; Gardner & Lambert, 1959; Gardner, 1980; Gardner, Clément, Smythe, & Smythe, 1979; Gardner & Lalonde, 1983; Gardner & MacIntyre, 1992; Lalonde & Gardner, 1985; Masgoret & Gardner, 2003; Tremblay & Gardner, 1995) has been the most prominent. However, it is apparent from Gardner’s work that the terminology associated with motivation is less than transparent. For example, one difficulty occurs in distinguishing ‘motivation’ and ‘attitude’ and ‘motivation’ and ‘orientation’. A further complication emerges when trying to determine differences between ‘integrative’ and ‘intrinsic’ motivation and between ‘instrumental’ and ‘extrinsic’ motivation. All these terms are considered by Gardner in his socio-educational model. How the terms interrelate is outlined in Table 14.

Table 14

Motivation, Orientation and Attitudes in Gardner’s Socio-Educational Model of SLA

<table>
<thead>
<tr>
<th>Orientations:</th>
<th>1. integrative orientation (identification with the TL group)</th>
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<tr>
<td></td>
<td>2. instrumental orientation (pragmatic reasons for TL study)</td>
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**Integrative Motivation** is made up of three components:

- two are attitudes:
  1. **integrativeness** (willingness to identify with L2 community)
     - attitudes toward the TL group
     - integrative orientation
     - interest in FLs
  2. **attitudes toward the learning situation**
     - evaluation of the course
     - evaluation of the teacher

- the third is:
  3. **motivation** (goal-directed behaviour)
     - motivational intensity (effort to learn the TL)
     - desire to learn the TL
     - attitudes toward learning the TL

Note: Based on (Masgoret & Gardner, 2003)
The relationship between the different terms used by Gardner is complex. For example ‘orientation’ which refers to underlying reasons for studying a second language and has only an indirect relationship with proficiency, is distinct from ‘motivation’ which is a directed effort to learn the language (Ellis, 1994) and which has in turn a direct relationship with proficiency (Masgoret & Gardner, 2003). Consequently, ‘integrative orientation’ is a sub-component of ‘integrative motivation’; however, whether or how ‘instrumental orientation’ relates to ‘integrative motivation’ remains unclear. Furthermore, there is no mention of ‘instrumental motivation’, while ‘integrative motivation’ is said to be made up of three components, one of which is itself called ‘motivation’. A sub-component of this ‘motivation’ is called ‘attitudes toward learning the TL’, yet the other two components of ‘integrative motivation’ (‘integrativeness’ and ‘attitudes toward the learning situation’) are also called ‘attitudes’, leaving the differentiation between such terms imprecise.

There also appears to be a degree of association between the terms ‘extrinsic’ and ‘intrinsic’ motivation and ‘instrumental’ and ‘integrative’ motivation, despite their differing origins. The terms ‘intrinsic’ and ‘extrinsic’ motivation emerge from a model of motivation in educational psychology by Deci and Ryan (1985) where students are said to be intrinsically motivated if they consider learning itself to be enjoyable, while extrinsic motivation means students have an expectation of reward for learning. As ‘extrinsic’ motivation focuses on rewards (and punishments) Ellis (1994, p. 515) equates it with the ‘Carrot and Stick Hypothesis’ preferred by Skehan (1989) and also calls it ‘instrumental’ motivation. Leaver and Atwell, 2002 (cited in Ehrman et al., 2003) also studied ‘extrinsic’ and ‘instrumental’ motivation, showing high frequencies of both among their participants. The terms ‘intrinsic’ and
‘integrative’ have also been used interchangeably (e.g., Ehrman & Oxford, 1995; Ehrman et al., 2003). This is because the term ‘intrinsic’ indicates that learners are motivated through personal enjoyment and interest (Crookes and Schmidt, 1989, cited by Oxford & Ehrman, 1993; Hektner & Csikszentmihalyi, 1996; Keller, 1984, cited by Ellis, 1994; Oxford & Ehrman, 1995) while ‘integrative’ motivation also involves sincere personal interest in the L2 community (Dörnyei, 2003; Masgoret & Gardner, 2003). This connection between the four terms is further illustrated by Ehrman et al., 2003 who say that their Affective Survey (Ehrman, 1991) is based on Gardner’s model, even though they use the categories ‘intrinsic’ and ‘extrinsic’ motivation.

Although most SLA research has focused on integrative motivation as outlined by Gardner, there has been further work that has extended the description of motivation. Skehan (1989), for example, presented four hypotheses of motivation: (a) intrinsic, where students are interested in tasks performed; (b) resultative, where success breeds success, and thus motivation increases, or where failure is demotivating; (c) internal cause, sometimes called integrative motivation, an innate or inherent motivation; and, (d) carrot and stick, or instrumental motivation caused by external influences or incentives. Crookes and Schmidt (1991) suggested that motivation consists of seven elements: interest in the language, personal relevance of the language, expectancy of achievement, rewards of results, decision to learn the language, persistence to study the language, and level of language activity.

Further expansion of the earlier view of motivation also occurred through investigation of the learning context, (e.g., Clément & Kruidenier, 1983). Ramage (1990) and Oxford et al. 1994 (cited in Oxford et al., 1993) also found students chose to learn a language for a variety of reasons, not just for integrative or instrumental motivational reasons. Similarly, Dörnyei and colleagues (Clément, Dörnyei, & Noels,
1994; Dörnyei, 1990) suggested there may be various sub-divisions of motivation, with different groups of students emphasising different aspects beyond integrative or instrumental motivation. They proposed three major motivational approaches: (a) integrative motivation; (b) linguistic self-confidence; and, (c) appraisal of the classroom environment. Furthermore, (Dörnyei, 2003) suggested the temporal nature of motivation needed to be taken into account, especially in the FL classrooms of young adolescent learners, and therefore a process-oriented approach to motivation ought to be considered.

Further theories have been proposed suggesting that motivation and other affective factors are closely associated (Ehrman et al., 2003), such as the expectancy-value model of motivation which consists of attribution theory (beliefs about what contributes to language learning) and self-efficacy (beliefs about how well the learner contributes to language learning). The self-efficacy model emerged from the field of educational psychology, in particular from Bandura (1977, 1986, 1993; Bandura & Adams, 1977; Bandura & Schunk, 1981). These educational psychologists have considered self-efficacy as one aspect of motivation to learn. Some research into SLA and self-efficacy have included Huang (1995, 1999), Huang, Lloyd, and Mikulecky (1999), Lin (2002), Templin, Guile, and Okuma (2001) and Woodrow (2001).

Following the various approaches to motivation studies, measures of motivation have been developed. The Attitude/Motivation Test Battery (AMTB) (Gardner, Clément, Smythe, & Smythe, 1979) was developed following Gardner and Lambert’s ground breaking research in 1959. Tremblay, & Gardner (1995) expanded the AMTB following reviews of motivation theory by Crookes & Schmidt (1991), Dörnyei (1994) and Oxford & Shearin (1994) (cited in Tremblay, & Gardner, 1995), while Morris (2001) used his own scale based on the AMTB. The Affective Survey
(AS) (Ehrman, 1991) is an instrument measuring motivation (including four subcategories) based on Gardner’s theory, as well as beliefs (in two subcategories) and other affective factors (nine subcategories). The Motivation Survey (MS) by Rainey (1991) also includes measures of instrumental, integrative and other elements of motivation. Other researchers who have developed their own instruments include Leino (1982) used participant interviews, Ramage (1990) who developed her own Likert-scale questionnaire after interviewing learners about their motivations in an open-ended pilot study, Bacon (1990) and Nikolov (1999) each of whom used her own open-ended questionnaire, Hektner & Csikszentmihalyi (1996) who used participant self-reporting, Lin (2002) who used a Likert-scale questionnaire, and Woodrow (2001) who developed a new model of adaptive language learning along with an instrument including a measure of motivation. Oxford and Ehrman (1995), claim the internal consistency reliability of the AS as 0.74 (Cronbach’s alpha) and its standardised item alpha to be 0.82. (See Oxford & Ehrman, 1993 for further critiques of motivation measures.)

Of these several instruments aimed at measuring student motivation, some have been used repeatedly by researchers over the years, such as Gardner’s AMTB (Baker & MacIntyre, 2003; Dörnyei & Csizer, 2002; MacIntyre, Baker, Clément & Donovan, 2003; Mantle-Bromley, 1995), Rainey’s Motivation Survey (Oxford, Park-Oh, Ito, & Sumrall, 1993), Ehrman’s Affective Survey (Ehrman, 1991, Ehrman & Oxford, 1995; Oxford, & Ehrman, 1995). Others, have been used less frequently, particularly those dedicated to a specific group of participants (e.g. Nikolov, 1999; Hektner & Csikszentmihalyi, 1996).

Despite the problematic nature of research into motivation and even though results have varied, particularly with the variety of instruments used, many studies
have found it to be one of the most successful predictors of L2 proficiency (see Au, 1988; Ehrman & Oxford, 1995; Gardner, 1980; Lalonde & Gardner, 1985; Masgoret & Gardner, 2003; Tremblay & Gardner, 1995). Although Gardner and MacIntyre (1992) suggested that aptitude is more important than attitude/motivation or any other predictor of achievement, Gardner and Lalonde (1983) reported that motivation (0.52) and aptitude (0.57) contribute almost equally to outcomes. Clément and Kruidenier (1985) showed proficiency was determined by motivation at 0.56 and aptitude at 0.20. Clément, Smythe, and Gardner (1978) confirmed the strength of motivation as a predictive indicator; and results from Ramage (1990) supported this. Ehrman and Oxford (1995) also showed that aptitude (0.51) and motivation (0.32) were significant contributors to proficiency, while Masgoret and Gardner (2003) showed a range of 0.29 to 0.39 for motivation affecting proficiency, though their study did not determine the impact of aptitude.

If motivation is influenced by learning environment, as maintained by Dörnyei and associates (Clément et al., 1994; Dörnyei, 1990, 2003), then especially in the FL classroom, teachers are responsible for this environment and for changes to it. Teachers provide opportunities for communication in the language; opportunities for self-direction by students; and opportunities for group work. They are responsible for the presentation of challenging, but not too difficult, tasks; the provision of the learning tasks that match student needs; the presentation of a variety of learning tasks; and the creation of good teacher-student rapport (Ellis, 1994). Ellis further suggests that the role the teacher plays in motivating learners to achieve can be positive or negative, that is, low motivation can lead to low achievement which can lead to even lower motivation; or positive achievement can lead to higher motivation. This brings into question the role of motivation: is it a prerequisite to success, or is it, as Hermann
(1980) and Berwick and Ross (1989) say, an outcome of success? That is, does success lead to motivation or does motivation lead to success? This issue is particularly applicable to students with low pre-course integrative motivation.

From the limited research to date into motivation and strategy use it seems that both student background and student goals may influence motivation and strategy choice. For example, McGroarty (1987) found that students in communicative language teaching (CLT) Spanish classes used traditional learning strategies despite encouragement to use communicative strategies. Oxford (1990b) speculated that student motivation, determined by prior experience, hindered the use of the alternative strategies. Studies by Oxford and colleagues (Ehrman & Oxford, 1988; Oxford, 1986; Oxford & Ehrman, 1995; Oxford & Nyikos, 1989; Oxford et al., 1993) indicated that motivation was a powerful influence on reported use of strategies, the most motivated students using strategies more often than less motivated students. In the study by Oxford and Nyikos, traditional strategies were most favoured as the students’ goals were to achieve well on analytic course tests.

How strategy training may correlate with student attitudes or motivation is yet to be thoroughly tested. Similarly, research into the relationship between self-efficacy and strategy use has been limited (Elementary immersion students perceptions of language learning strategies use and self-efficacy, 2000; High school foreign language students' perceptions of language learning strategies use and self-efficacy, 2000; Yang, 1999). Wenden (1987b) argued that any negative attitudes to self-direction (autonomy) by students must be changed, or no training program will work. Chamot, too, stated that teachers must “provide a motivational framework that can convince students of the value of learning strategies.” (Chamot & Kupper, 1989, p. 18) This has been supported by Birch (2001) who found that students with negative
attitudes failed to use the strategies in which they were trained. It seems, therefore, that the relationship between strategy training and motivation requires further research.

2.2.4 Learning style.

The concept of learning styles/learner styles emerges from general psychology. Keefe (1988) defines learning style as

“the composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment. It is demonstrated in that pattern of behaviour and performance by which an individual approaches educational experiences. Its basis lies in the structure of neural organization and personality which both molds and is molded by human development and the learning experiences of home, school, and society.” (Keefe, 1988, p. 3)

Learning style is perhaps one of the most complex and contentious of learner IDs in SLA research. Defining it initially has been problematic, and this, in turn, has led to difficulties in satisfactorily correlating it to other learner variables.

Learning style has been sub-divided into several dimensions. Hatch (1974) distinguished rule formers and data gatherers. Krashen (1978) identified Monitor over-users, Monitor under-users and optimal Monitor-users. Witkin (1981) categorised field dependence versus field independence (FD/FI). Cornett (1983) described three categories of style: (a) cognitive style, with three continua - focus/scan; random/sequential; concrete/abstract; (b) affective style; for example, some learners prefer extrinsic rewards, others intrinsic; (c) physiological style, including such aspects as the five senses, environmental conditions, time of day. Dechert (1984, cited in Ellis, 1994) identified analytic and synthetic styles. Reid (1987) described four perceptual learning modes (physiological dimension): visual, auditory, kinesthetic and tactile. Willing (1987) considered four cognitive learning styles: concrete, analytic, communicative and authority-oriented. Keefe (1988) said
learning style has three elements, (a) cognitive, (b) affective and (c) environmental. According to Ellis (1994), there are only two basic learning styles (a) analytic, norm-oriented and (b) experiential, communicatively oriented. In her review of IDs, Oxford (1990b) listed many dimensions of learning style including analytic/global (a cognitive dimension); brain hemisphericity (a cognitive dimension), Kolb’s cognitive dimensions (see below): reflective observation (watching) versus active experimentation (doing), and concrete experience (feeling) versus abstract conceptualisation (thinking); tolerance for ambiguity (an affective dimension); constricted/flexible control (affective/cognitive); competitiveness/cooperativeness/independence (affective); reflection/impulsivity (cognitive); sensory modality preferences (physiological); breadth of categorisation (cognitive); cognitive complexity/simplicity; levelling/sharpening (cognitive); Myers-Briggs Type Indicator (MBTI) Dimensions (psychological). Other dimensions have also been proposed including focusers/scanners, serialists/holists, impulsive/reflective, divergent/convergent (Ellis, 1994).

It is clear from the above listing that there appear to be abundant dimensions of learning style and it is not surprising that, as for other learner IDs, controversy has arisen regarding their definitions and classification. For example, tolerance for ambiguity has been seen as a descriptor of personality, not of style (Oxford, 1990b). Similarly, the MBTI (Myers & McCaulley, 1985), a measurement instrument based on Jung’s psychological types, is generally considered a tool of personality, not style (Cross & Tilson, 1997; Oxford, 1990a). Cognition features frequently in the dimensions listed above, so it is perhaps not surprising that the majority of research has been into cognitive style. But, also not surprisingly, the demarcation between cognitive style and learning style has been blurred.
Controversy has been particularly evident in the major focus of research into learner styles, that of the cognitive dimension of field dependence/field independence (FD/FI) (Witkin & Goodenough, 1981). The group embedded figures test (GEFT), commonly used to measure FD/FI, has been argued to be a test of ability, not style (Chapelle & Green, 1992; Griffiths & Sheen, 1992). Thus, equating FD/FI to cognition and personality, has been criticised as not possible, the argument being FD/FI is more related to intelligence and aptitude. This is supported by test results which contradicted predictions. Expectations were that FI meant better formal language learning and FD better informal, but in fact, FI learners, in general, did better on most language tests (see Ellis, 1994). In addition to this, the diversity of style dimensions means there is also an array of measurement instruments (see Cornett, 1983; Cross & Tilson, 1997) some of which have been extensively used (and criticised) and others much less so.

Due to the difficulty in defining style, problems arise in choosing valid measures of style. Various categories of style have been identified and therefore measures of these categories have emerged. For example, a major distinction has been made between the generic term ‘learning style’ and the narrower ‘cognitive style’. Keefe (1988) considered that learning style has three elements: cognitive, affective (perceptual), and environmental (study and instructional preferences). These correspond to the four learning traits outlined by Lawrence (1984): cognitive style, attitudes/interests influencing attention to the learning situation, learning environment preferences, and learning strategy preferences. Many of the style elements listed by Oxford (1990b) can be labelled cognitive, affective or physiological, also reflecting the above divisions. However, instruments developed to measure style often measure only one of these elements.
Several instruments to measure cognitive style have emerged, not all of them accepted without criticism. Field dependence/independence has been considered an element of cognitive style (Witkin & Goodenough, 1981). However, controversy has pursued both the classification of this factor and of the GEFT as a measure of it. The continuum of FI to FD has been criticised as invalid, with learners claimed to be both FD and FI (Brown, 1987; Griffiths & Sheen, 1992; Riding & Cheema, 1991). Griffiths and Sheen also considered GEFT a test of intelligence, not style, while McLaughlin (1985) said that GEFT measures FI, but does not measure FD.

The information processing measurement instruments of Gregorc (1979), Kolb (1984) and Riding and Cheema (1991) have been developed to measure the cognitive dimension of learner style. Gregorc’s Style Delineator measures cognitive abilities of perception: concrete sequential/concrete random/abstract sequential/abstract random (Cross & Tilson, 1997). Following Witkin’s GEFT, Riding and Cheema (1991) developed a computer instrument for analytic (seeking parts of a whole), holistic (seeking the whole, retaining the whole), and verbal judgement tests (visual/verbal) (Skehan, 1998). Kolb’s (1984) experiential learning theory postulates four modes of learning: reflective observation (watching) versus active experimentation (doing), and concrete experience (feeling) versus abstract conceptualisation (thinking), whilst Kolb’s Learning Styles Inventory classifies divergers/assimilators/convergers/accommodators. Determining these modes purportedly measures learner cognitive style, but Skehan (1998) suggested Kolb’s active-passive dimension focuses on personality, not cognition, something supported by Willing (1987).

Apart from cognitive style, other instruments have been developed to measure environmental and/or affective factors of learning style. For example, to measure perceptual styles, Reid (1987) developed the Learning Style Questionnaire (LSQ)
where learners indicate their preference for auditory/visual/kinesthetic/tactile learning. Her instrument also measured the environmental element of style comparing group learning and individual learning preferences (Reid, 1987). Another inventory of sensory preferences, the Learning Channel Preference Checklist (LCPC), was developed by O'Brien (1990) and used by Oxford et al. (1993) who considered it a reliable instrument. Like Reid, Rossi-Le (1995) measured sensory modality or perceptual styles and compared these with strategy use, using the SILL. The NASSP Learning Style Profile developed by Keefe and colleagues (Keefe, 1988) covers all three dimensions, cognitive, affective, and environmental. It was used by Oxford and Ehrman (1995) to compare strategy use with various other IDs including learning style.

The relationship between learner style and strategy use has been studied, but only infrequently, with varied results. Oxford and Ehrman (Ehrman & Oxford, 1988, 1989; Oxford & Ehrman, 1989) used the SILL (strategy measure) and the MBTI (psychological type/learning style measure) to find that each category of learner used certain learning strategies more and/or more often than other categories of learner. They found that, in general, intuition determined use of formal model-building strategies, extraverts and ‘feelers’ used more social interaction strategies, ‘sensers’ used the greatest number of strategies, and overall that strategy use was determined by learner type/style. Results also showed that some learners could use other strategies not linked to their particular style, indicating an ability to learn new strategies. Using a different style measure (O’Brien’s LCPC) results of the study by Oxford et al. (1993) showed no correlations between learning style and strategy use (using SILL). By contrast, Rossi-Le (1995) used Reid’s LSQ and the SILL to show that group learners favoured using affective and social strategies, whilst kinesthetic, tactile and
auditory learners favoured authentic language use with native speakers, and auditory
learners also favoured memory strategies, and self-management strategies.

Though it has been postulated that training students of particular learning style
preferences to use new strategies will result in performance improvement (Cornett,
1983; Ellis, 1994; Keefe, 1988; Reid, 1987), as for most other IDs, results have been
mixed. Keefe (1988) said of his learning style elements, that the cognitive dimension
is trainable, and the affective and environmental dimensions are affected by cognitive
training or by matching teaching strategies to learner style. In other words, a change
in the learning environment, brought about by matching the environment to the
learner’s preferred style, may result in improved learning. Alternatively, a change to
cognitive learning skills, by training the student in cognitive learning strategies, may
result in improved learning. If one change (e.g., matching the environment) does not
work, the other may (e.g., teaching learning strategies). Oxford’s (1990b) summary
of IDs stated that employment of cooperation strategies gave positive outcomes, but
that cooperativeness was rarely demonstrated spontaneously (O’Malley, Chamot,
Stewner-Manzanares, Russo et al., 1985; Oxford, 1985; Reid, 1987) and was more
likely to be instructed by the teacher, particularly in classes of adolescents or adults
(Oxford, 1990b). Similarly, Meredith (1976) showed that when considering the
reflection/impulsivity dimension of learner style, forcing more impulsive students to
slow down before responding led to better performance. However, besides testing
whether strategy training may alter learning style, Ehrman et al. (2003) believe that
matching the training process to learner style is important, suggesting the mixed
results reported by Dörnyei (1995) and Oxford (2001) may have been caused by
mismatching. The varied results in style and strategy studies to date indicate further
research is needed.
2.2.5 **Aptitude.**

Second language learning aptitude, along with motivation (see section 2.2.3), is considered a reliable predictor of language learning success. Skehan (1991) presents four assumptions about language learning aptitude: (a) it is different from intelligence, (b) it is not only the result of previous experience, (c) it is relatively stable, and (d) it varies between people. Language learning aptitude was first investigated by Carroll and Pimsleur in the mid 1950s (Carroll, 1955, 1965; Carroll & Sapon, 1959; Pimsleur, 1966), who developed and used instruments to measure aptitude and to predict performance.

Three measures of aptitude have been most often cited. Carroll and Sapon (1959) developed the Modern Language Aptitude Test (MLAT), Pimsleur produced the PLAB or Pimsleur Language Aptitude Battery in 1966, whilst Petersen and Al-Haik’s Defense Language Aptitude Battery (DLAB) measured language learning ability for higher level learners, with a focus on defence force personnel (Petersen & Al-Haik, 1976). These three instruments measure similar criteria: Phonetic Coding Ability, Auditory Ability, Grammatical Sensitivity, Rote Learning Ability (Associative Memory) and Inductive Language Learning Ability (Carroll, 1981; Wesche, 1981). The PLAB has proven to be a useful measurement tool for aptitude of adolescent learners (Bockman 1968, Cloos 1971, Robinson 1975, cited in Carroll, 1981), whilst the MLAT, is aimed at secondary and tertiary levels, and later the EMLAT (Carroll & Sapon, 1967) is aimed at elementary students.

Despite criticism, several studies have indicated the reliability of language aptitude tests in predicting language performance (Ayers, Florinda, Bustamante, & Campana, 1973; Carroll, 1981; Clément & Kruidenier, 1985; Gardner & Lalonde, 1983; Petersen & Al-Haik, 1976; Robinson, 2005; Skehan, 1986b; Wesche, 1981).
For example, the MLAT has been criticised (Neufeld, 1979, cited in Oxford, 1990b; Oxford & Ehrman, 1993; Skehan, 1986a, 1998; Wesche, 1981), with Skehan (1982) saying the major weakness of it has been the failure of the Associative Memory measure to gauge two other memory divisions which had an impact upon aptitude, ‘response integration’ and ‘memory for text’. Nevertheless, by and large, the MLAT has stood the test of time as the major L2 aptitude instrument (Carroll, 1981; Robinson, 1995, 2005; Sasaki, 1991; Skehan, 1986b; Wesche, 1981) and is particularly useful for testing beginner learners (Robinson, 2005). Oxford and Ehrman (1995) say its validity in predicting language proficiency falls between 0.20 and 0.80. However, another criticism of aptitude testing has come from Oxford (Oxford, 1990b; Oxford & Ehrman, 1993) who said a major problem with it is that it tests cognition, whereas aptitude should be defined more broadly, incorporating cognition, motivation, personality, and demographic variables such as age, gender, experience and ethnicity. That there is both an interrelationship of IDs and a dilemma in defining IDs and their interrelationships are reflected in Oxford’s criticism.

According to Oxford (1990b), as a consequence of this, there has been little research into how strategies relate to aptitude, and results of the studies that have been done are inconsistent. Bialystok (1981), for example, showed that learner attitude was a stronger determiner of strategy choice than was aptitude. However, Politzer (1983) found that aptitude was a more important predictor and suggested that language learning aptitude and general intelligence may relate to both strategy use and achievement. Corroborating his suggestions, the study by Leino (1982) found students of high conceptual levels, which Oxford (1990b) presumes equate to high intelligence and/or aptitude, used different strategies from students with lower conceptual levels. These students could both notice and describe their strategies, that
is, use and describe meta-cognitive strategies. Oxford, therefore, concluded that meta-cognitive strategy use equates with intelligent behaviour; however, what remained unclear was how these two factors interacted, that is, whether intelligent learners naturally use meta-cognitive strategies or whether strategies must be taught, and whether they can be taught successfully. Later, Oxford and Ehrmann (1995) found that cognitive strategy use was significantly but weakly related to Part 1 of MLAT number learning (a measure of associating, elaborating and induction skills), but there was no correlation with meta-cognitive strategies. Few other studies have tested correlations between strategy use and aptitude.

2.3 Conclusion

The trend in language learning pedagogy in recent years has been one towards greater learner autonomy. Consequently, learning strategies and training in learning strategies have become a focus in SLA, with the objective of the learner rather than teacher taking more responsibility for improving proficiency. However, research has shown that IDs contribute in complex ways to SLA. Further, it is important to determine what the relationship may be between IDs in language learning and strategy training. This study considers these factors. It considers the effectiveness of training in LLS, with a focus on uni-directional aural comprehension; it also considers how training affects LLS use. In addition, the study looks at the relationship between LLS and language learning background variables, including gender and age, and affective factors such as attitudes to language learning, especially motivation, as well as learning style, and language learning aptitude. Therefore this study specifically examines the relationship between students’ language learning strategy use and language learning background, affective factors, learning styles and aptitude.
The taxonomies of LLS derived over past years from studies of GLLs, include direct/indirect, cognitive/metacognitive strategies, all of which are considered to interrelate. Of these strategies, those deemed most beneficial to aural comprehension according to research (e.g., O’Malley & Chamot, 1990; Wenden, 1987b) are used in the current study. These include the cognitive strategies ‘elaboration’ and ‘inferencing’ and the meta-cognitive strategies ‘selective attention’ and ‘self-monitoring’. Research has shown the most efficient, valid and reliable method of measuring LLS to be the SILL (Oxford, 1986). In this study all the LLS in the SILL are measured, but there is a focus on specific aural comprehension strategies. This is because Indonesian (TL) is taught and learned as a FL; hence, the participants are not immersed in the TL and there is limited comprehensible input. Promoting aural comprehension proficiency is considered to be one way to counter this short-fall. This study asks if training over one semester in meta-cognitive and cognitive language learning strategies improves aural comprehension in Year 9 FL students.

Few studies into listening comprehension strategy training have been conducted, despite the large number of FL courses being studied throughout the world. The language tested in this study is Indonesian, a relevant regional FL in the Australian context, into which little research has been conducted. In Australia the lack of opportunity for immersion or frequent interaction with speakers of LOTEs outside the classroom are particularly limited. Hence, such training is considered one potentially important way to improve aural understanding in a geographically and linguistically isolated location. It is recommended by Ellis and Sinclair (1989), Chamot and colleagues (e.g., O’Malley & Chamot, 1990) and Wenden (1987b) that a strategy program should not only be a fully informed one, but also be integrated into the regular classroom program. The steps taken in this study follow Oxford’s (1990a)
eight step program and Wenden’s program of “action plans”. The study asks what changes occur to strategy use following training in certain language learning strategies, hypothesising that both use of LLS and aural proficiency will increase.

However, as previously mentioned, the complexities of the interaction between the many variables of SLA ought not be ignored, as it is unlikely learning a foreign language depends merely on one or two variables. Hence this study considers other IDs affecting SLA including language learning background, gender, age, and attitudes to language learning, especially motivation, learning style and aptitude. How these relate to one another has been considered in SLA research in the past, but this study specifically looks at how they relate to the strategy use of the participants, particularly in relation to the training program. Therefore, the relationship between the IDs and use of LLS before and after intervention is considered. The study’s distinctiveness, however, lies not only in the language being considered (Indonesian) but also in the age group and the gender of the participants. Few studies of young adolescents of a FL have been considered, and neither have classes of predominantly male participants of that age group been studied. Therefore, the importance of such IDs as well as the complexity of their interrelationships cannot be denied and are likely to have an effect on results in the current study.
3. Method

3.1 Participants

The participants in this study consisted of a group of 37 students (28 males and 9 females) in Year 9 studying Indonesian as a language other than English (LOTE) at a private school in Perth, Western Australia. All the students were turning 14 that year.

The students were considered to be at beginner level in Indonesian (L2), even though the majority of them (23) had studied the language for three terms (30 weeks) in their previous school year. This equated to a total exposure to Indonesian within the classroom of approximately 60 hours. The remaining 14 students had been exposed to the language during their previous year (Year 8), and also in their primary school, although the LOTE program in that school was aimed at exposure, rather than at encouraging students to be proficient in each or, in fact, any of the four macro skills, listening, speaking, reading and writing. The students’ exposure to Indonesian in the primary school was between approximately 20 and 50 hours. The students had no other background in Indonesian; they were all native speakers of English, only one of the 37 using any other language outside the classroom, that student usually using English at home, but sometimes using Macedonian and Serbian.

At the end of Year 8 all 37 students had elected to continue their study of Indonesian into Year 9; it so happened that relatively more males chose to continue this language than did females, hence the imbalance in gender.

Informed written consent was obtained from parents so that the students could participate in the study.
3.2 Materials

3.2.1 Biographical data.

Biographical data, including name, age and previous L2 language experience, was collected from the students based on the Background Questionnaire prepared by Oxford (1990a, p. 282) (see Appendix A). Eight statistical variables resulted from the Background Questionnaire (gender, how long the L2 had been studied, the perceived proficiency in the L2 compared with classmates, the perceived proficiency in the L2 compared with native speakers, the perceived importance of language learning, reasons for studying the L2, the enjoyment of studying the L2, and whether another foreign language had been studied). As this instrument was used in conjunction with Oxford’s SILL strategies measure (see section 3.2.2) it was also used here without alteration.

3.2.2 Strategies measure.

Language Learning Strategy (LLS) use was measured with the Strategy Inventory for Language Learning (SILL) (Oxford, 1986), Version 5.1, a version for English speakers learning a new language. It contains 80 items, to which participants respond using a Likert scale (5 = always or almost always true of me, 1 = never or almost never true of me) (see Appendices B and C). This instrument is one of the most widely used (e.g., Griffiths, 2003; Hsiao & Oxford, 2002; Purdie & Oliver, 1999; Teng, 1998; Tamada, 1996; Rossi-Le, 1995) and comprehensive instruments (Ellis, 1994) measuring language learning strategies, having undergone revision since Oxford first compiled it. Oxford and Burry-Stock (1995) critiqued it, finding it efficient and easy to use, but not able to specify which strategies were used for particular learning tasks. Ehrman and Oxford (1995, p. 73) claim “the SILL’s reliability using Cronbach’s alpha is .93 to .98, with an average of .95, and it has been shown to be a valid, significant predictor or correlate of language proficiency and achievement.”
In this study LLS were classified into ten groups, the six defined by Oxford (SILL Parts A to F), and the four described by Chamot, Kupper and Impink-Hernandez (1988b). These four were taught in the strategy training program. The SILL items corresponding to these four strategy types are shown in Table 15.

Table 15

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective Attention SILL items: 49, 50, 51, 58, 59</td>
<td>1-10, 35, 36, 39, 40</td>
</tr>
<tr>
<td>Elaboration</td>
<td>37, 41, 42, 43</td>
</tr>
<tr>
<td>Inferencing</td>
<td>46, 62, 63, 75, 77</td>
</tr>
</tbody>
</table>

3.2.3 Test of affective factors.

The Affective Survey (AS) (Ehrman, 1991) (see Appendix D) was used in this study. Participants completed the entire survey by responding to 114 items using a Likert scale (5 = strong agreement, 1 = strong disagreement). This instrument’s measures of motivation (intrinsic, extrinsic, desire to use the language outside the classroom) were based on Gardner’s theory (e.g. Gardner & Lambert, 1959) but several of the items were adapted from other surveys (Campbell, 1987; Horwitz, 1985; Horwitz et al, 1986 cited in Ehrman and Oxford, 1995). However, the AS measures more than motivation only; it is more comprehensive, including participants’ beliefs (about language learning, about self) and other affective factors (public performance, use with native speakers, making errors, comprehension, self-esteem, competition, tests, outcomes, general comfort with language learning). In addition, according to Ehrman and Oxford (1995), other distinctions of the Affective Survey are that it is aimed at relating the measured factors directly to language
learning success, and that it includes negatively-worded survey items; thus the researcher is able to check for consistency in responses by participants. Ehrman and Oxford (1995, p. 71) also report that “the internal consistency reliability for the Affective Survey is .74” (Cronbach’s alpha), “and the standardized item alpha is .82”.

3.2.4 Tests of learning style.

As described in section 2 of this thesis (Review of Literature), learning style has been described in various ways, some proponents presenting comparable classifications, including cognitive (Hatch 1974; Krashen 1978; Cornett 1983; Lawrence 1984; Willing 1987; Keefe 1988; Ellis 1994, Oxford 1990b), affective (Cornett 1983; Lawrence 1984; Keefe 1988) physiological/environmental (Cornett 1983; Lawrence 1984; Keefe 1988). Other descriptions of style are divergent, with classifications such as experiential (Ellis 1994), learning strategy preferences (Lawrence 1984), psychological (Oxford 1990b). Further, argument has occurred over whether such categories are actually style categories or rather classifications of personality, intelligence or aptitude (Oxford 1990b). This study attempted to embrace the diversity of classification particularly where agreement amongst different theories occurred. The instruments chosen therefore covered, cognitive, affective and physiological/environmental factors. In addition, instruments that had already been used widely, were easily administered, scored and understood were favoured.

In this study, learning style was measured by two instruments. One was Reid’s (1987) Learning Style Questionnaire (LSQ) which contains two measures of learning dynamics (group and individual learning), and four perceptual (sensory, i.e. physiological) learning modes (visual, auditory, kinesthetic and tactile) (see Appendix E). Participants were required to respond to 30 items using a Likert scale (5 = strongly agree, 1 = strongly disagree). Five of the items (6, 10, 12, 24, 29) described
visual learning preferences; for example, “I learn better by reading what the teacher writes on the blackboard.” Five items (1, 7, 9, 17 and 20) described auditory learning preferences; such as, “When the teacher tells me instructions, I understand better.” Five items (2, 8, 16, 19, 26) described kinesthetic learning preferences (e.g., “I prefer to learn by doing something in class.”); five items (11, 14, 15, 22, 25) described tactile learning preferences (e.g., “I learn more when I can make a model of something.”); five items described group learning preferences (e.g., “I get more work done when I work with others.”) and five items (13, 18, 27, 28, 30) described individual learning preferences such as, “When I study alone, I remember things better.” Mean scores were determined by adding the Likert scale scores for each category and dividing by five. This LSQ was used because it is easy to administer, to complete and to score; it gave prompt and readily comprehensible results.

The second instrument was the National Association of Secondary School Principals (NASSP) Learning Style Profile (LSP) (Keefe & Monk, 1986) (see Appendix F). This instrument was developed and tested through four stages over more than three years (1983-1986), with a final 126 item test divided into 23 factors classified as learner skill and response preferences (cognitive), learner orientations (affective) and learning environment preferences. The final version was administered by the NASSP team to 5,154 students from grades 6 to 12, and the average internal consistency for each sub-scale ranged from .47 and .76 (Cronbach’s alpha) and averaged .61. Keefe and Monk (1986) assert that the instrument’s face, content, construct and concurrent validity are sound.

In the LSP the number and type of question and response varied according to each of its 23 classifications. Descriptions of these classifications or sub-scales and their corresponding item numbers are seen in Table 16.
Table 16

**LSP Sub-scales and Corresponding Item Numbers**

<table>
<thead>
<tr>
<th>LSP Sub-scale</th>
<th>Description</th>
<th>Item numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analytic Skill</td>
<td>To identify simple figures hidden in a complex field; to use the critical element of a problem in a different way</td>
<td>25-29</td>
</tr>
<tr>
<td>2. Spatial Skill</td>
<td>To identify geometric shape and rotate object in the imagination; to recognise and construct objects in mental space</td>
<td>36-40</td>
</tr>
<tr>
<td>3. Discrimination Skill</td>
<td>To visualize the important elements of a task; to focus attention on required detail and avoid distractions</td>
<td>7-11</td>
</tr>
<tr>
<td>4. Categorizing Skill</td>
<td>To use reasonable vs. vague criteria for classifying information; to form accurate, complete &amp; organized categories of information</td>
<td>17-24</td>
</tr>
<tr>
<td>5. Sequential Processing Skill</td>
<td>To process information sequentially and verbally; to readily derive meaning from information presented sequentially or verbally</td>
<td>1-6</td>
</tr>
<tr>
<td>6. Memory Skill</td>
<td>To retain distinct vs. vague images in repeated tasks; to detect and remember subtle changes in information</td>
<td>109, 110, 112, 114, 116, 118-121, 123, 124, 126</td>
</tr>
<tr>
<td>7. Perceptual Response: Visual</td>
<td>Initial reaction to information as visual response</td>
<td>all A responses items 41-60</td>
</tr>
<tr>
<td>8. Perceptual Response: Auditory</td>
<td>Initial reaction to information as auditory response</td>
<td>all B responses items 41-60</td>
</tr>
<tr>
<td>9. Perceptual Response: Emotive</td>
<td>Initial reaction to information as emotional and/or physiological response</td>
<td>all C responses items 41-60</td>
</tr>
<tr>
<td>10. Persistence Orientation</td>
<td>Willingness to work at a task until completion</td>
<td>68, 74, 84, 91</td>
</tr>
<tr>
<td>11. Verbal Risk Orientation</td>
<td>Willingness to express opinions, speak out, etc.</td>
<td>75, 92, 95, 107</td>
</tr>
<tr>
<td>12. Verbal-Spatial Preference</td>
<td>For verbal vs. nonverbal activities</td>
<td>30-35</td>
</tr>
<tr>
<td>13. Manipulative Preference</td>
<td>For “hands-on” activities</td>
<td>64, 73, 82, 102</td>
</tr>
<tr>
<td>14. Study time Preference: Early Morning</td>
<td>For studying in the early morning</td>
<td>72, 106</td>
</tr>
<tr>
<td>15. Study time Preference: Late Morning</td>
<td>For studying in the late morning</td>
<td>89, 93</td>
</tr>
<tr>
<td>16. Study time Preference: Afternoon</td>
<td>For studying in the afternoon</td>
<td>94, 100, 104</td>
</tr>
<tr>
<td>17. Study time Preference: Evening</td>
<td>For studying in the evening</td>
<td>62, 66, 77</td>
</tr>
<tr>
<td>18. Grouping Preference</td>
<td>For whole class vs. small group vs. dyadic grouping</td>
<td>65, 70, 83, 90, 99</td>
</tr>
<tr>
<td>19. Posture Preference</td>
<td>For formal vs. informal study arrangements</td>
<td>79, 87, 97, 105</td>
</tr>
<tr>
<td>20. Mobility Preference</td>
<td>For moving about and taking breaks vs. working until finished</td>
<td>76, 86, 103, 108</td>
</tr>
<tr>
<td>21. Sound Preference</td>
<td>For quiet study areas vs. background sound (radio, TV)</td>
<td>71, 78, 81, 101</td>
</tr>
<tr>
<td>22. Lighting Preference</td>
<td>For bright vs. lower lighted study areas</td>
<td>61, 67, 69, 80, 98</td>
</tr>
<tr>
<td>23. Temperature Preference</td>
<td>For studying in a cool vs. a warm environment</td>
<td>63, 85, 88, 96</td>
</tr>
</tbody>
</table>

*Note.* Source: Keefe and Monk, 1986, pp. 5 & 11.
3.2.5 Test of aptitude.

The Modern Language Aptitude Test (MLAT) (Carroll & Sapon, 1959) was used to measure the participants’ foreign language learning aptitude (see Appendix G). Although the participants were young, it was considered they would be able to understand and respond appropriately to the adult version of this instrument. Hence, the Elementary version (EMLAT) was not used. The test, in five parts (number learning, phonetic script, spelling clues, words in sentences, paired associates), consists of 149 questions, the majority of which require multiple choice responses.

3.2.6 Aural materials.

Part of this study examined the effects of strategy use on students’ aural comprehension, and thus required Indonesian language audio materials. These included semi-authentic monologues and dialogues which varied from 50 to 120 words in length, and were spoken by native speakers on to audio tape. The material followed and supported the content of the regular Year 9 Indonesian program at the school and included the topics: Daily Activities (Kegiatan Sehari-hari), Leisure and Hobbies (Hobi), Likes and Dislikes (Kegemaran), My School, Australian Schools (Sekolah), Self and Family (Keluarga Saya), Animals (Binatang), and Shopping (Berbelanja) (see Table 17). (Appendix H shows details of study program for the experimental group.) The test items included short answer and multiple choice questions, which reflected materials used in the Indonesian program in Western Australia.

An attempt was made to standardise the audio materials. Preparation of content of all audio material for both activities and tests, was carried out by an experienced teacher of Indonesian at Year 9 level and an attempt was made to standardise the quality of the sound recordings. The materials were checked by
another experienced teacher of Indonesian at Year 9 level and a native speaker. (See Appendix I for an example of a transcript of aural material and aural activities.)

3.3 Procedure

The study was undertaken in three phases. There was a pre-training period, a training period and a post-training period (see Figure 1).

In the month prior to the commencement of the academic year, the two teachers of the participants were interviewed separately about whether or not they taught learning strategies to their students in their regular classroom program. The guided interview, based on that of Chamot (1987) (see Appendix J), was conducted by the researcher. It was determined that the teachers did not teach strategies to their classes.

During the first Indonesian language class (February) the researcher met the participants. The process was explained to them and they were allowed to ask questions. Then they were given the SILL to complete along with its Background Questionnaire. After the SILL was completed, participants were matched according to strategy preference and then matched pairs were split, resulting in two class groups, a control group of 18 (f=5, m=13), and an experimental group of 19 (f=4, m=15). It should be noted that despite the matching process, there remained some differences in reported strategy use between the groups (see section 5.4). Over the next two weeks the participants completed the three other ID tests under the supervision of the researcher or other teachers.

Following the pre-training period the strategy training program was conducted with the experimental group throughout the semester during every third or fourth timetabled class. The regular Indonesian language teachers were not present in any of
the training or teaching sessions which were conducted solely by the researcher. The independent observer was present during the first five sessions.

On the school timetable the two Year 9 Indonesian classes ran at the same time for 50-55 minute lessons, so each class was visited by the researcher for 25 minutes. Which class was taught first was alternated over the semester. In the experimental group training in learning strategy use was conducted. This included introduction to, naming, explanation, and examples of, practice and revision in the four strategies chosen for the intervention (selective attention, elaboration, inferencing and self-monitoring). In the control group the content of the lessons, that is the Indonesian aural language input, was identical to that in the experimental group, and the aural comprehension tests administered to each class regularly throughout the semester were also identical. However, there was no strategy training in the control group; instead there was aural practice including undirected strategy practice such as prediction, and listening for gist followed by listening for detail, as well as other language learning practice, such as vocabulary identification and practice (vocabulary/spelling quizzes, mime) (see Table 17).

Following the period of training two further SILL tests were administered to each class. This was done in order to determine possible changes in strategy use by the participants. The first post-training SILL test was administered soon after the training period was completed (August); the second one was administered a full semester after the completion of the training program (December). The administration of this instrument was performed by two senior teachers but not the LOTE teachers.
3.3.1 Training program.

In the training program two cognitive strategies: elaboration and inferencing, and two metacognitive strategies: self-monitoring and selective attention were taught as recommended by Chamot, Kupper and Impink-Hernandez (1988b), beginning with selective attention, followed by elaboration, inferencing and then self-monitoring. Elaboration strategies involved the students of the experimental group learning to relate information heard on audio tape to prior knowledge, either gleaned from earlier information in the taped passage or related to their own prior knowledge. Inferencing strategies were taught to enable the students to guess the meaning of unknown language based on the context of the language heard. Self-monitoring was taught in order that the students could be aware of the success of their listening comprehension by checking its progress during the listening process. Selective attention involved the
students deciding prior to the aural exercise what language input (e.g., content, structure, setting) they would focus on, and then carrying out that process actively.

The training program used in this study was based on that outlined by Wenden (1991). It consisted of “action plans”, one for each strategy, which involved implementing detailed lesson plans based on Wenden’s principles. The training in strategy use was cumulative, aiming to build up the repertoire, without earlier strategies being abandoned. It required each strategy to be introduced, named, demonstrated, taught, practised, and revised before the next, with opportunity given for further practice of earlier strategies throughout the training period.

The training program was implemented within the normal language learning program, the researcher acting as trainer, working with the experimental group for 25 minutes approximately once every ten days over a one semester period. During the first five sessions an independent observer was employed to monitor how precisely the action plans were executed, and therefore, to monitor the potential success of the training program. The training program is summarised in Table 17.
### Table 17

**Summary of Training Program**

<table>
<thead>
<tr>
<th>Training Period</th>
<th>Week of Semester</th>
<th>Program Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Experimental Group</strong></td>
</tr>
<tr>
<td>Period 1</td>
<td>Week 3</td>
<td>• teach strategy #1 (selective attention)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• allow practice in strategy</td>
</tr>
<tr>
<td>Period 2</td>
<td>Week 4</td>
<td>• allow practice in strategy #1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• conduct aural comprehension testing</td>
</tr>
<tr>
<td>Period 3</td>
<td>Week 5</td>
<td>• teach strategy #2 (elaboration)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td>Period 4</td>
<td>Week 7</td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• conduct aural comprehension testing</td>
</tr>
<tr>
<td>Period 5</td>
<td>Week 7</td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period 6</td>
<td>Week 8</td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• conduct aural comprehension testing</td>
</tr>
<tr>
<td>Period 7</td>
<td>Week 10</td>
<td>• teach strategy #3 (inferencing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td>Period 8</td>
<td>Week 12</td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period 9</td>
<td>Week 13</td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• conduct aural comprehension testing</td>
</tr>
<tr>
<td>Period 10</td>
<td>Week 15</td>
<td>• teach strategy #4 (self-monitoring)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td>Period 11</td>
<td>Week 16</td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period 12</td>
<td>Week 17</td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• conduct aural comprehension testing</td>
</tr>
<tr>
<td>Period 13</td>
<td>Week 18</td>
<td>• allow practice in strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• conduct aural comprehension testing</td>
</tr>
</tbody>
</table>

In addition to the training program, aural comprehension testing was conducted regularly throughout the semester, in order to determine possible
improvement amongst the experimental group. These tests were conducted in conjunction with the training program and the control group was given the same tests.

### 3.3.2 Independent observer.

In attempting to implement action plans or lesson plans effectively, a trained independent observer\(^1\) was employed in the first five lessons/training sessions, to observe both the control group and the experimental group. An “Observation Sheet” (see Appendix K) for each group was prepared for the observer. The “Observation Sheet” for the experimental group contained a checklist, listing all of Wenden’s guidelines and objectives for strategy training, whilst that for the control group included a checklist comprising selected criteria which were not to be implemented. The latter list of criteria was included to check that the trainer did not inadvertently implement strategy training. Thus, it was hoped that for the experimental group the majority of criteria would be checked “yes” and the majority of criteria for the control group would be checked “no”. Space was allowed for written comments adjacent to each criterion. In addition, the “Observation Sheet” included three general criteria: timing, materials and other matters, plus a larger space for further comments by the observer.

The independent observer was an experienced teacher of secondary school, but not a language teacher. A language teacher as observer was not considered necessary as all strategy training was in English; this included classroom discussion about strategy use after each listening activity.

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\(^1\) Prior to the program the independent observer was familiarised with the concept of learning strategies, the “Observation Sheet”, and his tasks; and following each session these matters were discussed with the researcher.
3.4 Analysis

The first research question required an analysis of the relationship between participants’ strategy use and their other IDs (language learning background, affective factors, styles, aptitude). The strategies preferences and the other IDs tested were continuous measures, each measure consisting of more than one dependent variable (e.g., the SILL measured two strategy types - direct/indirect - each divided into three further groups). For both the interval and the ordinal data represented in the ID tests results were determined according to the instructions for each instrument. Each student was given a code number to ensure anonymity.

Several tests utilised Likert scale responses (SILL, Affective Survey, LSQ) for which a five point scale was given scores from 1 to 5. Instructions on how to score the SILL (Oxford, 1990a, Appendix C) were followed, which resulted in mean scores for Parts A to F, for ‘selective attention’, ‘elaboration’, ‘inferencing’ and ‘self-monitoring’ and an overall mean for the whole SILL for each participant. Scores were similarly determined for each part of the Affective Survey; however, reversed scoring was used for negatively phrased items. Individual items in the LSQ were grouped according to their style category as determined by Reid (1987), scores added and means determined for each of the six style categories.

In the Background Questionnaire questions 9, 10 and 11, which rated personal proficiency and importance of the language, utilised Likert scale scoring. All other questions required fixed responses. In order to compare results amongst participants for these questions, a score of 1 was allocated to each response given by a participant and a score of zero if that response were not given.

The LSP results were recorded according to the instructions given in the Examiner's Manual (Keefe & Monk, 1986). This included allocating a score to each
participant response, and grouping responses into subscales or categories of preferred
learning style.

Results for the MLAT were determined by following the instructions given in
the Manual (Carroll & Sapon, 1959). Participant responses to all the questions were
either right or wrong. Scores were totalled for each of the five parts of the test, each
part measuring a different aptitude trait. An overall aptitude score for each participant
was determined by adding scores for all five parts of the MLAT.

After all the data were entered using the Statistical Program for the Social
Sciences (SPSS, Version 10.0) statistics analysis computer package, this program was
used to calculate results for each of the tests. This program was also used to
determine correlations between LLSs and the other variables (IDs) using the Pearson
correlation coefficient.

In order to answer the second research question, changes in use of LLS
following training in strategies were looked at in three ways. First, changes amongst
all participants were determined using eleven repeated measures ANOVAs (one for
Parts A to F and one for the overall SILL, and one each for the four training
strategies). As normal assumptions were not met following Mauchly’s test of
sphericity, the Greenhouse-Geisser measure of epsilon was used to correct the F-ratios
for these within-subjects ANOVAs. Significant contrasts between results over the
three testing periods were determined via a within-subjects analysis of strategy use.
Second, a between-groups ANOVA was used to show contrasts between the LLS of
the control and experimental groups. Third, a between-groups, repeated measures
ANOVA showed differences in strategy use between the control and experimental
groups over time. Again the Greenhouse-Geisser measure of epsilon was used and a
within-subjects analysis was conducted to determine any significant contrasts in results.

To answer the third research question about the impact of strategy training on aural comprehension, comparisons of aural comprehension performances were made in four ways. Firstly, mean results of the eight aural comprehension tests for all participants were calculated, and then a pairwise comparison of means was made. A repeated measures ANOVA of these results was conducted to determine any significant changes in aural comprehension. Secondly, changes in aural comprehension within the control group, and thirdly, changes in aural comprehension within the experimental group, were considered using the same type of calculations. Finally, differences in aural comprehension between the two groups were calculated similarly, with a between-groups repeated measures ANOVA conducted on the data to determine the type and significance of any contrasts between the control and experimental groups’ aural comprehension.
4. Findings of Part 1 of the Study

4.1 Introduction

This first study examined the language learning strategies that participants reported using. Other individual differences (IDs) were also ascertained, including personal background factors, affective factors, learning style and language learning aptitude. Next, the relationship between language learning strategies and each of the IDs was determined.

The following sections describe language learning strategy use (section 4.2), individual differences, and how each ID related to language learning strategies. Section 4.3 reports the personal background factors of this group of participants, and section 4.4 describes the relationship between these background factors and the participants’ strategy use. In section 4.5 affective factors are described, and section 4.6 considers the relationship between the affective factors and learning strategy use. Next, learning style is reported in section 4.7 (using the Learning Style Questionnaire - LSQ) and in section 4.8 (using the Learning Style Profile - LSP). Comparisons between these two style instruments are made in section 4.9. The relationship of learning style and strategy use is described in section 4.10 using the LSQ and in section 4.11 using the LSP. The next two sections are a report on participants’ language learning aptitude (section 4.12), and how aptitude relates to the participants’ learning strategies (section 4.13). Finally, section 4.14 summarises the findings.

4.2 Participant Strategy Use

The first test administered to participants was Oxford’s (1989) Strategy Inventory for Language Learning (SILL). This instrument was used to determine which language learning strategies the participants reported using. Scores were
ascertained via a Likert’s scale ranging from 1 to 5 (never or almost never true of me = 1, always or almost always true of me = 5). Firstly, the results were considered according to Oxford’s six classifications of language learning strategies. Oxford called these Part A ‘remembering more effectively’ (memory), Part B ‘using your mental processes’ (cognitive), Part C ‘compensating for missing knowledge’ (compensatory), Part D ‘organising and evaluating your learning’ (meta-cognitive), Part E ‘managing your emotions’ (affective) and Part F ‘learning with others’ (social). Table 18 shows the mean frequencies of strategy use for these six classifications.

Table 18
Frequency of Use of Language Learning Strategies as Defined by Oxford, 1989

<table>
<thead>
<tr>
<th>Strategy my group</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory (Part A)</td>
<td>2.38</td>
<td>0.63</td>
</tr>
<tr>
<td>Cognitive (Part B)</td>
<td>2.36</td>
<td>0.62</td>
</tr>
<tr>
<td>Compensatory (Part C)</td>
<td>2.78</td>
<td>0.78</td>
</tr>
<tr>
<td>Meta-cognitive (Part D)</td>
<td>2.60</td>
<td>0.73</td>
</tr>
<tr>
<td>Affective (Part E)</td>
<td>2.19</td>
<td>0.71</td>
</tr>
<tr>
<td>Social (Part F)</td>
<td>2.75</td>
<td>0.93</td>
</tr>
<tr>
<td>Overall SILL</td>
<td>2.48</td>
<td>0.61</td>
</tr>
</tbody>
</table>

The results were also considered according to the four strategy classifications described by Chamot, Kupper and Impink-Hernandez (1988b) as shown in Table 19.
Table 19

*Frequency of Use of Language Learning Strategies as Defined by Chamot, Kupper and Impink-Hernandez, 1988b*

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective Attention</td>
<td>2.76</td>
<td>0.86</td>
</tr>
<tr>
<td>Elaboration</td>
<td>2.41</td>
<td>0.66</td>
</tr>
<tr>
<td>Inferencing</td>
<td>3.00</td>
<td>0.91</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>2.64</td>
<td>0.86</td>
</tr>
</tbody>
</table>

Overall the results indicated that the participants were not frequent strategy users. The most frequently used strategy ‘inferencing’ showed a mean of only 3.00 which corresponded to the Likert scale selection ‘somewhat true of me’, whilst the least frequently used strategy ‘affective’ had a mean of 2.19 (generally not true of me = 2). Moreover, the overall SILL result (mean = 2.48, SD = 0.61) showed the lowest standard deviation (SD) among all the results. This suggested the majority of participants in this study were infrequent users of most of the strategies tested.

Of the ten categories of strategy tested, ‘inferencing’ was the most strongly favoured strategy (mean = 3.00, SD = 0.91). This meant that the participants favoured guessing meanings of unknown language based on the more familiar contextual language above other strategies. However the high standard deviation represented a broad range of responses from participants, indicating that some strongly favoured inferencing strategies while others did not.

Next came ‘compensatory’ strategies (mean = 2.78, SD = 0.78), followed by ‘selective attention’ (mean = 2.76, SD = 0.86) and ‘social’ strategies (mean = 2.75, SD = 0.93). There was little difference among these three strategies and their standard deviations were also relatively high, especially the last, indicating that
though some participants favoured ‘social’ strategies some were not inclined to use them. Participants on average were less inclined to use ‘self-monitoring’ strategies (mean = 2.64, SD = 0.86) and ‘meta-cognitive’ strategies (mean = 2.60, SD = 0.73). The strategies ‘elaboration’ (mean = 2.41, SD = 0.66), ‘memory’ (mean = 2.38, SD = 0.63) and ‘cognitive’ (mean = 2.36, SD = 0.62) had lower means and also lower standard deviations, indicating that the majority of participants were less inclined to use these strategies. The least favoured learning strategy was ‘affective’ (mean = 2.19, SD = 0.71), indicating that participants were not inclined to manage their emotions in order to improve their Indonesian (L2) learning.

As few foreign language (FL) studies have tested strategy choice amongst Year 9 students, it is difficult to compare this study with others. For example, adolescents from grades 7 to 12 in Japanese classes were tested by Oxford et al. (1993) but the majority (60%) were in Year 10 or Year 11. Other studies tested adult FL learners (Ehrman & Oxford, 1995), and first year university EFL (English as a Foreign Language) students (Teng, 1998). A summary of ranked results for these studies can be seen in Table 20.

Table 20

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory (Part A)</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Cognitive (Part B)</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Compensatory (Part C)</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Meta-cognitive (Part D)</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Affective (Part E)</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Social (Part F)</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Mean overall SILL</td>
<td>2.44</td>
<td>2.88</td>
<td>2.94</td>
<td>2.48</td>
</tr>
</tbody>
</table>
A comparison between the current study and the others shown in Table 20 indicates that the most favoured strategies were ‘compensatory’ and the least favoured were ‘affective’ for all participants apart from the adolescents studying Japanese (Oxford et al., 1993). The next most favoured SILL strategies for the participants of the current study were ‘social’, as they were for the adult FL students, but the other two groups ranked these strategies fifth of the six. Other strategy choices were ranked in a similarly mixed fashion, indicating little comparability of strategy choice amongst the four studies, either by age or by experience. Further, there was diversity among the mean SILL results for these studies, the EFL university students reporting the most frequent use of strategies (mean SILL = 2.94), followed by the older adolescents (2.88), then the youngest adolescents (2.48), and the FL adults reported the least frequent use of strategies (2.44). These mean frequencies may corroborate the statement that “[t]he number of strategies may be less important than the learners’ orchestration of them” (Ehrman & Oxford, 1995, p. 69), however, Ehrman and Oxford also state that cognitive and meta-cognitive strategies are more favoured by better language learners, yet the experienced language learner adults in their study chose compensatory and social strategies over cognitive and meta-cognitive strategies. It is difficult therefore to make meaningful comparisons between the results of the current study and those of earlier studies, or to confirm theories of strategy use without consideration of other possible variables.

4.3 Participants’ Background

Several background factors were considered in this study, including gender, how much background participants had in the L2, and what other foreign languages
they had learned, their perceptions of proficiency in the L2, their reasons for learning the L2 and whether or not they enjoyed studying the L2.

The results indicated that for most of the factors reported the participants were similar in their background. For example, all participants had studied a FL before; most had studied Indonesian during the previous year; the majority of the participants considered themselves sound performers of the L2 in comparison with their peers and poor performers compared with native speakers; and most participants nominated an interest in the language and the culture as reasons for learning the L2. However, differences were seen in gender and in the perceived importance of L2 proficiency. The results are described below.

The factor which proved to be the most obvious discriminator was gender; 76% (28) of the participants in this study were male and 24% (9) were female. This gender discrepancy is far from representative of foreign language classes in Australia, in fact, it is the reverse of the normal gender divide. Statistics for gender divisions in Year 9 LOTE classes were unavailable. However, Tables 21 and 22 show that, in the main, less than half of LOTE (Languages Other Than English) students are male. In fact, it is not uncommon for the ratio in Year 12 Indonesian classes to be less than 25% male and more than 75% female students.
Table 21

*Australian State Year 12 Enrolments in Indonesian as a Second Language by Gender*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW – 2 unit</td>
<td>23</td>
<td>77</td>
<td>28</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 unit</td>
<td>22</td>
<td>78</td>
<td>32</td>
<td>68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(BS) 2 unit</td>
<td>48</td>
<td>52</td>
<td>36</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(BS) 3 unit</td>
<td>14</td>
<td>86</td>
<td>18</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z 2 unit</td>
<td>14</td>
<td>86</td>
<td>13</td>
<td>87</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginners</td>
<td></td>
<td></td>
<td>17</td>
<td>83</td>
<td>22</td>
<td>78</td>
<td>17</td>
<td>83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuers</td>
<td></td>
<td></td>
<td>19</td>
<td>81</td>
<td>14</td>
<td>78</td>
<td>24</td>
<td>76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension</td>
<td></td>
<td></td>
<td>17</td>
<td>83</td>
<td>17</td>
<td>83</td>
<td>19</td>
<td>81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern Territory</td>
<td>24</td>
<td>76</td>
<td>44</td>
<td>56</td>
<td>29</td>
<td>71</td>
<td>41</td>
<td>59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queensland</td>
<td>41</td>
<td>59</td>
<td>32</td>
<td>68</td>
<td>34</td>
<td>66</td>
<td>41</td>
<td>58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Australia</td>
<td>37</td>
<td>63</td>
<td>29</td>
<td>71</td>
<td>33</td>
<td>67</td>
<td>31</td>
<td>69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victoria – Unit 1</td>
<td>32</td>
<td>68</td>
<td>31</td>
<td>69</td>
<td>30</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit 2</td>
<td>32</td>
<td>68</td>
<td>30</td>
<td>70</td>
<td>30</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit 3</td>
<td>47</td>
<td>53</td>
<td>29</td>
<td>71</td>
<td>27</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit 4</td>
<td>47</td>
<td>53</td>
<td>29</td>
<td>71</td>
<td>27</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Australia</td>
<td>34</td>
<td>66</td>
<td>34</td>
<td>66</td>
<td>36</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Shown as percentages to the nearest whole number

Sources:
- Western Australia [http://www.curriculum.wa.edu.au/pages/publication00.htm](http://www.curriculum.wa.edu.au/pages/publication00.htm)

Table 22

*Tasmanian Secondary School Enrolments in LOTE by Gender*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998 Years 7-12</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>1998 Years 9-12</td>
<td>28</td>
<td>72</td>
</tr>
<tr>
<td>1998 Years 11-12</td>
<td>26</td>
<td>74</td>
</tr>
<tr>
<td>2000 Year 11</td>
<td>23</td>
<td>77</td>
</tr>
<tr>
<td>2000 Year 12</td>
<td>24</td>
<td>76</td>
</tr>
<tr>
<td>2001 Years 11-12</td>
<td>27</td>
<td>73</td>
</tr>
</tbody>
</table>

*Note.* Shown as percentages to the nearest whole number


Data not available for 1999
Participants’ background in FL learning was examined. Table 23 shows how long participants had studied Indonesian prior to the research period.

Table 23

Length of Prior Study of Indonesian Language

<table>
<thead>
<tr>
<th>Semesters of prior study</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>12</td>
<td>32.4 %</td>
</tr>
<tr>
<td>Two</td>
<td>11</td>
<td>29.7 %</td>
</tr>
<tr>
<td>Three</td>
<td>3</td>
<td>8.1 %</td>
</tr>
<tr>
<td>Four</td>
<td>5</td>
<td>13.5 %</td>
</tr>
<tr>
<td>Five</td>
<td>0</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Six</td>
<td>3</td>
<td>8.1 %</td>
</tr>
<tr>
<td>Seven</td>
<td>0</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Eight</td>
<td>0</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Nine</td>
<td>3</td>
<td>8.1 %</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
<td><strong>100.0 %</strong></td>
</tr>
</tbody>
</table>

Of the 37 participants, 12 reported only one semester (20 weeks) of prior study, whilst 11 indicated the language had been studied for two semesters. Although it is possible that these figures are correct, it is also likely that all 23 of the participants had studied the L2 for the same length of time. This is due to the arrangement within the school where Year 8 students study one FL for one ten-week term and a different FL for a second ten-week term; they then chose which of the two FLs to continue for the second semester. Thus all the participants’ minimum background in Indonesian would have been an introduction to it for half of one semester, followed by a more intense course for the full second semester. Therefore, when they completed the Background questionnaire at the beginning of their Year 9
course, some students may have considered their three-term experience to be one semester and others two semesters. Nevertheless, the outcome is that 23 participants began their study of Indonesian in the year prior; the remaining 14 participants first encountered Indonesian in their primary school, and thus had a longer experience with this L2.

Besides studying Indonesian language, 35 of the 37 participants indicated they had previously studied other FLs. One had studied three other FLs, while 10 had studied two others and 24 experienced one other FL. The languages studied were French (30 participants), Japanese (7), Italian (6), German (2), Greek (1), and Thai (1). These statistics are shown in Table 24.

Table 24

<table>
<thead>
<tr>
<th>Language</th>
<th>No. of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>30</td>
</tr>
<tr>
<td>Japanese</td>
<td>7</td>
</tr>
<tr>
<td>Italian</td>
<td>6</td>
</tr>
<tr>
<td>Greek</td>
<td>1</td>
</tr>
<tr>
<td>Thai</td>
<td>1</td>
</tr>
</tbody>
</table>

The participants’ perceptions of their proficiency or self-efficacy were also examined. When asked to compare their language with classmates, participants indicated their self-efficacy in the L2 by choosing ‘excellent’, ‘good’, ‘fair’ or ‘poor’. Results showed that most (27) considered their proficiency good or fair compared to their peers; of the remaining ten, five chose ‘excellent’ and five chose ‘poor’. Next the participants were asked to compare themselves with native speakers; more than half (21) of the participants considered their L2 proficiency poor in comparison, only
5 participants selecting ‘excellent’ or ‘good’. The third question asked for the participants’ perceptions of the importance of L2 proficiency, and resulted in a range of responses, with 40.5 percent (15) considering it not so important, and the remaining 59.5 percent (22) believing it to be important or very important. These results are summarised in Table 25.

Table 25

Perceptions of Proficiency

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>proficiency compared with classmates</strong></td>
<td></td>
</tr>
<tr>
<td>excellent</td>
<td>5</td>
</tr>
<tr>
<td>good</td>
<td>17</td>
</tr>
<tr>
<td>fair</td>
<td>10</td>
</tr>
<tr>
<td>poor</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
</tr>
</tbody>
</table>

| **proficiency compared with native speakers** |          |
| excellent | 1          | 2.7 %     |
| good      | 4          | 10.8 %    |
| fair      | 11         | 29.7 %    |
| poor      | 21         | 56.8 %    |
| Total     | 37         | 100 %     |

| **perceived importance of being proficient** |          |
| very important | 2          | 5.4 %     |
| important      | 20         | 54.1 %    |
| not so important | 15       | 40.5 %    |
| Total           | 37         | 100 %     |

Few other studies have examined students’ perceptions of self-efficacy in FL learning or in the importance of FL learning. Therefore, although the study by Yang (1999) found that over 90% of university students of EFL tested felt it very important to study English and to speak English well, her study did not test students’ perceptions of their own proficiency. This issue of self-efficacy has been of interest in the field of educational psychology (e.g., Bandura 1977, 1986, 1993; Bandura &

Next, the participants were asked why they chose to study Indonesian. Their responses are summarised in Table 26.

Table 26

<table>
<thead>
<tr>
<th>Reason</th>
<th>No. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>interested in the L2</td>
<td>25</td>
</tr>
<tr>
<td>want the L2 for travel purposes</td>
<td>21</td>
</tr>
<tr>
<td>interested in the culture</td>
<td>19</td>
</tr>
<tr>
<td>need the L2 to graduate</td>
<td>7</td>
</tr>
<tr>
<td>friends/family use the L2</td>
<td>6</td>
</tr>
<tr>
<td>need the L2 for my career</td>
<td>4</td>
</tr>
<tr>
<td>want to learn a FL</td>
<td>3</td>
</tr>
<tr>
<td>learning the L2 is fun</td>
<td>2</td>
</tr>
</tbody>
</table>

Most choices appeared to be for integrative motivational reasons. These included ‘interested in the L2’ (25), ‘interested in the culture’ (19), ‘want to learn a FL’ (3), and ‘learning the L2 is fun’ (2). The most common instrumental motivation was for travel purposes, that is the L2 would be useful when they travelled to Indonesia (21 participants). Other instrumental motivations included ‘need the L2 to graduate’ (7), ‘friends/family use the L2’ (6) and ‘need the L2 for my career’ (4). Twenty nine of the participants indicated they enjoyed studying the L2 and only eight did not. These background data are relevant to motivational factors and are thus considered in conjunction with the Affective Survey in section 4.5.
4.4 Strategy Use and Background Factors

Correlations were determined comparing strategy use and six variables from the Background Questionnaire, namely: gender, how long the L2 had been studied, the perceived proficiency in the L2 compared with classmates, the perceived proficiency in the L2 compared with native speakers, the perceived importance of language proficiency and enjoyment of studying the L2.

Two other background variables, namely ‘what other FLs had been learned’ and ‘reasons for learning the L2’, were not included in this analysis. These two factors were excluded because of the type of data they represented. For the factor ‘what other FLs had been learned’ six FLs were reported, with the number of students who nominated each language ranging from 30 to 1, and some students nominating more than one FL. Therefore the data for this variable was not discrete. For the factor ‘reasons for learning the L2’ data was collected via a question where participants gave free answers, and then similar answers were grouped, resulting in eight reasons. This data, too, was not discrete; but data for the remaining six background factors were. Hence, correlations with strategy use were calculated for only six of the eight background factors.

When these comparisons were made it was found that four variables were significantly correlated with strategy use. Two of these (enjoyment of studying the L2, perceived proficiency in the L2 compared with classmates) showed numerous correlations, whereas two others showed few correlations (gender, how long the L2 had been studied). For the remaining two variables, there were no significant correlations. These results are shown in Table 27.
Table 27

**Correlations of Background Questionnaire IDs to Strategy Use**

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Gender</th>
<th>How long L2 Studied</th>
<th>Perceived proficiency cf classmates</th>
<th>Perceived prof. cf native speakers</th>
<th>Perceived importance of L2 proficiency</th>
<th>Enjoy studying L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory (SILL Part A)</td>
<td>-.214</td>
<td>.309</td>
<td><strong>.399</strong></td>
<td>.088</td>
<td>.136</td>
<td><strong>.491</strong></td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>-.172</td>
<td>.248</td>
<td><strong>.426</strong></td>
<td>.092</td>
<td>.262</td>
<td><strong>.444</strong></td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>-.231</td>
<td>-.047</td>
<td>.154</td>
<td>-.142</td>
<td>.178</td>
<td><strong>.364</strong></td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>-.121</td>
<td><strong>.354</strong></td>
<td><strong>.399</strong></td>
<td>.132</td>
<td>.315</td>
<td><strong>.463</strong></td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>-.128</td>
<td>.172</td>
<td>.309</td>
<td>.071</td>
<td>.095</td>
<td>.245</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>-.179</td>
<td>.280</td>
<td><strong>.444</strong></td>
<td>.135</td>
<td>.257</td>
<td><strong>.429</strong></td>
</tr>
<tr>
<td>Selective Attention</td>
<td>-.070</td>
<td>.198</td>
<td><strong>.432</strong></td>
<td>.067</td>
<td>.269</td>
<td><strong>.485</strong></td>
</tr>
<tr>
<td>Elaboration</td>
<td>-.272</td>
<td>.269</td>
<td><strong>.442</strong></td>
<td>.050</td>
<td>.161</td>
<td><strong>.455</strong></td>
</tr>
<tr>
<td>Inferencing</td>
<td>-.326*</td>
<td>-.019</td>
<td><strong>.327</strong></td>
<td>-.111</td>
<td>.222</td>
<td><strong>.410</strong></td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>-.079</td>
<td><strong>.377</strong></td>
<td>.292</td>
<td>.070</td>
<td>.231</td>
<td>.264</td>
</tr>
</tbody>
</table>

*Note.*  
*Correlation is significant at the 0.05 level (2-tailed).**  
**Correlation is significant at the 0.01 level (2-tailed).**

The two variables that showed the most significant correlations with reported strategy use were ‘enjoyment of studying the L2’ and ‘perceived proficiency compared with classmates’. The degree of correlation for these two variables is described below.

Of the 10 strategies tested eight correlated with ‘enjoyment of studying the L2’. Six of them correlated at the 0.01 level, the highest being at .491 for ‘memory
strategies’, followed by ‘selective attention’ (.485), ‘meta-cognitive’ (.463), ‘elaboration’ (.455), ‘cognitive’ (.444), and ‘social’ (.429). This variable also correlated at the 0.05 level with the strategies ‘inferencing’ (.410) and ‘compensatory’ (.364).

Seven learning strategies correlated with ‘perceived proficiency compared with classmates’. At the 0.01 level, the three strategies which correlated were ‘social strategies’ (.444), ‘elaboration’ (.442), and ‘selective attention’ (.432). At the 0.05 level, the four correlated strategies were ‘cognitive’ (.426), ‘memory’ (.399), ‘meta-cognitive’ (.399), and ‘inferencing’ (.327).

The correlation results for these two background factors suggest a narrow focus by participants - on the classroom and on their current enjoyment. Thus, participants whose focus was on the immediate use of the L2 were more likely to be strategy users. By contrast ‘perceived proficiency compared with native speakers’ and ‘perceived importance of language proficiency’ resulted in no significant correlations at all with strategy use. This result suggests that participants with a broader perspective on L2 learning, that is, with a focus beyond the immediate use of the L2, tended not to be strategy users. In other words, the immediate appeal of language learning seemed to stimulate use of strategies among these participants, whereas a broader interest in language learning did not favour strategy use.

Few other studies have shown similar correlations to these. Yang (1999) tested university students with at least six years of English learning experience and found correlations between all strategies tested and self-efficacy and expectation about learning English, a result similar to the current study; however her study also showed strategy use and perceived value and nature of learning spoken English correlated, whereas the current study showed no such correlations at all. Research
conducted at the National Capital Language Resource Center (NCLRC) (Elementary immersion students perceptions of language learning strategies use and self-efficacy, 2000) found that students who considered themselves confident learners used learning strategies, but comparison with the current study is difficult as the study was of grade 4-6 immersion students and they were not asked to compare themselves with peers or with native speakers.

These results point to the importance of motivation in language learning. Both enjoyment of studying the L2 and perceived self-efficacy in the L2 compared with classmates are closely related to motivational factors as they are based on perceptions by the participants. Similarly, in Yang’s (1999) study, all three factors which correlated with LLS are closely related to motivational factors. This finding is similar to the outcomes from the Affective Survey (see Section 4.6) which tested motivation and showed significant correlation of motivation with LLS.

Three other significant correlations between strategy use and background factors occurred in the current study, all at the 0.05 level. ‘Length of time in which the L2 was studied’ correlated positively with the strategies ‘self-monitoring’ and ‘meta-cognitive’, while ‘gender’ correlated negatively with ‘inferencing’. These last three correlations are described below.

‘Length of time in which the L2 was studied’ correlated with two strategies, ‘self-monitoring’ (.377), and ‘meta-cognitive’ (.354). Keeping in mind that the data for length of time the L2 was studied may be imprecise (see previous section following Table 23), these results mean that amongst this group, the longer the participants learned the L2, the more likely they were to think about how they learned, and the more likely they were to monitor their own L2 learning. Some earlier studies showed similar results to these. The study by (Chamot, 1987) showed ‘self-
monitoring’ was used more often by intermediate level students than by beginning students, while Chamot, O’Malley, Kupper, & Impink-Hernandez (1987, cited in Oxford, 1990a) showed intermediate level students used meta-cognitive strategies more than beginning students, and used meta-cognitive more than cognitive strategies. However, several studies (Oxford, 1990; Oxford, Park-Oh, Ito, & Sumrall, 1993) showed no effect of previous language learning experience on strategy use. These results support the conclusion by Oxford (1990a, p. 96) that the tendency is for more advanced students to use more appropriate strategies, but that “[a]dvancement in course level or years of study does not necessarily mean that students use more appropriate or more effective strategies in every instance.”

Finally, in this study, ‘gender’ correlated negatively with ‘inferencing’ (-.326), indicating boys were disinclined to use this strategy, whereas the girls were more likely to infer, or to guess the meaning of the L2 based on the language context. The general trend in this study was that boys were disinclined to use strategies when compared with girls. This result was supported by previous research where females were also shown to use learning strategies more than males (Bacon, 1992; Chamot, 1987; Green & Oxford, 1995; Oxford, Nyikos, & Ehrman, 1988; Oxford et al., 1993).

It would be easy to assume that as ‘inferencing’ was the most preferred strategy (see section 4.3), the majority of the class used it, but this correlation result showed that, in fact the girls did, but the boys did not use ‘inferencing’. As the boys (28) greatly outnumbered girls (9) this result indicates that the girls’ preference for ‘inferencing’ was very strong, enough to affect the overall result.

4.5 Affective Survey Results

Participants completed the Affective Survey (Ehrman, 1991) which asked them to indicate, using a Likert’s scale response (strongly agree = 5, to strongly disagree = 1),
their opinions about various affective factors pertaining to learning Indonesian. Fifteen variables from the Affective Survey included (a) intrinsic motivation to learn the L2; (b) extrinsic motivation; (c) desire to use the L2 outside the classroom; (d) effort in studying the L2; (e) general language learning beliefs; (f) self beliefs in relation to the L2; (g) beliefs about public performance in using the L2; (h) beliefs about using the L2 with native speakers; (i) lack of concern about error-making; (j) comprehension of the L2; (k) self-esteem about learning the L2; (l) competition in L2 study; (m) attitude to L2 tests; (n) attitudes to L2 outcomes; and, (o) comfort with learning L2.

Table 28 gives a summary of the results which, overall, were not strong (highest mean 3.12, lowest mean 2.35). A description of the results follows, beginning with the negative affective factors, and continuing with the positive affective factors.

Table 28

<table>
<thead>
<tr>
<th>Affective Factor</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effort to learn the L2</td>
<td>3.12</td>
<td>0.86</td>
</tr>
<tr>
<td>Self-beliefs</td>
<td>3.09</td>
<td>0.79</td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>3.03</td>
<td>0.36</td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td>3.03</td>
<td>0.35</td>
</tr>
<tr>
<td>Making errors</td>
<td>2.95</td>
<td>0.59</td>
</tr>
<tr>
<td>Outcomes</td>
<td>2.92</td>
<td>0.47</td>
</tr>
<tr>
<td>Language learning beliefs</td>
<td>2.89</td>
<td>0.91</td>
</tr>
<tr>
<td>Competition</td>
<td>2.89</td>
<td>0.50</td>
</tr>
<tr>
<td>Comfort with language learning</td>
<td>2.87</td>
<td>0.42</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>2.86</td>
<td>0.43</td>
</tr>
<tr>
<td>L2 use with native speakers</td>
<td>2.77</td>
<td>0.61</td>
</tr>
<tr>
<td>Comprehension</td>
<td>2.77</td>
<td>0.46</td>
</tr>
<tr>
<td>Public performance</td>
<td>2.77</td>
<td>0.40</td>
</tr>
<tr>
<td>Tests</td>
<td>2.70</td>
<td>0.48</td>
</tr>
<tr>
<td>Desire to use the L2 outside class</td>
<td>2.35</td>
<td>0.73</td>
</tr>
</tbody>
</table>
The Affective Survey results showed both positive and negative affective factors impacted on these participants. For example, participants were inclined to make an effort to learn the L2, they had positive self beliefs about learning the L2, and they were positively motivated to learn the L2. On the other hand, unfavourable attitudes were reported in relation to facing L2 tests, when having difficulty in comprehending the L2, when performing in public, when using the L2 outside the class, and when using the L2 with native speakers. In short, although these participants were positively motivated Indonesian learners who made a self-confident effort in class, they were uncomfortable when they did not understand or were forced to use their Indonesian in the real world.

The affective factor rated lowest by participants was ‘desire to use the L2 outside the class’ with a mean result of 2.35 and a SD of 0.73. Next lowest was ‘attitude to L2 tests’ (2.70), but with a SD of only 0.48, indicating a more consistently unfavourable attitude towards performing language tests. Other less favoured factors included ‘public performance in the L2’, ‘comprehension of the L2’ and ‘L2 use with native speakers’, all of which resulted in mean responses of 2.77. Low standard deviations for ‘public performance’ (SD = 0.40) and ‘comprehension’ (SD = 0.46) indicated the consistency of responses amongst the participants for these two variables. Participants’ concern about ‘L2 use with native speakers’ relates to the background questionnaire result which showed the participants’ perceptions of their proficiency or their self-efficacy compared with native speakers was relatively low. This result may also be linked to the participants’ confidence in their ability to listen effectively in a real or near-real life situation.

The five lowest results in the Affective Survey are similar in that they are all linked to public demonstration of personal performance, whereas the other factors are
less public, but rather related to personal belief and performance restricted to classroom activities. Dislike of tests in this study reflects the results of Nikolov’s (1999) 11-14 year old EFL students who, despite English being their best school subject, continued to consider English tests a threat. Sigelman (1999, cited in MacIntyre, Baker, Clément, & Donovan, 2003) suggests that adolescents more realistically assess their abilities in school due to the effects of puberty, cognitive development and the negative feedback common in schools. Hence, that these adolescent participants should be less confident about factors which result in potentially negative feedback is not surprising. Their nervousness about L2 public performance outside the classroom, especially with native speakers, their belief of inadequacy when speaking with native speakers, their nervousness about comprehending Indonesian and their dislike of tests are not unexpected results for adolescents with more than eight years of schooling.

By contrast with the low rated affective factors indicated by these participants, the four factors they most favoured were ‘effort made to learn the L2’ (mean = 3.12), ‘positive self beliefs about learning the L2’ (3.09), ‘intrinsic motivation’ (3.03) and ‘extrinsic motivation’ (3.03). However, the standard deviations for the first two were relatively large (0.89 and 0.79), indicating a broad range of responses in these sections of the survey. By contrast, extrinsic (0.35) and intrinsic motivation (0.36) showed the lowest SDs, indicating that participants were more consistently positively motivated to learn the L2 than was indicated for any of the other affective factors.

Results relating to motivation in the background questionnaire (see section 4.3) were not unlike these Affective Survey results. The Affective Survey showed
that intrinsic and extrinsic motivation\(^2\) were of equal import to the participants, whilst the motivational reasons listed by the participants in the background questionnaire resulted in four groups of integrative (intrinsic) reasons, and four groups of instrumental (extrinsic) reasons. Nevertheless, in total there were more integrative reasons (49) and fewer instrumental reasons (38) given by the participants.

It is not surprising that these participants indicated positive motivation to learn Indonesian. The language was not compulsory at Year 9 level in the school, which meant that these participants chose to continue studying the language. In addition, in the background questionnaire participants were asked directly whether they enjoyed learning the L2. Twenty-nine participants answered yes and only eight answered no, a result which is consistent with the reported positive affective factors measured in the Affective Survey.

Two SLA studies showed similar results to the current study, as both instrumental and integrative motivations were reported by adolescents of a similar age. Morris (2001) found first year high school students of English as a second language in Puerto Rico reported both integrative and instrumental motivations. Nikolov (1999) found that high achieving Hungarian learners of EFL aged 13 and 14 reported intrinsic and extrinsic motivational reasons almost equally. The findings of a study by Lladó-Torres (1984) are comparable, but to a lesser degree, with results showing that fourth year high school learners of English as a second language in Puerto Rico were motivated to learn for instrumental reasons. Comparison with different studies is difficult as they have correlated motivation with other variables, but they have not reported levels of motivation alone (Clément, 1985; Masgoret & Gardner, 2003; Oxford & Ehrman, 1995; Oxford et al., 1993). Other studies have

\(^2\) The terms here ‘intrinsic and extrinsic motivation’ may be classified as ‘integrative and instrumental orientation’ respectively according to Gardner and associates (see Masgoret & Gardner, 2003).
used cross-sectional analyses to compare motivation levels for French immersion
students across grade levels from grade 7 to grade 11 (Gardner and Smythe, 1975,
cited in MacIntyre et al., 2003) and from grade 7 to grade 9 (MacIntyre, Baker,
Clément, & Donovan, 2003), but the current study made no cross-sectional
comparisons and therefore again comparison is difficult. Nevertheless, the relevance
of both intrinsic and extrinsic motivation in L2 learning amongst adolescents is
verified here.

4.6 Strategy Use and Affective Factors

The relationship between strategy use and the factors in the Affective Survey
was considered next. There were significant correlations between strategy use and
eight of the fifteen affective factors tested, with 39 significant correlations in total.
These results indicated that, although few participants used strategies, for those who
did there was a relationship between their strategy use and their affective learning
processes. The results are shown in Table 29.
Table 29

Correlations of Affective Factors to Strategy Use

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Intrinsic Motivation</th>
<th>Extrinsic Motivation</th>
<th>Desire to Use L2</th>
<th>Effort to Study L2</th>
<th>Language Learning Beliefs</th>
<th>Self Beliefs</th>
<th>L2 Public Performance</th>
<th>L2 Use with Native Speakers</th>
<th>Error Making</th>
<th>Comprehension</th>
<th>Self-Esteem</th>
<th>Competitiveness</th>
<th>Attitude to L2 Tests</th>
<th>Attitude to L2 Outcomes</th>
<th>L2 Comfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory (SILL Part A)</td>
<td>.481**</td>
<td>.359*</td>
<td>.404*</td>
<td>.485**</td>
<td>.225</td>
<td>.172</td>
<td>.229</td>
<td>.206</td>
<td>-.051</td>
<td>.291</td>
<td>.171</td>
<td>.246</td>
<td>-.002</td>
<td>-.119</td>
<td>.048</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>.586**</td>
<td>.340*</td>
<td>.523**</td>
<td>.609**</td>
<td>.219</td>
<td>.194</td>
<td>.220</td>
<td>.275</td>
<td>-.149</td>
<td>.293</td>
<td>.229</td>
<td>.362*</td>
<td>.020</td>
<td>-.137</td>
<td>-.007</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>.230</td>
<td>.276</td>
<td>.225</td>
<td>.251</td>
<td>.166</td>
<td>-.005</td>
<td>.096</td>
<td>.257</td>
<td>-.023</td>
<td>.395*</td>
<td>.222</td>
<td>.336*</td>
<td>.243</td>
<td>-.011</td>
<td>.252</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>.536**</td>
<td>.364*</td>
<td>.425**</td>
<td>.545**</td>
<td>.322</td>
<td>.253</td>
<td>.214</td>
<td>.257</td>
<td>.117</td>
<td>.235</td>
<td>.062</td>
<td>.264</td>
<td>.080</td>
<td>-.134</td>
<td>.143</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>.441**</td>
<td>.252</td>
<td>.409*</td>
<td>.502**</td>
<td>.217</td>
<td>.133</td>
<td>.137</td>
<td>.116</td>
<td>-.280</td>
<td>.204</td>
<td>.080</td>
<td>.304</td>
<td>.013</td>
<td>-.103</td>
<td>-.137</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>.474**</td>
<td>.290</td>
<td>.328*</td>
<td>.576**</td>
<td>.403*</td>
<td>.229</td>
<td>.17</td>
<td>.201</td>
<td>.041</td>
<td>.241</td>
<td>.152</td>
<td>.293</td>
<td>.082</td>
<td>-.127</td>
<td>.175</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>.393*</td>
<td>.351*</td>
<td>.287</td>
<td>.453**</td>
<td>.378*</td>
<td>.261</td>
<td>.275</td>
<td>.215</td>
<td>.171</td>
<td>.277</td>
<td>.042</td>
<td>.182</td>
<td>.108</td>
<td>-.090</td>
<td>.365*</td>
</tr>
<tr>
<td>Elaboration</td>
<td>.525**</td>
<td>.407*</td>
<td>.426**</td>
<td>.431**</td>
<td>.247</td>
<td>.138</td>
<td>.199</td>
<td>.137</td>
<td>-.105</td>
<td>.247</td>
<td>.211</td>
<td>.263</td>
<td>-.121</td>
<td>-.134</td>
<td>.007</td>
</tr>
<tr>
<td>Inferencing</td>
<td>.320</td>
<td>.500**</td>
<td>.335*</td>
<td>.314</td>
<td>.172</td>
<td>.044</td>
<td>.000</td>
<td>.220</td>
<td>.067</td>
<td>.356*</td>
<td>.280</td>
<td>.453**</td>
<td>-.007</td>
<td>-.017</td>
<td>.282</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>.477**</td>
<td>.183</td>
<td>.339*</td>
<td>.525**</td>
<td>.220</td>
<td>.173</td>
<td>.107</td>
<td>.325*</td>
<td>-.005</td>
<td>.137</td>
<td>.074</td>
<td>.145</td>
<td>.169</td>
<td>-.195</td>
<td>.078</td>
</tr>
</tbody>
</table>

Note.  
* Correlation is significant at the 0.05 level (2-tailed).  
** Correlation is significant at the 0.01 level (2-tailed).
How each of these eight affective factors correlated with reported strategy use is described below. First, the affective factors which showed most correlations are described. Then, other factors with fewer correlations are described.

Three affective factors correlated most often with learning strategies, each with eight correlations. These factors were ‘effort to study the L2’, ‘intrinsic motivation’ and ‘desire to use the L2 outside class’ and were three of the four motivational factors tested. All three of these factors correlated strongly with three particular strategies: ‘cognitive strategy use’, ‘meta-cognitive strategy use’ and ‘elaboration’. A fourth affective factor to show significant correlation with strategy use (6 strategies) was the fourth motivational factor tested, ‘extrinsic motivation’; again the strategies ‘cognitive strategy use’, ‘meta-cognitive strategy use’ and ‘elaboration’ featured, though to a lesser degree.

Of these four affective factors showing greatest correlation with strategy use, three were most strongly favoured by the participants, but ‘desire to use the L2 outside class’ was the least favoured. This result indicates that for this group there was not a simple correlation of positive affective factors and frequent strategy use; rather there was a more complex mix of affective factors and strategy use. The results are described below.

4.6.1 Effort to study the L2

As the strongest set of correlations was between the factor ‘effort to study the L2’ and strategy use, these results suggest that the participants who made an effort to study Indonesian were strategy users. All eight correlations were significant at the 0.01 level, and six were amongst the strongest ten of the 39 significant correlations. This factor correlated most strongly with ‘cognitive strategy use’ (0.609), followed by ‘social strategies’ (0.576), ‘meta-cognitive strategy use’ (0.545), ‘self-monitoring’
‘affective strategies’ (.502), ‘memory strategies’ (.485), ‘selective attention’ (.453) and ‘elaboration’ (.431). A similar result was seen amongst adults studying foreign languages in the study by (Oxford & Ehrman, 1995). This result is not surprising as logic asserts that making an effort to learn a language and using strategies to learn a language should correlate.

4.6.2 Intrinsic motivation

The degree to which the participants appreciated learning the language for its own sake (integrative motivation) was related to the frequency and number of learning strategies they used. This result is clearly seen as ‘intrinsic motivation’ correlated strongly with strategy use, with seven of the eight correlations significant at the 0.01 level. Three of these were amongst the strongest ten of all the correlations. They included the correlation with ‘cognitive strategy use’ (.586), ‘meta-cognitive strategy use’ (.536) and ‘elaboration’ (.525). ‘Intrinsic motivation’ also correlated with ‘memory strategies’ (.481, p<0.01), ‘self-monitoring’ (.477, p<0.01), ‘social strategies’ (.474, p<0.01), ‘affective strategies’ (.441, p<0.01) and ‘selective attention’ (.393, p<0.05).

This result has similarities to those of Oxford and associates, where strong correlations between integrative motivation and strategy use were shown both among high school aged students, including some Year 9 level students (Oxford et al., 1993) and among adults learning a foreign language (Oxford & Ehrman, 1995).

Again, this result is logical: motivated learners will use strategies to learn; and the result for ‘extrinsic motivation’ (see 4.6.4) affirms this.

4.6.3 Desire to use the L2 outside class

The results suggest that, despite few participants wanting to use Indonesian outside the classroom, those who did were likely to be strategy users. This was seen
in the correlation of the affective factor ‘desire to use the L2 outside class’ with eight of the ten strategies tested. Three strategies correlated at the 0.01 level. As for the previous two affective factors (‘effort to study the L2’ and ‘intrinsic motivation’) this factor correlated most strongly with ‘cognitive strategy use’ (.523, p<0.01). It also correlated at the 0.01 level with ‘elaboration’ (.426) and with ‘meta-cognitive strategy use’ (.425). The other strategies which correlated with ‘desire to use the L2 outside class’, all at the 0.05 level, included ‘affective’ (.409), ‘memory’ (.404), ‘self-monitoring’ (.339), ‘inferencing’ (.335) and ‘social’ (.328).

These results reflected those in the study by Oxford and Ehrman (1995) where adults who reported a desire to use their L2 outside the classroom also reported using strategies. However, it seems other studies have not measured ‘desire to use the L2 outside class’ or examined correlation of this factor with strategy use.

The significant role of ‘cognitive strategy use’ in the above results suggests that within the participant group tested, practical thinking strategies and positive affective factors were closely related. ‘Cognitive strategy use’ featured in the two correlations of highest significance, that is with ‘effort to study the L2’ and ‘intrinsic motivation’. It also correlated significantly, though not as strongly, with ‘desire to use the L2 outside class’, and with ‘extrinsic motivation’ and ‘competitiveness’ (see sections 4.6.4 and 4.6.5).

‘Meta-cognitive strategy use’ was another reported strategy which correlated strongly with these three affective factors. This suggests that participants in this study who thought about their learning processes also showed positive affective responses. As well as correlating with ‘effort to study the L2’, with ‘intrinsic motivation’ and with ‘desire to use the L2 outside class’, ‘meta-cognitive strategy use’ correlated significantly with ‘extrinsic motivation’ though to a lesser degree (see section 4.6.4).
A third strategy, ‘elaboration’ (itself a particular type of cognitive strategy) also correlated strongly with the three affective factors ‘effort to study the L2’, ‘intrinsic motivation’ and ‘desire to use the L2 outside class’. It also correlated, though less strongly, with ‘extrinsic motivation’. These results indicate that the participants who related new to earlier knowledge also showed strong, positive affective responses to language learning.

4.6.4 Extrins ic motivation

‘Extrinsic motivation’ correlated with six learning strategies, indicating the participants learning the language for instrumental motivational reasons were likely to use strategies. ‘Extrinsic motivation’ correlated with six of the strategies tested. The most significant correlation was with ‘inferencing’ (.500, p<0.01), followed by ‘elaboration’ (.407, p<0.05), ‘meta-cognitive strategies’ (.364, p<0.05), ‘memory strategies’ (.359, p<0.05), ‘selective attention’ (.351, p<0.05) and ‘cognitive strategies’ (.340, p<0.05).

As for ‘intrinsic motivation’ the correlation results for ‘extrinsic motivation’ and strategy use seem logical, as motivated learners will be likely to act on their motivation by using strategies. However, few other studies have formally examined these relationships: as in this study, both extrinsic (instrumental) and intrinsic (integrative) motivation correlated with strategy use among high school learners of Japanese (Oxford et al., 1993) as they did among adult FL learners (Oxford & Ehrman, 1995).

Only five other affective factors, ‘competitiveness’, ‘language learning beliefs’, ‘comprehension’, ‘comfort with L2’, and ‘use of L2 with native speakers’, were shown to correlate with strategy use. However, each of these factors correlated with three or fewer strategies only.
4.6.5 Competitiveness

‘Competitiveness’ correlated significantly with three strategies. These were ‘inferencing’ (.453, p<0.01), ‘cognitive strategies’ (.362, p<0.05) and ‘compensatory strategies’ (.336, p<0.05). This result indicates that the students who were more competitive in the L2 classroom were more likely to use practical strategies to succeed.

4.6.6 Language learning beliefs

Participants’ beliefs about language learning and themselves as language learners only correlated significantly with two of the reported strategies, ‘social strategies’ (.403, p<0.05) and ‘selective attention’ (.378, p<0.05). This result means that the participants who believed L2 learning could be achieved relatively quickly were more likely to use these two meta-cognitive learning strategies, that is, utilising other learners and specifically focusing their attention.

4.6.7 Comprehension

Again only two strategies correlated significantly with this affective factor, this time they were ‘compensatory strategies’ (.395, p<0.05) and ‘inferencing’ (.356, p<0.05). The result indicates that participants who were not concerned about a lack of understanding, were more likely to infer ideas and to compensate for their lack of comprehension.

4.6.8 Comfort with L2

Only one strategy correlated significantly with this affective factor, namely ‘selective attention’ (.365, p<0.05). This means that the participants who felt comfortable in their language class used few strategies; the only one significantly used was to focus their attention on specific language input.
4.6.9 Use of L2 with native speakers

‘Use of the L2 with native speakers’ also correlated with only one strategy; namely ‘self-monitoring’ (.325, p<0.05). This means that the students who favoured using their L2 with Indonesians were likely to monitor their own L2 use.

In summary, the correlations between strategy use and affective factors indicated that those participants who were highly motivated, made efforts to study the L2, and who wanted to use it outside the classroom were most likely to be strategy users. In particular, they were likely to think practically, think about their learning, and to relate new to earlier knowledge. Similar results were found among adult learners by Oxford and Ehrman (1995). In addition, those who were competitive, had positive beliefs about language learning and about their comprehension of the L2, who were comfortable with the L2 and with using it with native speakers may also have used strategies. On the other hand, the participants who were self-confident and not concerned about errors, outcomes, results or performance, were less likely to use language learning strategies.

Although there are some similarities between these results and those of Oxford and Ehrman (1995), it is difficult to find other studies which indicate similar overall results. The major similarities between these results and those of Oxford and Ehrman (1995) were that in both groups the strategy users were intrinsically motivated to learn the L2 and were desirous of using it out of the classroom. In addition, among both groups, strategy users had positive self-beliefs about their language learning. However, the adult strategy users reported being self-confident, whereas this study indicated the more self-confident adolescents were likely not to use strategies. This may be due to the age differences, or a more complex interaction of IDs may be at
play. As already noted, directly comparable results in other studies are difficult to find.

These results point to the importance of positive motivational factors in FL learning. All four motivational factors from the Affective Survey showed the greatest correlation with LLS in this study.

4.7 Learning Style Questionnaire Results

Reid’s (1987) Learning Style Questionnaire (LSQ) determined the extent to which the learners favoured a particular style of learning. The six variables emerging from it included whether or not students were visual learners, auditory learners, kinesthetic learners, tactile learners, group learners or individual learners.

Participants in this study were asked to use a Likert’s scale response (strongly agree = 5, to strongly disagree = 1) to indicate their learning style preferences. Results are summarised in Table 30.

Table 30

Results of Learning Style preference from the LSQ (Reid, 1987)

<table>
<thead>
<tr>
<th>Learning Style</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group learner</td>
<td>3.59</td>
<td>0.88</td>
</tr>
<tr>
<td>Kinesthetic learner</td>
<td>3.35</td>
<td>0.67</td>
</tr>
<tr>
<td>Visual learner</td>
<td>3.26</td>
<td>0.85</td>
</tr>
<tr>
<td>Auditory learner</td>
<td>3.25</td>
<td>0.75</td>
</tr>
<tr>
<td>Tactile learner</td>
<td>3.12</td>
<td>0.84</td>
</tr>
<tr>
<td>Individual learner</td>
<td>2.65</td>
<td>1.00</td>
</tr>
</tbody>
</table>

The highest mean score on the LSQ occurred for ‘group learner’ (3.59), but the relatively high standard deviation (0.88) indicated a range of responses amongst
the participants. On the other hand, the category ‘kinesthetic learner’ (3.35) was the second most favoured learning style on average, and this result had the lowest SD (0.67), indicating more consistent responses for this learning style amongst the participants. It is interesting to note that both the lowest mean result (2.65) and the greatest SD (1.00) occurred for ‘individual learner’, indicating the broadest range for the greatest number of participants in this category, some considering themselves highly individual learners and others not individual at all.

These results can be compared with three other studies. Reid herself developed the LSQ and tested it on intermediate and advanced university students of ESL, resulting in kinesthetic and tactile styles reported as most favoured, and group learning as least favoured (Reid, 1987). Rossi-Le (1996) also found adult migrants of ESL favoured kinesthetic and tactile learning, but they also liked group learning, with Chinese, Vietnamese, older students and higher proficiency students favouring visual learning. The favouring of kinesthetic learning in these two studies and the current study are comparable, and not dissimilar from the study by Oxford et al. (1993) who tested for visual, auditory and haptic (tactile/kinesthetic) style in adolescents from grades 7 to 12, and showed that few students’ styles were auditory or haptic and most were either combination or visual in style. Preference for visual learning in both the current study and the study by Oxford et al. (1993) are also similar. However, further similarities are limited, as Reid’s adults disfavoured group learning, Rossi-Le’s adults favoured group learning, the current group of adolescents favoured group learning, but unfortunately the adolescents of Oxford et al. (1993) were not tested for this learning style.
4.8 Learning Style Profile Results

The Learning Style Profile (LSP) (Keefe & Monk, 1986) was also used to determine the extent to which the learners favoured certain learning styles. It consisted of 23 variables, including certain favoured cognitive skills, responses and physical preferences, as listed below:

Skills
- analytic skills
- spatial skills
- discrimination skills
- categorisation skills
- sequential processing skills
- memory skills

Responses/Orientations
- visual response
- auditory response
- emotive response
- persistence orientation
- verbal risk orientation

Preferences
- manipulative preference
- early morning study preference
- late morning study preference
- afternoon study preference
- evening study preference
- verbal-spatial preference
- grouping preference
- posture preference
- mobility preference
- sound preference
- lighting preference
- temperature preference

The individual responses of the participants were scored according to the key provided by Keefe and Monk (1986). Scoring methods varied according to the
categories of learning style (skills, responses, orientations or preferences). These scores were used to determine the learning styles favoured by the participants, and also to calculate a ‘consistency score’.

A ‘consistency score’ was calculated for each participant in order to determine whether answers were authentic and consistent or contrived and/or random. According to Keefe and Monk, the consistency score is “an estimate of how consistently the student answered the preferential questions of the Profile ... [and] ... may also indicate what level of attention or responsibility the student brought to the task” (Keefe & Monk, 1986, p.15). To determine the differences in response for each participant, raw scores for five pairs of similar items were subtracted (e.g. #62. The best time for me to think is in the evening. and #77. I get more work done in the evening than I do all day.) Values for the pairs were then added, giving a possible range in consistency scores from zero to twenty. Those between 1 and 7 are considered ‘good’, those from 8 to 14 are considered ‘more questionable but acceptable’ and scores higher than 14 indicating deliberate random selection.

Consistency scores were calculated according to the instructions given and the results indicated no cause for concern. For 32 of the participants consistency scores were in the ‘good’ range (1-7). Of the remaining five, four participants’ scores were ‘more questionable but acceptable’ (8-14), and one score was zero. To determine the consistency of the responses of these five participants, the answer paper scoring zero was checked for ‘straight line’ answers, and the four questionable papers were also checked. The participant whose consistency score was zero, more frequently chose responses 1 or 5, indicating stronger opinions than most participants, which was a legitimate response. The other four papers appeared to be completed without any specific pattern of contrivance nor deliberate randomness.
4.8.1 Within-group comparisons.

The results of the LSP for this group of participants were then calculated, including the means and standard deviations. Results are summarised in Table 31.

Table 31

Frequency of Style Factors

<table>
<thead>
<tr>
<th>LSP Learning Style Variables</th>
<th>Range</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analytic</td>
<td>0-5</td>
<td>1.57</td>
<td>1.21</td>
</tr>
<tr>
<td>Spatial</td>
<td>0-5</td>
<td>2.54</td>
<td>1.68</td>
</tr>
<tr>
<td>Discrimination</td>
<td>0-5</td>
<td>2.57</td>
<td>1.26</td>
</tr>
<tr>
<td>Categorisation</td>
<td>0-24</td>
<td>11.68</td>
<td>4.28</td>
</tr>
<tr>
<td>Sequential Processing</td>
<td>0-6</td>
<td>4.65</td>
<td>2.04</td>
</tr>
<tr>
<td>Memory</td>
<td>0-12</td>
<td>5.41</td>
<td>2.85</td>
</tr>
<tr>
<td>Perceptual Responses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>0-20</td>
<td>8.41</td>
<td>3.63</td>
</tr>
<tr>
<td>Auditory</td>
<td>0-20</td>
<td>5.22</td>
<td>3.02</td>
</tr>
<tr>
<td>Emotive</td>
<td>0-20</td>
<td>6.38</td>
<td>2.49</td>
</tr>
<tr>
<td>Orientations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persistence</td>
<td>4-20</td>
<td>12.73</td>
<td>3.18</td>
</tr>
<tr>
<td>Verbal Risk</td>
<td>4-20</td>
<td>13.08</td>
<td>2.97</td>
</tr>
<tr>
<td>Preferences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manipulative</td>
<td>4-20</td>
<td>12.89</td>
<td>3.26</td>
</tr>
<tr>
<td>Early Morning Study</td>
<td>2-10</td>
<td>6.57</td>
<td>1.82</td>
</tr>
<tr>
<td>Late Morning Study</td>
<td>2-10</td>
<td>6.51</td>
<td>1.64</td>
</tr>
<tr>
<td>Afternoon Study</td>
<td>3-15</td>
<td>8.78</td>
<td>2.16</td>
</tr>
<tr>
<td>Evening Study</td>
<td>3-15</td>
<td>8.81</td>
<td>2.44</td>
</tr>
<tr>
<td>Verbal-Spatial</td>
<td>0-6</td>
<td>3.35</td>
<td>1.14</td>
</tr>
<tr>
<td>Grouping</td>
<td>5-25</td>
<td>14.30</td>
<td>2.48</td>
</tr>
<tr>
<td>Posture</td>
<td>4-20</td>
<td>11.78</td>
<td>2.69</td>
</tr>
<tr>
<td>Mobility</td>
<td>4-20</td>
<td>12.92</td>
<td>2.38</td>
</tr>
<tr>
<td>Sound</td>
<td>4-20</td>
<td>11.38</td>
<td>3.69</td>
</tr>
<tr>
<td>Lighting</td>
<td>5-25</td>
<td>14.41</td>
<td>3.55</td>
</tr>
<tr>
<td>Temperature</td>
<td>4-20</td>
<td>10.73</td>
<td>2.61</td>
</tr>
</tbody>
</table>

Note. Range = minimum and maximum possible scores
The LSP variables most favoured by this group of participants included ‘sequential processing’ skills, ‘verbal risk’, ‘verbal’ activities and ‘mobility’. Those least favoured were the three perceptual responses ‘auditory’, ‘emotive’ and ‘visual’ as well as cool temperature study environments and large group study. Three of the preferred variables (‘sequential processing’ skills, ‘verbal risk’, ‘verbal’ activities) point to verbalisation as being of considerable importance in the learning style of these participants. All three style factors involve preference for verbal activities and processes; ‘sequential processing skills’ indicating participants best understood information which was presented sequentially and/or verbally and that they processed information sequentially and verbally themselves.

A closer analysis of the results follows. Each category of learning style variables will be considered, beginning with Cognitive Skills, then Perceptual Responses, followed by Orientations and finally by Preferences.

Among the six Cognitive Skills tested there was a very high mean score for one variable and low mean scores for two other variables. The participants strongly favoured ‘sequential processing’ skills (mean 4.65, SD 2.04, range 0-6), although the standard deviation here was also relatively high, indicating a spread of scores among the participants. By contrast, the mean score for ‘analytic’ skills was very low (mean 1.57, SD 1.21, range 0-5) indicating the participants were less likely to favour using “the critical element of a problem in a different way” (Keefe & Monk, 1986. p. 9). Participants were also not strongly inclined to use ‘memory’ skills (mean 5.41, SD 2.85, range 0-12). Of the remaining three variables, the mean for ‘spatial’ skills (mentally picturing objects in space) was not notably high or low (mean 2.54, SD 1.68, range 0-5) but the standard deviation was relatively high, indicating some participants strongly favoured this skill strongly whilst others did not favour it at all.
The other two results in this category were for ‘discrimination’ skills (mean 2.57, SD 1.26, range 0-5) and ‘categorisation’ skills (mean 11.68, SD 4.28, range 0-24), with the participants slightly more inclined to use the former over the latter.

The Perceptual Responses for these participants were amongst the lowest of all style results. The ‘auditory’ response mean result was by far the lowest of all the 23 variables tested (mean 5.22, SD 3.02, range 0-20), indicating that most of the participants were not inclined to react to stimuli by ‘hearing’ something in their mind. ‘Emotive’ or psychological responses were also not common amongst these participants (mean 6.38, SD 2.49, range 0-20). Although the ‘visual’ response to informational input was the most common of the three Perceptual Responses, it too was a style factor relatively unfavoured by these participants (mean 8.41, SD 3.63, range 0-20). Even though these three factors resulted in very low overall choice amongst the participants in this study, the results did not differ significantly from the standardised data presented by Keefe and Monk (1986) (see Table 32).

The style Orientations ‘verbal risk’ and ‘persistence’ were relatively popular amongst the participants tested. In fact, ‘verbal risk’ was one of the most highly favoured of the 23 style factors measured (mean 13.08, SD 2.97, range 4-20), its relatively high mean and low SD indicating the strength of the result. This suggests that the participants were willing to speak out and express their opinions during the learning process. In addition, the participants’ “willingness to work at a task until completion” (Keefe & Monk, 1986. p. 9) or ‘persistence’ (mean 12.73, SD 3.18, range 4-20) was amongst the top third of favoured learning styles amongst the group. Despite the apparent strength of these results, neither factor differed significantly from the standardised population data (see Table 32).
Of the twelve remaining learning style variables, or Preferences, the strongest result was seen for ‘temperature’ (mean 10.73, SD 2.61, range 4-20) indicating that most participants preferred warmer learning environments. The result for ‘verbal-spatial’ (mean 3.35, SD 1.14, range 0-6) indicated that the majority of participants favoured verbal activities over non-verbal ones. Other results indicated that participants preferred morning study over afternoon/evening study (‘early morning study’ mean 6.57, SD 1.82; ‘late morning study’ mean 6.51, SD 1.64, range 2-10) and small group over whole class learning activities (‘grouping’ mean 14.30, SD 2.48, range 5-25). The group also favoured ‘mobility’ (mean 12.92, SD 2.38, range 4-20) meaning that they liked moving about and taking breaks from study; they also enjoyed “hands-on” activities (‘manipulative’ mean 12.89, SD 3.26, range 4-20) and ‘sound’ preference results indicated they favoured background noise over silent study environments (mean 11.38, SD 3.69, range 4-20).

4.8.2 Comparisons with standardised data.

Although these within-group comparisons are interesting, comparison with the results of Keefe and Monk’s standardised data for the LSP are even more revealing. Their normative sample consisted of “a national random sample of 5,154 students representing all grades from 6 through 12” (Keefe & Monk, 1986, p. 20) in the USA. The comparison of results from this study with the standardised data was done using t-tests. Results are shown in Table 32.
Table 32

Comparative Frequencies of Preferred Learning Style (from LSP)

<table>
<thead>
<tr>
<th>Learning Style Variables</th>
<th>Range</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>t-scores</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive Skills</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analytic</td>
<td>0-5</td>
<td>2.50</td>
<td>1.46</td>
<td>1.57</td>
<td>1.21</td>
<td>-4.671**</td>
</tr>
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<td>Spatial</td>
<td>0-5</td>
<td>2.45</td>
<td>1.51</td>
<td>2.54</td>
<td>1.68</td>
<td>.328</td>
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<tr>
<td>Discrimination</td>
<td>0-5</td>
<td>3.20</td>
<td>1.35</td>
<td>2.57</td>
<td>1.26</td>
<td>-3.055**</td>
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<td>-1.076</td>
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<td>8.41</td>
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<td>6.38</td>
<td>2.49</td>
<td>-.713</td>
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<td><strong>Orientations</strong></td>
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</tr>
<tr>
<td>Persistence</td>
<td>4-20</td>
<td>13.67</td>
<td>2.87</td>
<td>12.73</td>
<td>3.18</td>
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<td>Verbal Risk</td>
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<td>13.08</td>
<td>2.97</td>
<td>1.499</td>
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<td><strong>Preferences</strong></td>
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<td></td>
</tr>
<tr>
<td>Manipulative</td>
<td>4-20</td>
<td>12.88</td>
<td>3.21</td>
<td>12.89</td>
<td>3.26</td>
<td>.022</td>
</tr>
<tr>
<td>Early Morning Study</td>
<td>2-10</td>
<td>5.77</td>
<td>1.76</td>
<td>6.57</td>
<td>1.82</td>
<td>2.667*</td>
</tr>
<tr>
<td>Late Morning Study</td>
<td>2-10</td>
<td>5.87</td>
<td>1.89</td>
<td>6.51</td>
<td>1.64</td>
<td>2.382*</td>
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<tr>
<td>Afternoon Study</td>
<td>3-15</td>
<td>9.97</td>
<td>2.21</td>
<td>8.78</td>
<td>2.16</td>
<td>-3.337**</td>
</tr>
<tr>
<td>Evening Study</td>
<td>3-15</td>
<td>9.14</td>
<td>2.64</td>
<td>8.81</td>
<td>2.44</td>
<td>-.822</td>
</tr>
<tr>
<td>Verbal-Spatial</td>
<td>0-6</td>
<td>3.74</td>
<td>1.92</td>
<td>3.35</td>
<td>1.14</td>
<td>-2.082*</td>
</tr>
<tr>
<td>Grouping</td>
<td>5-25</td>
<td>17.83</td>
<td>3.42</td>
<td>14.30</td>
<td>2.48</td>
<td>-8.659**</td>
</tr>
<tr>
<td>Posture</td>
<td>4-20</td>
<td>11.91</td>
<td>2.97</td>
<td>11.78</td>
<td>2.69</td>
<td>-.286</td>
</tr>
<tr>
<td>Mobility</td>
<td>4-20</td>
<td>13.47</td>
<td>3.18</td>
<td>12.92</td>
<td>2.38</td>
<td>-1.406</td>
</tr>
<tr>
<td>Sound</td>
<td>4-20</td>
<td>11.89</td>
<td>3.61</td>
<td>11.38</td>
<td>3.69</td>
<td>-.843</td>
</tr>
<tr>
<td>Lighting</td>
<td>5-25</td>
<td>14.85</td>
<td>4.09</td>
<td>14.41</td>
<td>3.55</td>
<td>-.762</td>
</tr>
<tr>
<td>Temperature</td>
<td>4-20</td>
<td>11.73</td>
<td>3.37</td>
<td>10.73</td>
<td>2.61</td>
<td>-2.331*</td>
</tr>
</tbody>
</table>

Note. Learning style variables based on LSP (Keefe & Monk, 1986)
Range = minimum and maximum possible scores
Standardised data from Keefe & Monk, 1986
df = 36
* t-score exceeds t critical, p<0.05, 2-tailed
** t-score exceeds t critical, p<0.01, 2-tailed
Comparisons of means between the participant group results and the standardised data (Keefe & Monk, 1986) indicated that for only two of the 23 variables the participant group favoured certain learning styles significantly more than those in Keefe and Monk’s study whilst they favoured six variables significantly less than the larger population. There was greater preference for ‘early morning study’ and ‘late morning study’ than for the larger population. On the other hand, there was less preference for ‘afternoon study’, for group activity, for use of ‘analytic’ skills, for use of ‘discrimination’ skills, for cool temperatures when studying, and less preference for verbal over spatial activities than was indicated by the participants in the larger study. Details of these differences are presented below.

Comparisons with the standardised data show there was a greater preference by this group to study in the early morning \( (t = 2.667, df = 36, p < 0.05) \), and in the late morning \( (t = 2.382, df = 36, p < 0.05) \). The corollary was that the group in this research was less inclined than the larger population to study in the afternoon \( (t = -3.337, df = 36, p < 0.01) \).

All other comparisons between this study and the standardised data were negative. The greatest difference in means occurred for ‘grouping’ \( (t = -8.659, df = 36, p < 0.01) \), indicating that the participants in this study favoured large group learning significantly less and smaller group or dyadic learning significantly more than those in the earlier study. Comparison of ‘analytic skills’ \( (t = -4.671, df = 36, p < 0.01) \), showed that these participants were less inclined than the larger population to analyse problems when attempting to solve them, or as Keefe and Monk put it, less inclined “to use the critical element of a problem in a different way” (Keefe & Monk, 1986, p. 5). The result for ‘discrimination’ \( (t = -3.055, df = 36, p < 0.05) \) meant that compared to the standardised results these participants were significantly less inclined
to “visualize the important elements of a task; [or] to focus attention on required detail and avoid distractions” (Keefe & Monk, 1986, p. 5). In addition, participants in this study did not favour cooler study conditions ($t = -2.331, df = 36, p < 0.05$) as much as the participants in Keefe and Monk’s study, and although they preferred verbal activities over spatial activities, the larger group preferred verbal activities even more ($t = -2.082, df = 36, p < 0.05$).

4.9 **Comparisons Between the LSQ and the LSP**

The LSQ tested only six learning style variables, four of which were comparable with variables in the LSP test. These included ‘kinesthetic’ learning (LSQ) comparable with ‘mobility’ preference (LSP); ‘tactile’ learning (LSQ) comparable with ‘manipulative’ preference (LSP); ‘group’ and ‘individual’ learners (LSQ) comparable with ‘grouping’ preference (LSP). Although ‘auditory’ factors and ‘visual’ factors featured in both the LSQ and the LSP tests, the type of testing used in one was different from the other, and thus comparisons were not possible. This is because the LSQ tested for learners who preferred visual and auditory input, whereas the LSP tested learners’ visual response and auditory response to any learning input.

The three comparisons which could be made between the LSQ and the LSP results showed that all results were consistent. First, the LSQ results indicated that kinesthetic learning was the most strongly favoured by the participants, and the LSP results showed that the participants also favoured ‘mobility’. Second, group learning (i.e., small group learning) as tested in the LSQ was the next most favored learning style factor; and in the same vein the LSQ results indicated that the participants did not favour individual learning. These results were supported by the LSP result which demonstrated participants’ non-preference for large group study; moreover,
comparisons showed that the participants favoured large group learning significantly less than indicated in the standardised data, which further supports the result. Third, participants’ preference for tactile learning (LSQ) and ‘manipulative preference’ (LSP) were comparable. Initially the preference for tactile learning (LSQ) seemed comparatively low as it was fifth of six preferred styles, but closer scrutiny detected little difference between this variable and the four which were more favoured (see comparison of means in Table 33), indicating that this style was also favoured by the participants.

Table 33

Comparison of Means of the LSQ (Reid, 1987)

<table>
<thead>
<tr>
<th>Learning Style</th>
<th>Mean</th>
<th>Mean difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group learner</td>
<td>3.59</td>
<td></td>
</tr>
<tr>
<td>Kinesthetic learner</td>
<td>3.35</td>
<td>-0.24</td>
</tr>
<tr>
<td>Visual learner</td>
<td>3.26</td>
<td>-0.09</td>
</tr>
<tr>
<td>Auditory learner</td>
<td>3.25</td>
<td>-0.01</td>
</tr>
<tr>
<td>Tactile learner</td>
<td>3.12</td>
<td>-0.13</td>
</tr>
<tr>
<td>Individual learner</td>
<td>2.65</td>
<td>-0.47</td>
</tr>
</tbody>
</table>

Overall, comparison of these two style instruments yielded three outcomes. Firstly, there was a consistent preference among participants to move about as they learned. Secondly, rather than working in large groups such as in a whole class situation, there was a significant preference by the participants to work in small groups. Thirdly, these participants liked to use their hands when learning. The similarity of the findings from the two instruments strengthens the authenticity of the learning styles results for this group of participants.
In summary, the results from the learning style tests showed the following. The participants were 14 year old learners, mostly boys, whose learning style indicated that they were physically active, talkative and outspoken, and favoured verbal presentation and processing as well as sequential presentation and processing of ideas in the mornings. They disliked working in large groups, in cool conditions or in the afternoons. They did not visualise ideas, hear ideas or react emotionally to ideas when learning. They were disinclined to remember things, or to focus attention, and they were easily distracted. They did not favour analysing problems, but they persisted at tasks.

Of these characteristics, those which differed from Keefe and Monk’s (1986) larger population of Year 9 students included their degree of talkativeness, temperature preference, learning time preference, group learning, and level of distraction. These participants were less talkative than the population in the standardised data, preferred warm temperatures and small groups, and were highly distracted. In addition, they were more inclined than Keefe and Monk’s larger population to morning study and less inclined to afternoon study, and less inclined to analysis or to focus on important details (see section 4.8.2).

4.10 Strategy Use and Learning Style Questionnaire

The relationship between strategy use and learning style (LSQ) was also considered. There were significant correlations between strategy use and four of the six learning styles, including ‘kinesthetic learners’, ‘individual learners’, ‘auditory learners’, and ‘tactile learners’. ‘Visual learners’ and ‘group learners’, however, showed no significant correlations with strategy use. These results are shown in Table 34.
Table 34

**Correlations of Learning Style (from the LSQ) to Strategy Use**

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Visual Learner</th>
<th>Auditory Learner</th>
<th>Kinesthetic Learner</th>
<th>Tactile Learner</th>
<th>Group Learner</th>
<th>Individual Learner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory (SILL Part A)</td>
<td>.117</td>
<td>.404*</td>
<td>.482**</td>
<td>.336*</td>
<td>-.132</td>
<td>.426**</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>.133</td>
<td>.438**</td>
<td>.509**</td>
<td>.382*</td>
<td>-.187</td>
<td>.455**</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>-.063</td>
<td>.198</td>
<td>.554**</td>
<td>.602**</td>
<td>-.119</td>
<td>.329*</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>.279</td>
<td>.519**</td>
<td>.508**</td>
<td>.220</td>
<td>-.181</td>
<td>.434**</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>.062</td>
<td>.411*</td>
<td>.441**</td>
<td>.200</td>
<td>-.280</td>
<td>.449**</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>.243</td>
<td>.430**</td>
<td>.588**</td>
<td>.318</td>
<td>-.080</td>
<td>.402*</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>.098</td>
<td>.508**</td>
<td>.622**</td>
<td>.313</td>
<td>-.179</td>
<td>.326*</td>
</tr>
<tr>
<td>Elaboration</td>
<td>.194</td>
<td>.391*</td>
<td>.456**</td>
<td>.307</td>
<td>-.148</td>
<td>.445**</td>
</tr>
<tr>
<td>Inferencing</td>
<td>.011</td>
<td>.160</td>
<td>.417*</td>
<td>.437**</td>
<td>-.243</td>
<td>.424**</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>.194</td>
<td>.470**</td>
<td>.542**</td>
<td>.240</td>
<td>-.033</td>
<td>.268</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

Of the participants in this study, those most likely to use strategies were also those who favoured the more physical ‘kinesthetic learning’. This learning style correlated significantly with all ten strategies tested, nine at the 0.01 level and one at the 0.05 level. The greatest significance was seen for the strategy ‘selective attention’ (.622), followed by ‘social’ learning strategies (.588) and ‘compensatory’ strategies (.554).

Those who favoured working individually also reported significant use of strategies. ‘Individual’ learning style correlated with nine of the ten strategies tested,
six at 0.01 level and three at 0.05 level. The most significant correlations were with ‘cognitive’ strategy use (.455), ‘affective’ strategy use (.449) and ‘elaboration’ (.445).

The participants who favoured learning through listening used strategies, too, with ‘auditory’ learning style correlating with eight of the ten strategies tested. Five of the correlations were at the 0.01 level and the remaining three at the 0.05 level. The highest correlations between ‘auditory’ learning style and learning strategies were with ‘meta-cognitive strategies’ (.519), followed by ‘selective attention’ (.508) and ‘self-monitoring’ (.470).

Those participants who were ‘tactile learners’ also used strategies, but to a lesser degree. For them there was significant use of four strategies, two at the 0.01 level and two at the 0.05 level. ‘Tactile learning’ correlated with ‘compensatory’ strategies (.602, p<0.01), with ‘inferencing’ (.437, p<0.01), and less strongly with ‘cognitive’ strategies (.382, p<0.05) and with ‘memory’ strategies (.336, p<0.05). ‘Group learning’ and ‘kinesthetic learning’ were the two most favoured learning styles amongst the participants, yet the correlation results with strategy use show considerable difference, highlighting the diversity of strategy use amongst the group tested. The most favoured learning style ‘group learning’ showed no significant correlations at all; moreover, all the correlations between these variables were negative, indicating that participants who liked learning in groups were likely not to use strategies. On the other hand, there were strong positive correlations between the next most favoured learning style, ‘kinesthetic learning’, and all types of strategies.

There were positive and significant correlations between individual learning style and strategy use, which accords with the negative and non-significant correlations between group learning style and strategy use. In other words, the
relatively few participants who reported being individual learners were also more likely to use learning strategies, whilst the larger numbers of group learners were not strategy users.

Few other studies of SL learners tested strategy use and sensory preference styles. Oxford et al. (1993) found no significant correlations between the two IDs amongst adults. Rossi-Le (1995), who also studied adult language learners, indicated that a relationship between learning style preferences and learning strategy preferences existed, but she did not report details of any correlations between the two IDs. The disparity between the current study and these earlier studies indicates that differences in age or other background factors may have impacted on the correlations.

4.11 Strategy Use and Learning Style Profile

Of the 23 variables included in the LSP only 5 correlated with learning strategy use, indicating that for this group of participants, there was little relationship between their use of strategies and the learning style variables tested by the LSP. Of these style variables, ‘sequential processing’ correlated with seven and ‘categorisation’ with six strategies, whilst the other three (‘auditory response’, ‘manipulative preference’, and ‘evening study preference’) correlated with only one strategy each. Results are shown in Table 35.
Table 35

Correlations of Learning Style Variables (from the LSP) to Strategy Use

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Learning Style Variables (LSP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Analytic Skill</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Memory (SILL Part A)</td>
<td>-.159</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>-.004</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>.114</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>.028</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>.018</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>.136</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>.042</td>
</tr>
<tr>
<td>Elaboration</td>
<td>-.015</td>
</tr>
<tr>
<td>Inferencing</td>
<td>.299</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>.067</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
‘Sequential processing’ correlated with the greatest number of learning strategies (7 of 10). This means that participants who preferred to “process information sequentially and verbally; to readily derive meaning from information presented sequentially or verbally” (Keefe & Monk, 1986, p.5) were more likely to use learning strategies than others. Moreover, the degree of correlation of ‘sequential processing’ was greater than for correlations with the other style variables. It correlated at the 0.01 alpha level with ‘inferencing’ (.502) and with ‘social learning strategies’ (.451). Correlation with the other five strategy variables was at the 0.05 level: ‘compensatory’ (.411), ‘selective attention’ (.392), ‘meta-cognitive’ (.366), ‘cognitive’ (.365) and ‘elaboration’ (.328).

This result implies that sequential processors are strategy users. As this seems to contradict the earlier finding that the participants were not strategy users (see section 4.2 Participant Strategy Use), it is more likely that, although the participants were not strong strategy users, those who did use strategies also favoured sequential processing as an aspect of their learning style. Further, this result indicates that the strength of results from ID measures for a small group of participants such as this should not be overestimated, especially when correlations between IDs are made.

‘Categorisation’ correlated negatively with six learning strategies. In fact, when the relationship between strategy use and ‘categorisation’ was tested, all the results were negative. This indicated that those participants who preferred to “use reasonable vs. vague criteria for classifying information; to form accurate, complete, and organized categories of information” (Keefe & Monk, 1986, p.5) were those unlikely to use strategies in learning. The strongest correlation was between ‘categorisation’ and ‘inferencing’ (-.483, p<0.01). The remaining five significant correlations were at the 0.05 level, including ‘categorisation’ with ‘elaboration’
The results for these two style preferences, which showed the greatest correlation with strategy use, contrast in an interesting way. Both ‘categorisation’ and ‘sequencing’ can be defined as means of processing information in a logical fashion. However, participants favouring ‘sequential processing’ registered a significant use of learning strategies, whilst participants who favoured ‘categorisation’ of information indicated a significant non-use of learning strategies. The explanation for this may be seen in the definition of ‘sequential processing’ which, according to Keefe and Monk (1986, p.5), means to “process information sequentially and verbally; to readily derive meaning from information presented sequentially or verbally”. It may be that these participants’ preference for ‘sequential processing’ was focused more on the verbal aspect than on the sequential aspect of the variable; this means that the participants who processed verbally and derived meaning verbally were likely to use strategies.

Only three other learning style variables tested by the LSP showed a correlation with strategy use. All were at the 0.05 level. A negative correlation was indicated between ‘auditory response’ and ‘compensatory strategies’ (-.358). This result indicates that participants in this study whose response to stimulus was often through sound were not likely to use compensatory learning strategies. ‘Evening study preference’ correlated significantly with ‘affective strategies’ (.362), indicating statistically that those who used strategies to manage emotions preferred studying in the evening. Finally, ‘manipulative skills’ correlated significantly with ‘social strategies’ (.350), meaning those who liked ‘hands-on’ activities also liked learning with others.
One other study of strategy use and learning style preferences (Oxford & Ehrman, 1995) showed no similar correlations to these. For example, Oxford and Ehrman reported that several SILL factors (mean, meta-cognitive, social, cognitive, affective and memory) correlated moderately with ‘persistence’ on the LSP, while further positive correlations included affective strategy use with willingness to take verbal risks, as well as cognitive, meta-cognitive, and social strategies with afternoon and evening study time. They also reported a negative correlation between early morning study time and strategy use. However, none of these correlations resembles those in the current study, perhaps reflecting other differences between the groups of participants, such as age or background.

4.12 Modern Language Aptitude Test Results

The MLAT (Carroll & Sapon, 1959) was developed to test participants’ ability to learn a foreign language. It is divided into five parts: number learning, phonetic script, spelling clues, words in sentences and paired associates. Parts 1 and 2 involve participants listening to sounds from an audio tape. Parts 3-5 make up what is called the ‘Short Form’ of the test and require participants to read words and sentences in a booklet. The test gives a specific time limit for each part of the Short Form, but participants are not informed of this. They are merely told when to stop working on Part 3 and move on to Part 4, similarly from Part 4 to Part 5, and finally to stop working on Part 5. Consequently, in this study the faster workers completed more of the Short Form of the test than did others.

For each part (i.e., Parts 1-5) answers were either right or wrong; separate totals were calculated, and an overall sum determined. Results from this part of the study are given in Table 36.
Table 36

*Results of the MLAT*

<table>
<thead>
<tr>
<th>Part</th>
<th>Lowest score</th>
<th>Highest score</th>
<th>Maximum score possible</th>
<th>Average score</th>
<th>Percentage correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1 number learning</td>
<td>9</td>
<td>42</td>
<td>43</td>
<td>29.51</td>
<td>68.60%</td>
</tr>
<tr>
<td>Part 2 phonetic script</td>
<td>3</td>
<td>28</td>
<td>30</td>
<td>19.95</td>
<td>66.50%</td>
</tr>
<tr>
<td>Part 3 spelling clues</td>
<td>0</td>
<td>36</td>
<td>50</td>
<td>10.19</td>
<td>20.38%</td>
</tr>
<tr>
<td>Part 4 words in sentences</td>
<td>2</td>
<td>18</td>
<td>45</td>
<td>10.62</td>
<td>23.60%</td>
</tr>
<tr>
<td>Part 5 paired associates</td>
<td>1</td>
<td>22</td>
<td>24</td>
<td>9.41</td>
<td>39.21%</td>
</tr>
<tr>
<td>MLAT Short Form Parts 3-5</td>
<td>7</td>
<td>71</td>
<td>119</td>
<td>30.22</td>
<td>25.39%</td>
</tr>
<tr>
<td>Full MLAT</td>
<td>41</td>
<td>134</td>
<td>192</td>
<td>79.68</td>
<td>41.50%</td>
</tr>
</tbody>
</table>

Results show a range in overall aptitude amongst the participants. Participants in this study showed stronger ability in Part 1 of the test, number learning, scoring on average 68.6% correct, which means they had strengths in memory, as well as in “auditory alertness” (Carroll & Sapon, 1959, p. 3). This was closely followed by Part 2, phonetic script (66.5% correct), indicating an ability to associate speech sounds with written symbols. In Part 5, paired associates, which indicated participants’ ability to rote learn, the score was 39.21% correct. Participants scored on average 23.6% for Part 4, words in sentences, a measure of their ability to associate grammatical form with language. The lowest score was 20.38% for Part 3, spelling clues, a highly speeded measure of both English vocabulary and sound-symbol association (similar to Part 2, phonetic script).
Besides considering these raw scores, the participants’ test papers were checked for completion. Table 37 shows these results.

Table 37

Percentage Completion of the MLAT

<table>
<thead>
<tr>
<th>Part</th>
<th>Average completion rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1</td>
<td>15 questions</td>
</tr>
<tr>
<td></td>
<td>95.50%</td>
</tr>
<tr>
<td>Part 2</td>
<td>15 questions</td>
</tr>
<tr>
<td></td>
<td>100.00%</td>
</tr>
<tr>
<td>Part 3</td>
<td>50 questions</td>
</tr>
<tr>
<td></td>
<td>49.78%</td>
</tr>
<tr>
<td>Part 4</td>
<td>45 questions</td>
</tr>
<tr>
<td></td>
<td>86.85%</td>
</tr>
<tr>
<td>Part 5</td>
<td>24 questions</td>
</tr>
<tr>
<td></td>
<td>84.57%</td>
</tr>
</tbody>
</table>

Mean results in this study were compared with Grade 9 standardised data, presented by Carroll and Sapon (1959). Carroll and Sapon presented standardised data only for the entire MLAT test results and for results in the Short Form of the test (i.e., Parts 3-5 only), but not for each separate part of the test. Thus comparison of standard means with mean results in this study was possible only for those particular sections. T-tests were used for the comparisons. The results of the comparison can be seen in Table 38.
Table 38

**Comparisons of Language Learning Ability (from MLAT)**

<table>
<thead>
<tr>
<th>MLAT Variables</th>
<th>Range</th>
<th>Mean</th>
<th>SD</th>
<th>This Study</th>
<th>Mean</th>
<th>SD</th>
<th>t-scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Standardised Data:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grade 9 Students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total MLAT</td>
<td>0-192</td>
<td>88.47</td>
<td>22.51</td>
<td></td>
<td>79.68</td>
<td>22.51</td>
<td>2.375**</td>
</tr>
<tr>
<td>MLAT Parts 3-5</td>
<td>0-119</td>
<td>42.47</td>
<td>14.07</td>
<td></td>
<td>30.22</td>
<td>13.74</td>
<td>5.423</td>
</tr>
<tr>
<td>Part 1 number learning</td>
<td>0-43</td>
<td>29.51</td>
<td>8.62</td>
<td></td>
<td>29.51</td>
<td>8.62</td>
<td></td>
</tr>
<tr>
<td>Part 2 phonetic script</td>
<td>0-30</td>
<td>19.95</td>
<td>4.54</td>
<td></td>
<td>19.95</td>
<td>4.54</td>
<td></td>
</tr>
<tr>
<td>Part 3 spelling clues</td>
<td>0-50</td>
<td>10.19</td>
<td>8.73</td>
<td></td>
<td>10.19</td>
<td>8.73</td>
<td></td>
</tr>
<tr>
<td>Part 4 words in sentences</td>
<td>0-45</td>
<td>10.62</td>
<td>4.23</td>
<td></td>
<td>10.62</td>
<td>4.23</td>
<td></td>
</tr>
<tr>
<td>Part 5 paired associates</td>
<td>0-24</td>
<td>9.42</td>
<td>5.45</td>
<td></td>
<td>9.42</td>
<td>5.45</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Variables based on MLAT (Carroll & Sapon, 1959)
Range = minimum and maximum possible scores
Standardised data from Carroll & Sapon, 1959
*df* = 36
* t-score exceeds *t* critical, *p*<0.05, 2-tailed
** t-score exceeds *t* critical, *p*<0.01, 2-tailed

The comparison showed there was no significant difference in the scores at the .05 alpha level for either the overall test or for Parts 3-5 of the MLAT. However, a significant difference was indicated for the overall test at the .01 alpha level, indicating this corpus of students’ overall language learning aptitude may have been lower than the standardised group. However, the Year 9 participants in this study closely reflected the standardised group of grade 9 students in their language aptitude for the Short Form of the test.

4.13 **Strategy Use and MLAT**

The relationship between strategy use and language aptitude was then considered. Little correlation was indicated, with only one part of the MLAT showing any correlation with reported strategy use. Results can be seen in Table 39.
Table 39

Correlations of Aptitude (from the MLAT) with Strategy Use

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Aptitude Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Learning</td>
</tr>
<tr>
<td>Memory (SILL Part A)</td>
<td>0.105</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>0.106</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>-0.051</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>0.152</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>0.084</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>0.300</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>0.101</td>
</tr>
<tr>
<td>Elaboration</td>
<td>0.197</td>
</tr>
<tr>
<td>Inferencing</td>
<td>0.106</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>0.109</td>
</tr>
</tbody>
</table>

Note.  
* Correlation is significant at the 0.05 level (2-tailed).  
** Correlation is significant at the 0.01 level (2-tailed).

Part 5 of the MLAT (paired associates) showed correlation with three strategy variables, all correlating at the 0.05 level. These were ‘social strategies’ (.390), ‘self-monitoring’ (.383) and ‘selective attention’ (.337). This means that participants showing a higher use of rote memory learning also favoured the use of these three learning strategies. No other significant correlations were indicated between language learning aptitude and language learning strategies amongst the participant group.

Comparisons of these results with other studies are limited. Oxford and Ehrman (1995), for example, tested adult learners, rather than adolescents. They found only one significant correlation, between cognitive strategy use and Part 1 of the MLAT. There was no similar result in the current study.
4.14 Conclusion

This study identified several individual learning differences (IDs) amongst a group of 37 Year 9 students of Indonesian language. The individual differences were language learning strategies, personal background factors, affective factors, learning style and language learning aptitude. Use of language learning strategies (LLS), was then compared with the other IDs to determine any significant correlations.

LLS were classified according to the six identified in Oxford’s SILL (1989), and the four identified by Chamot, Kupper and Impink-Hernandez (1988b). Results showed that the participants were not strong users of LLS.

The background factors sought from the participants included gender, how much background participants had in the L2, what other FLs they had learned, their perceptions of proficiency in the L2, their reasons for learning the L2 and whether or not they enjoyed studying the L2. The results showed there was a strong imbalance of males to females; most participants had studied the L2 for up to two semesters, and the rest for longer; most had studied one other FL, and only two had studied no other FL; most considered their L2 self-efficacy superior to their classmates but inferior to native speakers, while their perceptions of the importance of the L2 was more evenly balanced; reasons for studying the L2 were both integrative and instrumental; and most participants liked studying the L2. Comparisons of background factors to LLS showed that most significant correlations occurred with ‘enjoyment of the L2’ (8 of 10 strategies) and ‘perceptions of proficiency compared to classmates’ (7 of 10).

The Affective Survey (Ehrman, 1991), which included 15 variables, was used to determine which affective factors impacted the participants’ language learning. The four factors most favoured by participants were ‘effort to study the L2’, ‘positive self beliefs about learning the L2’, ‘intrinsic motivation’ and ‘extrinsic motivation’. The
affective factors ‘effort to study the L2’, ‘intrinsic motivation’ and ‘desire to use the L2 outside class’, and then ‘extrinsic motivation’ showed the most significant correlations to LLS, especially with the strategies ‘cognitive strategy use’, ‘meta-cognitive strategy use’ and ‘elaboration’.

The learning style of the participants was determined via two instruments, Reid’s (1987) Learning Style Questionnaire with six style variables, and Keefe and Monk’s (1986) Learning Style Profile with 23 style variables. From the LSQ, ‘kinesthetic learning’ and ‘group learning’ were shown by to be favoured by the participants. When the LSQ results were compared to use of LLS, correlations were seen with ‘kinesthetic learners’, ‘individual learners’ and then ‘auditory learners’, but not with ‘group learners’. The LSP results indicated that the participants favoured ‘sequential processing’ skills, ‘verbal risk’, ‘mobility’ and ‘verbal’ activities, but not ‘auditory’, ‘emotive’ and ‘visual’ perceptual responses, nor cool temperature study environments or large group study. The LSP results were also compared with standardised results, the comparison showing the participants had a greater preference for two (early and late morning study) and a lesser preference for six of the 23 style categories (group study, analytic skills, afternoon study, discrimination skills, cool temperatures, and spatial over verbal activities). When the LSP results were compared with use of LLS only five style categories correlated, including ‘sequential processing’ which correlated with 7 of 10 strategies, and ‘categorisation’ which correlated negatively with 6 of 10 strategies.

The MLAT (Carroll & Sapon, 1959), which is divided into five parts, was used to ascertain the participants’ language learning aptitude. Results showed the participants had strengths in Part 1, memory and auditory alertness, and in Part 2, an ability to associate speech sounds with written symbols. They were weaker in Part 4,
their ability to associate grammatical form with language, and in Part 3, a highly speeded measure of English vocabulary and sound-symbol association (similar to Part 2). However, comparisons indicated no significant difference between the MLAT results and the standardised data at the .05 level; however at the .01 level participants’ aptitude was significantly lower in the overall MLAT but not in the Short Form of the MLAT. Of only three significant correlations between the MLAT results and use of LLS, all were with Part 5 which measured ability to rote learn.

Finally, a few observations are made here concerning the degree to which the results of this study may have been anticipated, both for the IDs and for the patterns of correlation between the IDs and the use of LLS.

Results of the ID tests in this study seem to accord with certain expectations. For example, when similar variables were tested by different instruments, results were similar. This was seen when participants indicated preference for small group learning in both the LSQ and the LSP, and when in both the Background questionnaire and the Affective Survey intrinsic (integrative) and extrinsic (instrumental) factors were reported to be important. Likewise, when compared with standardised data, the participant group was seen to be comparable to those in similar studies. Specifically, the preference for small group learning rather than large group study is reflected in the standardised data provided in the LSP, while the language aptitude of participants in this study closely reflected the standardised data for the MLAT.

With regard to correlations between the IDs and LLS, in most cases one or two variables from each ID correlated with many of the LLS (6 or more of 10), while the rest showed few if any correlations. For example, of the six background factors, two correlated with many LLS, but the other four correlated with only three strategies
in total. Of the 15 affective variables, four correlated with many LLS, and the rest with very few. Variables in the LSP numbered 23, two of which correlated with many LLS, and 21 with almost none. Similarly, four of the five variables in the MLAT showed no correlations at all with LLS, while only one showed the three that there were. The exception to this pattern occurred with the LSQ, where three variables correlated with many LLS, one variable correlated with 4 of 10 strategies and the remaining two variables did not correlate at all.

The majority of data presented in this study represents new work as few other studies are directly comparable. This is because few other studies observed participants aged 14 or studying in Year 9, and few have studied FL learners; rather, past studies focused on adult learners and on learners of ESL. Not only is comparability with past studies limited for each ID, but comparisons of correlations between IDs and LLS is even further restricted. Despite these limitations, when other studies could be compared, some of the results were similar; including most learning style variables, language learning aptitude, type of motivation, and correlation of motivation with strategy use. However, comparisons also showed the current group differed from similar groups in several learning style variables.
5. Findings of Part 2 of the Study

5.1 Introduction

In this second study, changes to language learning strategies (LLS) by participants were considered in three ways. First, changes in strategy use over time amongst all participants were considered. Second, contrasts in strategy use between the two groups regardless of time were considered. Third, consideration was given to differences in strategy use over time between the two groups.

The participants (37 Year 9 students of Indonesian language) completed the Strategy Inventory for Language Learning (SILL) (Oxford, 1989) on three occasions so that changes in strategy use could be determined. There were eleven strategy use variables emerging from the SILL including: the overall results of the SILL, Parts A to F of the SILL, plus four strategy classifications described by Chamot, Kupper and Impink-Hernandez (1988b), namely ‘selective attention’, ‘elaboration’, ‘inferencing’ and ‘self-monitoring’. The tests were given once pre-intervention (February) and twice post-intervention (August and December).

Direct comparisons between the current study and earlier studies are not possible due to several factors. Specifically, of the several earlier studies conducted using the SILL (Griffiths, 2003; Hsiao & Oxford, 2002; Rossi-Le, 1995; Teng, 1998) or investigating strategy training (Chamot, 1987; Chamot & Kupper, 1989; Hamp-Lyons, 1983; O’Malley, 1987; O’Malley, Chamot, Stewner-Manzanares, Russo, & Kupper, 1985; Rubin, Quin, & Enos, 1988; Thompson & Rubin, 1996; Vance, 1999; Vandergrift, 1999; Viswat & Jackson, 1994) none tested LLS use both before and after intervention. One exception was that by Chamot and Kupper (1989), who conducted a longitudinal study of LLS use in which they discovered that both weaker and stronger students of high school Spanish increased their use of LLS over time.
Their study also reported on training in LLS; however, it was not clear whether the training process was linked to the changes in LLS that they observed. In addition, although a few of the studies cited here were conducted amongst high school students (Chamot, 1987; Chamot, Stewner-Manzanares, Russo, & Kupper, 1985; O’Malley, 1987; Rubin, Quinn, & Enos, 1988), none reported being conducted specifically amongst Year 9 level students.

5.2 Changes in Learning Strategies For All Participants

Consideration was given initially to reported changes in strategy use over time by the participants. Results showed strategy use increased on average for all participants in August, but dropped again by December. This quadratic trend was indicated for all variables tested, and was clearly reflected in the overall SILL results. The most frequently used strategy was ‘inferencing’, and its reported use increased more than for the other strategies; whilst, ‘affective’ strategies were least used and showed the greatest decrease amongst the strategies tested. Table 40 shows the means and standard deviations for the three tests.
Table 40

*Frequency of Use of Language Learning Strategies*

<table>
<thead>
<tr>
<th>Strategy Variable</th>
<th>SILL 1 (pre-intervention, Feb)</th>
<th>SILL 2 (post-intervention, Aug)</th>
<th>SILL 3 (post-intervention, Dec)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Overall SILL</td>
<td>2.48</td>
<td>0.61</td>
<td>2.69</td>
</tr>
<tr>
<td>Memory (SILL Part A)</td>
<td>2.38</td>
<td>0.63</td>
<td>2.52</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>2.36</td>
<td>0.62</td>
<td>2.65</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>2.78</td>
<td>0.78</td>
<td>3.17</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>2.60</td>
<td>0.73</td>
<td>2.72</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>2.19</td>
<td>0.71</td>
<td>2.28</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>2.75</td>
<td>0.93</td>
<td>2.92</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>2.76</td>
<td>0.86</td>
<td>3.07</td>
</tr>
<tr>
<td>Elaboration</td>
<td>2.41</td>
<td>0.66</td>
<td>2.72</td>
</tr>
<tr>
<td>Inferencing</td>
<td>3.00</td>
<td>0.91</td>
<td>3.43</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>2.64</td>
<td>0.86</td>
<td>2.80</td>
</tr>
</tbody>
</table>
The pattern in mean strategy use over the three test occasions is seen clearly in Figure 2.

Results showed that for eight of the eleven variables, despite the drop in reported strategy use between August and December, there was an overall increase in strategy use. These variables included the overall SILL, ‘memory’, ‘cognitive’, ‘compensatory’, ‘social’, ‘elaboration’, ‘inferencing’, and ‘self-monitoring’. Of all the strategies tested the greatest overall increase that occurred between February and December was for ‘inferencing’ from a mean of 3.00 (SD = 0.91) to 3.43 (SD = 0.67). Not only was this increase the largest, but also the standard deviation was smaller, indicating less divergence amongst participants in their use of this strategy on the third testing occasion.
The remaining three variables ‘meta-cognitive’, ‘affective’, and ‘selective attention’ showed an overall decrease in strategy use between the beginning and the end of the year. ‘Affective’ strategies showed the greatest overall drop in reported use from a mean of 2.19 in February to a mean of 2.10 in December. Moreover, ‘affective’ strategies proved to be the least used of all the variables on all testing occasions; they also showed the smallest increase in reported use between February (mean = 2.19, SD = 0.71) and August (mean = 2.28, SD = 0.57).

In order to compare the mean results of reported strategy use over time eleven repeated measures analyses of variance (ANOVAs) were performed. The first was conducted to examine the overall SILL results; six were used to examine parts A to F of the SILL, and four examined results for each of the remaining strategy classifications, ‘selective attention’, ‘elaboration’, ‘inferencing’ and ‘self-monitoring’. Mauchly’s test of sphericity for these within-subjects ANOVAs showed that the data for seven of the eleven variables did not meet normal assumptions (see Table 41). Consequently, corrections of the F-ratio were made using the Greenhouse-Geisser measure of epsilon. For the sake of consistency, this measure was used for all eleven ANOVA results.
Table 41

*Mauchly’s Test of Sphericity*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall SILL</td>
<td>.003 *</td>
</tr>
<tr>
<td>Memory (SILL Part A)</td>
<td>.003 *</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>.001 *</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>.112</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>.022 *</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>.033 *</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>.065</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>.174</td>
</tr>
<tr>
<td>Elaboration</td>
<td>.012 *</td>
</tr>
<tr>
<td>Inferencing</td>
<td>.084</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>.014 *</td>
</tr>
</tbody>
</table>

*Note. Showing degree of significance when testing the effect of time within subjects.*

*df* = 2

* p < 0.05

Examination of the univariate F-ratios for the effect of time revealed significant differences in strategy use in six of the eleven ANOVAs (see Table 42). These included the overall SILL results, as well as ‘cognitive’, ‘compensatory’, ‘selective attention’, elaboration’ and ‘inferencing’.
Table 42

*Significance of Within-Subjects Effects of Time on Strategy Use*

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>F</th>
</tr>
</thead>
</table>
| Overall SILL                    | 1.55| 3.84  *
| Memory (SILL Part A)            | 1.55| 1.17  |
| Cognitive (SILL Part B)         | 1.49| 5.89  *
| Compensatory (SILL Part C)      | 1.79| 5.44  *
| Meta-cognitive (SILL Part D)    | 1.67| 1.47  |
| Affective (SILL Part E)         | 1.69| 1.18  |
| Social (SILL Part F)            | 1.74| 0.92  |
| Selective Attention             | 1.82| 5.43  *
| Elaboration                     | 1.63| 4.91  *
| Inferencing                     | 1.76| 6.06  *
| Self-Monitoring                 | 1.64| 0.81  |

Note. Measure: Greenhouse-Geisser epsilon

* p < 0.05

Results show that the participants significantly increased their use of learning strategies between February and December. This is seen in the overall SILL result (F(1.55, 35) = 3.84; p<0.05). The highest significant F-ratio was recorded for ‘inferencing’ (F(1.76, 35) = 6.06, p<0.05), followed by ‘cognitive’ strategy use (F(1.49, 35) = 5.89, p<0.05), then ‘compensatory’ strategy use (F(1.79, 35) = 5.44, p<0.05), ‘selective attention’ (F(1.82, 35) = 5.43, p<0.05) and ‘elaboration’ (F(1.63, 35) = 4.91, p<0.05). Change in strategy use was not significant for the remaining five strategies.
Of these individual strategies where use was significantly increased, most were cognitive strategies (i.e., ‘inferencing’, ‘cognitive’, ‘compensatory’, ‘elaboration’) and were thus closely connected. For example, ‘inferencing’\(^3\), as defined by (Chamot & Kupper, 1989) and ‘compensatory’ strategies\(^4\) as defined by (Oxford et al., 1993) are very closely associated, both involving guessing the meaning of new information based on known information; while ‘elaboration’\(^5\) (Chamot & Kupper, 1989) also means learners utilise known information by relating new information to it. This indicates that throughout the 10-month testing period this corpus of participants tended to favour such cognitive strategies over other strategies. Furthermore, three of these strategies (‘selective attention’, ‘elaboration’, ‘inferencing’) were taught in the training program.

In order to show more precisely where the significant changes in strategy use occurred, a within-subjects analysis of strategy use over the three testing occasions was performed. This meant comparing results for February with August, August with December, and December with February. Results indicated that of the 33 measures considered there were only 11 significant changes in strategy use (see Table 43). Six of these occurred between February and August and four between August and December. Between the initial and the final tests only one significant change in strategy use was indicated.

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\(^3\) “Inferencing: Using available information: to guess the meanings or usage of unfamiliar language items associated with a language task; to predict outcomes; or to fill in missing information.” (Chamot & Kupper, 1989, p. 16.)

\(^4\) “compensatory (making up for missing knowledge through guessing, paraphrasing, and other means)” (Oxford, Park-Oh, Ito, & Sumrall, 1993, p. 362.)

\(^5\) “Elaboration: Relating new information to prior knowledge; relating different parts of new information to each other; making meaningful personal associations to information presented.” (Chamot & Kupper, 1989, p. 16.)
Table 43

*Within-Subjects Contrasts in Strategy Use Over Time*

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Time</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall SILL</td>
<td>Feb vs. Aug</td>
<td>6.936 *</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>6.726 *</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>0.471</td>
</tr>
<tr>
<td>Memory (SILL Part A)</td>
<td>Feb vs. Aug</td>
<td>1.679</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>2.552</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>0.137</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>Feb vs. Aug</td>
<td>16.083 *</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>3.818</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>2.108</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>Feb vs. Aug</td>
<td>9.160 *</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>6.273 *</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>1.392</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>Feb vs. Aug</td>
<td>1.273</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>5.027 *</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>0.201</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>Feb vs. Aug</td>
<td>0.688</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>3.341</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>0.384</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>Feb vs. Aug</td>
<td>1.459</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>0.487</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>0.494</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>Feb vs. Aug</td>
<td>6.682 *</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>11.820 *</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>0.338</td>
</tr>
<tr>
<td>Elaboration</td>
<td>Feb vs. Aug</td>
<td>7.651 *</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>1.830</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>3.603</td>
</tr>
<tr>
<td>Inferencing</td>
<td>Feb vs. Aug</td>
<td>10.658 *</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>0.811</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>5.411 *</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>Feb vs. Aug</td>
<td>1.272</td>
</tr>
<tr>
<td></td>
<td>Aug vs. Dec</td>
<td>0.390</td>
</tr>
<tr>
<td></td>
<td>Dec vs. Feb</td>
<td>0.471</td>
</tr>
</tbody>
</table>

Note. $df = 1$

*p < 0.05

Of the six significant changes in strategy use between February and August, all suggested an increase in strategy use. They included the overall SILL ($F = 6.936$, *
df = 1, p<0.05), ‘cognitive’ (F = 16.083, df = 1, p<0.05), ‘inferencing’ (F = 10.658, df = 1, p<0.05), ‘compensatory’ (F = 9.160, df = 1, p<0.05), ‘elaboration’ (F = 7.651, df = 1, p<0.05), and ‘selective attention’ (F = 6.682, df = 1, p<0.05). On the other hand, between August and December the significant changes suggested a decrease in strategy use. This occurred for ‘selective attention’ (F = 11.820, df = 1, p<0.05), ‘compensatory’ (F = 6.273, df = 1, p<0.05), ‘meta-cognitive’ (F = 5.027, df = 1, p<0.05) and was reflected in the overall SILL results (F = 6.726, df = 1, p<0.05). When comparing results between February and December only ‘inferencing’ (F = 5.411, df = 1, p<0.05) was shown to have significantly increased in use. No other strategy changed significantly from February to December.

It is not surprising that the strategy showing significant increase over 10 months (‘inferencing’) should also increase significantly in the first six months. However, that only this one strategy should continue to grow in usage in the second half of the study, while none of the others did, represents a surprising difference.

As described earlier, and shown in Figure 1, reported change in strategy use showed a quadratic trend for all variables. However, the within-subjects ANOVA indicated this trend was significant for only 7 of the 11 strategies. In addition, one variable showed a significant linear trend, indicating a significant overall increase in use of that strategy. These results can be seen in Table 44.
Table 44

*Trends in Strategy Use*

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Trend</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall SILL</td>
<td>Linear</td>
<td>0.471</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>12.009 *</td>
</tr>
<tr>
<td>Memory (SILL Part A)</td>
<td>Linear</td>
<td>0.137</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>2.714</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>Linear</td>
<td>2.108</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>20.289 *</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>Linear</td>
<td>1.392</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>11.076 *</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>Linear</td>
<td>0.201</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>4.118 *</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>Linear</td>
<td>0.384</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>3.245</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>Linear</td>
<td>0.494</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>1.434</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>Linear</td>
<td>0.338</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>13.920 *</td>
</tr>
<tr>
<td>Elaboration</td>
<td>Linear</td>
<td>3.603</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>6.963 *</td>
</tr>
<tr>
<td>Inferencing</td>
<td>Linear</td>
<td>5.411 *</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>7.758 *</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>Linear</td>
<td>0.471</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>1.323</td>
</tr>
</tbody>
</table>

Note. *df* = 1, 36

* p < 0.05

Significant quadratic trends were shown for the overall SILL (F(1,36) = 12.009; p<0.05), for ‘cognitive’ (F(1,36) = 20.289; p<0.05), ‘selective attention’ (F(1,36) = 13.920; p<0.05), ‘compensatory’ (F(1,36) = 11.076; p<0.05), ‘inferencing’ (F(1,36) = 7.758; p<0.05), ‘elaboration’ (F(1,36) = 6.963; p<0.05) and ‘meta-cognitive’ (F(1,36) = 4.118; p<0.05). These results indicate that the participants reported an increase followed by a decrease in strategy use over the testing period,
and that for seven of the variables this trend showed significance. ‘Inferencing’ was the only variable which showed significance at the linear level (F(1,36) = 5.411; p<0.05) indicating a significant overall increase in use of that strategy from February to December.

There is a consistent pattern in the strategies which showed significant change. For example, the overall SILL, ‘selective attention’ and ‘compensatory’ strategies initially showed a significant increase in use, followed by a significant decrease in use. Further, ‘inferencing’, ‘elaboration’ and ‘cognitive’ strategies showed significant initial increases in use but no significant decreases. By contrast, those strategies which showed no significant changes included ‘memory’, ‘affective’ and ‘social’ strategies. The pattern in these results is that significant changes occurred for three of the four strategies associated with the intervention process (‘selective attention’, ‘elaboration’, ‘inferencing’) but no significant change was seen for strategies for which no training occurred (‘memory’, ‘affective’ and ‘social’ strategies).

It could be speculated, therefore, that the intervention process had a major impact upon these results. If changes to ‘selective attention’, ‘elaboration’ and ‘inferencing’ amongst the experimental group were large enough, this could have boosted the overall results for the entire corpus. In order to establish whether or not this occurred, an analysis of results was needed to determine the differences between the experimental and the control groups. The following section (section 5.3) considers the differences in reported learning strategies between the two groups. The final section (section 5.4) considers changes in reported learning strategies over time between the two groups.
5.3 Differences in Strategy Use Between Control and Experimental Groups

To determine any significant differences between the two groups’ choices of learning strategies, an analysis of variance in strategy use between the control and experimental groups was conducted. The effect of group on strategy use, and not the effect of time, was considered here. Results indicated no significant difference between the groups, as shown in Table 45.

Table 45

Differences in Strategy Use Between Control and Experimental Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall SILL</td>
<td>0.798</td>
<td>0.378</td>
</tr>
<tr>
<td>Memory (SILL Part A)</td>
<td>0.085</td>
<td>0.772</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>0.322</td>
<td>0.574</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>0.409</td>
<td>0.527</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>1.936</td>
<td>0.173</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>0.623</td>
<td>0.435</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>1.525</td>
<td>0.225</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>1.696</td>
<td>0.201</td>
</tr>
<tr>
<td>Elaboration</td>
<td>0.440</td>
<td>0.511</td>
</tr>
<tr>
<td>Inferencing</td>
<td>1.488</td>
<td>0.231</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>0.857</td>
<td>0.361</td>
</tr>
</tbody>
</table>

Note. \( df = 1 \)
These results mean that on average the control and experimental groups reported using similar learning strategies. This was indicated in the overall SILL as well as in each of the ten sub-categories of the inventory. In none of these eleven categories did the ANOVA results approach significance, indicating the similarity in strategy use between the two groups was strong.

The result of this ANOVA throws new light on the significant changes for the entire corpus reported in section 5.2. It shows that training in the experimental group did not lead to significant changes that in turn could have affected results for the entire corpus. Therefore, it is clear that the significant changes in strategy use among the entire corpus occurred for reasons other than the intervention process. It could be speculated that intervention had no influence on strategy use at all. This would mean that the changes in strategy use for the entire corpus of participants occurred due to other factors outside the scope of this study. Such a conclusion may reflect that of Chamot and Kupper (1989), whose longitudinal study concluded that both effective and ineffective learners of high school Spanish, also increased their use of LLS over time.

The result of this ANOVA was unexpected in terms of the initial hypothesis. It was expected that the groups would not differ at the beginning of the study, as they were formed by dividing matched pairs based on the February SILL results, however, the hypothesis was that the groups would differ after time due to training in the experimental group. However, this result suggests that neither time nor training had any significant impact on the overall differences in strategy use between the two groups. In order to determine whether this was so, the consequent and final step was to consider the impact of time and intervention on the two groups. This final analysis follows.
5.4 Changes in Learning Strategies for Control and Experimental Groups

Results for the overall SILL showed strategy use increased on average by August for both the control and experimental groups, and dropped again by December. This pattern was seen in the results for Parts A, B, C, and D, for ‘selective attention’, and for ‘inferencing’. However, for Part E of the SILL, the experimental group reported a decrease in ‘affective’ strategy use in both August and December, while their use of ‘self-monitoring’ strategies remained almost unchanged in August and declined by December. On the other hand, the control group reported increases in strategy use in both August and December for ‘social’ strategies and for ‘elaboration’ strategies. These results are shown in Table 46.

Table 46
Means of SILL Results for Control and Experimental Groups

<table>
<thead>
<tr>
<th>Strategy</th>
<th>SILL 1 (Pre-training, Feb)</th>
<th>SILL 2 (post-training, Aug)</th>
<th>SILL 3 (post-training, Dec)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Experimental</td>
<td>Control</td>
</tr>
<tr>
<td>Overall SILL</td>
<td>2.53</td>
<td>2.44</td>
<td>2.73</td>
</tr>
<tr>
<td>Memory (SILL A)</td>
<td>2.44</td>
<td>2.33</td>
<td>2.49</td>
</tr>
<tr>
<td>Cognitive (SILL B)</td>
<td>2.38</td>
<td>2.33</td>
<td>2.67</td>
</tr>
<tr>
<td>Compensatory (SILL C)</td>
<td>2.90</td>
<td>2.68</td>
<td>3.13</td>
</tr>
<tr>
<td>Meta-cognitive (SILL D)</td>
<td>2.68</td>
<td>2.51</td>
<td>2.84</td>
</tr>
<tr>
<td>Affective (SILL E)</td>
<td>2.10</td>
<td>2.28</td>
<td>2.36</td>
</tr>
<tr>
<td>Social (SILL F)</td>
<td>2.79</td>
<td>2.71</td>
<td>3.05</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>2.94</td>
<td>2.59</td>
<td>3.09</td>
</tr>
<tr>
<td>Elaboration</td>
<td>2.46</td>
<td>2.36</td>
<td>2.72</td>
</tr>
</tbody>
</table>
As the control and experimental groups were formed from matched pairs
based on their overall SILL results in February (see section 3.3.3), the fact that there
is little difference in results between the groups for SILL 1 is to be expected. Later in
the year there were minor but notable differences between the groups. By August
both groups reported an increase in all strategies. By December the control group
reported maintenance of or a slight decrease in strategies, while the experimental
group decreased their use of almost all strategies. Differences between the groups by
August will be considered first, and by December next.

Between February and August, amongst the four training strategies (‘selective
attention’, ‘elaboration’, ‘inferencing’ and ‘self-monitoring’) the greatest and most
surprising difference in the results was reported for ‘self-monitoring’. The control
group reported a slight increase in ‘self-monitoring’ strategies (Feb mean = 2.64,
Aug mean = 2.96) but the experimental group reported virtually no change in their use
of ‘self-monitoring’ strategies (Feb mean = 2.64, Aug mean = 2.65), despite being
trained in these strategies. A possible explanation for this is that ‘self-monitoring’
was the last of the four strategies in which students were trained, and the lack of
reinforcement (i.e., repeated practice) meant that the experimental group were less
familiar with and therefore less prone to use it than they were the other three
strategies. However, logically this would mean that ‘selective attention’ was the most
reinforced of the four training strategies and should be more frequently used by the
experimental group, but results showed this was not true, thus indicating more
complex reasons for differences in use of LLS.
Results for the other three training strategies (‘selective attention’, ‘elaboration’, ‘inferencing’) were less surprising than for ‘self-monitoring’, with both the control and experimental groups reporting an increase in all three, and the increases for the experimental group being slightly larger than those for the control group. Amongst these strategies, the experimental group reported the greatest increase in ‘inferencing’ (Feb mean = 2.85, Aug mean = 3.36, difference 0.51), followed by ‘selective attention’ and then ‘elaboration’. However, of all the strategies tested, the experimental group reported the greatest increase in ‘compensatory’ strategies (Feb mean = 2.68, Aug mean = 3.21, difference 0.53), a strategy in which no training was conducted. Nevertheless, given that ‘inferencing’ and ‘compensatory’ strategies are closely associated, their similar increase in usage by the experimental group may not be unusual.

By December further differences were seen. Firstly, the experimental group reported using all strategies less frequently, while the control group tended to maintain its use of strategies. This suggests that for this corpus of participants, increases in strategy use may be better left to natural means rather than imposed upon the students via an intervention procedure. Secondly, the reported decreases in strategy use by the experimental group were greater than those reported by the control group for several strategies. These included one of the training strategies ‘selective attention’ (Aug mean = 3.06, Dec mean = 2.44, difference 0.62), as well as ‘compensatory’ strategies (Aug mean = 3.21, Dec mean = 2.85, difference 0.36) which is closely associated with ‘inferencing’. However, the very minor decrease for ‘inferencing’ (Aug mean = 3.36, Dec mean = 3.21, difference 0.15), indicated that certain aspects of ‘inferencing’ training may have been maintained by this group.
Alternatively, this group of students may have been ready innately to increase their use of ‘inferencing’, and the training program may have had no effect on this.

Initially it seemed that discontinuation of the intervention program had an impact on strategy use. For three of the four training strategies there was an increase in strategy use (August), followed by a drop off in strategy use (December) amongst the experimental group. This also occurred for ‘compensatory’ strategies. The indication is that improved strategy use was not maintained once the training ceased. However, several strategies other than those taught also showed this pattern of increase in usage followed by decline in usage, for both the control and the experimental groups. Thus, the next step was to ascertain what significance there was in these differences, and to decide whether maintenance of the training program related to on-going strategy use.

In order to determine any significant difference in strategy change between the control and experimental groups, a mixed ANOVA considering the effect of time and group on strategy use was performed. Once again the Greenhouse-Geisser measure of epsilon was used. The analysis showed significant difference between control and experimental groups occurred for only one strategy of the eleven variables tested. Table 47 shows the F-ratios for the effect of time and group on all strategy variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall SILL</td>
<td>1.554</td>
<td>1.140</td>
</tr>
<tr>
<td>Memory (SILL Part A)</td>
<td>1.548</td>
<td>.564</td>
</tr>
<tr>
<td>Cognitive (SILL Part B)</td>
<td>1.487</td>
<td>.816</td>
</tr>
<tr>
<td></td>
<td>Measure 1</td>
<td>Measure 2</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Compensatory (SILL Part C)</td>
<td>1.786</td>
<td>.942</td>
</tr>
<tr>
<td>Meta-cognitive (SILL Part D)</td>
<td>1.666</td>
<td>.625</td>
</tr>
<tr>
<td>Affective (SILL Part E)</td>
<td>1.694</td>
<td>3.441 *</td>
</tr>
<tr>
<td>Social (SILL Part F)</td>
<td>1.743</td>
<td>1.474</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>1.823</td>
<td>1.828</td>
</tr>
<tr>
<td>Elaboration</td>
<td>1.628</td>
<td>.875</td>
</tr>
<tr>
<td>Inferencing</td>
<td>1.762</td>
<td>.184</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>1.638</td>
<td>.797</td>
</tr>
</tbody>
</table>

Note. Measure: Greenhouse-Geisser epsilon

* p < 0.05

These results indicate that changes in strategy use amongst the control group and amongst the experimental group did not significantly differ from each other for the majority of strategies tested. In other words, any changes that did occur for one group also occurred for the other. The only exception to this pattern occurred for ‘affective’ learning strategies, where the mean reported changes for the control group varied significantly from the mean reported changes for the experimental group. The next task was to determine in what way this change was significant.

An analysis of variance showing within-subjects contrasts was conducted in order to determine how the significant difference in ‘affective’ strategy use occurred between the control and experimental groups. Results of this analysis showed the pattern of difference between the groups’ strategy use; it also showed the significance of the contrasts between the two groups. Results are shown in Table 48.
Table 48

**Contrasts in Strategy Use Between Control and Experimental Groups Over Time**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Pattern of difference</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall SILL</td>
<td>Linear</td>
<td>1.172</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>1.062</td>
</tr>
<tr>
<td>Memory (Part A)</td>
<td>Linear</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>1.360</td>
</tr>
<tr>
<td>Cognitive (Part B)</td>
<td>Linear</td>
<td>0.703</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>1.248</td>
</tr>
<tr>
<td>Compensatory (Part C)</td>
<td>Linear</td>
<td>0.030</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>2.218</td>
</tr>
<tr>
<td>Meta-cognitive (Part D)</td>
<td>Linear</td>
<td>0.900</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>0.093</td>
</tr>
<tr>
<td>Affective (Part E)</td>
<td>Linear</td>
<td>4.849*</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>0.033</td>
</tr>
<tr>
<td>Social (Part F)</td>
<td>Linear</td>
<td>2.515</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>0.045</td>
</tr>
<tr>
<td>Selective Attention</td>
<td>Linear</td>
<td>0.234</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>4.787*</td>
</tr>
<tr>
<td>Elaboration</td>
<td>Linear</td>
<td>0.557</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>1.360</td>
</tr>
<tr>
<td>Inferencing</td>
<td>Linear</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>0.472</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>Linear</td>
<td>0.846</td>
</tr>
<tr>
<td></td>
<td>Quadratic</td>
<td>0.708</td>
</tr>
</tbody>
</table>

*Note. df = 1
* p < 0.05

The above results show that for ‘affective’ strategies, the pattern of difference between the control and experimental groups was significant for a linear contrast (F = 4.849, df = 1, p<0.05). This means that there was an increase in the use of ‘affective’ strategies by one group and a decrease by the other; moreover, the contrast between the increase and decrease was significant. The result is illustrated in Figure 3.
Figure 3. *Contrast in mean use of ‘Affective’ strategies between control and experimental groups.*

The contrast shows an overall increase in use of ‘affective’ strategies by the control group, as opposed to an overall decrease in use of ‘affective’ strategies by the experimental group. Hence the lines in the graph diverge, and the degree of divergence reflects the significance of the contrast between the control and experimental groups. This result reflects the earlier patterns, that is, that the control group tended to gradually increase its use of LLS, while the experimental group tended to decrease its use of LLS. Such results are contrary to expectations and for this group of participants indicate that the intervention was not effective, and in fact, may have been disruptive to the natural development of LLS amongst the participants.

This contrast and divergence between the two groups was uncontrolled, that is, the intervention did not incorporate ‘affective’ strategy use and so the change was
caused by undetermined factors, beyond the scope of this study. It should be remembered that neither the increase in ‘affective’ strategy use by the control group nor the decrease in ‘affective’ strategy use by the experimental group reached significance; merely the contrast between the groups was significant.

The above contrast and divergence between the two groups cannot be compared to other studies of ‘affective’ strategy changes. This is because there are no other studies either recording LLS changes over time or reports of such studies if they were conducted. However, one possible explanation for this result is that the intervention process restricted the use of other strategies by the experimental group. That is, by focusing on the four training strategies, the group may have curbed their normal use of ‘affective’ strategies.

Apart from the linear contrast indicated for ‘affective’ strategy use, the within-subjects contrasts analysis also showed a significant contrast between the control and experimental groups for ‘selective attention’ ($F = 4.787, df = 1, p<0.05$). This contrast was quadratic in pattern. The quadratic pattern was due to a sharp increase in use of ‘selective attention’ in August followed by a sharp decrease in December by the experimental group, compared to a mild increase in August followed by a mild decrease in December by the control group. The patterns are clearly seen in Figure 4.
Figure 4. Contrast in mean use of ‘Selective Attention’ for control and experimental groups.

Notwithstanding the significance indicated for the contrast between the control and experimental groups in their mean use of ‘selective attention’, there was no significant difference in change between the groups for this strategy (see Table 47). In other words, both groups reported an increase and then a decrease in their use of ‘selective attention’ - a similar pattern, not a different one. It was merely the marked increase followed by a marked decrease in the use of this strategy by the experimental group which resulted in the significant contrast between the two groups.

As ‘selective attention’ was one of the intervention strategies, for the experimental group to increase its use is unsurprising, but that there should be a noticeable decrease in its use after intervention was somewhat unexpected. This
indicates the likelihood that without on-going training in ‘self-monitoring’, the experimental group failed to maintain use of this learned strategy.

Again, this result cannot be compared to others, as there have been no other studies of its type. A likely explanation, however, is that the discontinuation of training in ‘selective attention’ caused the decrease in its use by the experimental group.

For the remaining variables, results of the within-subjects contrasts analysis indicated there was no significant interaction between strategy use and group over time. This means that for those nine strategies, including the overall SILL, the patterns of strategy use for the control and experimental groups showed no significant difference over the testing period. All the above results stand despite the intervention process, where strategy training took place in the experimental group. Furthermore, these results indicate that cessation of the intervention process had no statistically significant impact on the use of strategies in this study, despite the result for ‘selective attention’.

Although there was only a small number of differences between the groups over time, some interesting patterns in changes to strategy use were seen. These included a greater use of certain strategies by the experimental group immediately following intervention, but a reported decline in use of these strategies by December. On the other hand, the control group indicated retention of, or increase in, use of strategies over the year. This pattern of sharp increase followed by sharp decrease for the experimental group, and steady increase or maintenance of strategy use for the control group was seen for Parts A, B, and C, for ‘elaboration’, and was reflected in the overall SILL. The pattern for these five variables can be seen in Figure 5.
Figure 5. Pattern of mean use of ‘Memory’, ‘Cognitive’, ‘Compensatory’,
What is notable about these results is the decline in reported strategy use after intervention ceased, rather than the increase during intervention. It is clear for four of the five graphs in Figure 5 that the increase in strategy use by both groups was virtually identical (with a seemingly greater increase in ‘compensatory strategies’ by the experimental group over the control group). However, the drop off in strategy use by the experimental group for all five strategies is distinct and raises the question why the group should abandon their use of strategies, either learned or unlearned, while the control group did not.

It is not possible to determine the causal factors for the above results as such findings were beyond the scope of this study. Nevertheless, Nikolov (1999) showed that teacher-related motivational reasons for learning a FL impacted children,
including 11-14 year olds. The above outcomes may indicate that for the current group, too, the presence of the trainer boosted strategy use in the experimental class and the later absence of the trainer led to an abandonment of the strategies. Another possibility is that for the current group self-development of strategy use may have a greater impact on long-term strategy use than imposed training. This possibility is given greater credence when the maintenance and/or increase in strategy use by the control group is considered.

Results for the remaining strategy variables showed patterns different from those described above. For example, for ‘meta-cognitive’ strategies and ‘inferencing’ there was similarity in the pattern of change for both experimental and control groups, as seen in Figure 6.
Figure 6. *Pattern of mean use of ‘Meta-Cognitive’ and ‘Inferencing’ strategies for control and experimental groups.*

In both graphs the lines are close to parallel, indicating there is very little linear difference as well as very little quadratic difference between control and experimental groups for both variables. This is confirmed by the low F-ratios for the two variables at both linear and quadratic levels when contrasts were made (see Table 48). The magnitude was different, with the experimental group using fewer strategies than the control group, but the difference was not significant.

This lack of significant difference between the control and experimental groups stands despite the intervention process, in which the experimental group was trained in ‘inferencing’ and in ‘meta-cognitive’ strategies. Such a result may support the possibility that self-development of strategy use amongst the current group may have a greater impact on long-term strategy use than imposed training. No other studies can be readily compared with this one.
Finally, another pattern in change to strategy use was seen for Part F ‘social’ and for ‘self-monitoring’. This was a tendency to linear divergence, as can be seen in Figure 7.

![Graph showing mean use of 'Social' and 'Self-Monitoring' strategies for control and experimental groups.]

For these two variables there is a tendency towards a linear increase in strategy use by the control group, while the experimental group tends to show a linear decrease in their strategy use. The linear divergence for these two strategies resembles that for ‘affective’ strategies, however, this tendency cannot be over-estimated. Results show that the linear contrast between the experimental and control groups was statistically greater for ‘meta-cognitive’ and for the overall SILL result, than for either ‘social’ strategies or ‘self-monitoring’; furthermore, none of these contrasts showed statistical significance.

Again, it is difficult to determine why this divergence should have occurred, especially as ‘self-monitoring’ was a training strategy. However, as for the earlier
examples, it may be that these participants’ self-development of strategy use was stronger than was imposed training.

The patterns in strategy use between control and experimental groups indicate several outcomes. Firstly, both groups increased their use of strategies during the period of intervention except for ‘affective’ strategies which slightly declined for the experimental group. Secondly, for most strategies tested, the intervention process did not generate a significant increase in strategy use by the experimental group over the control group. Thirdly, discontinuation of the intervention process seemed to have resulted in a decline in strategy use by the experimental group, whereas the control group tended to maintain their increased use of strategies.

5.5 Conclusion

Over the period of testing (February, August and December), the trend in strategy use by the whole group of participants was quadratic, that is they reported an increase in strategy use, followed by a decrease in strategy use. Only one strategy, ‘inferencing’, showed a significant linear increase over the testing period. Overall, however, there was a significant change in the use of strategies, though this significance was not seen for every strategy tested.

Despite intervention, there were no significant differences in the strategy use between the control group and the experimental group, though some interesting patterns emerged. However, there was one significant change between the groups - a tendency by the control group to increase and by the experimental group to decrease their use of ‘affective’ strategies, which was not an intervention strategy. There were two other main patterns of different strategy use by the two groups, though neither showed significance. One was a similar increase in strategy use by both groups
immediately following intervention, followed by a more pronounced drop over the
next several months by the experimental group. The other pattern was the greater
tendency by the control group to increase or maintain strategy use compared with the
experimental group over the entire testing period.

The original hypothesis for this study was that there would be a significant
increase in use of those strategies in which training occurred within the experimental
group over the control group. It was also expected that a six month intervention, as
opposed to a much shorter intervention process, would result in longer-term retention
of learning strategies amongst the experimental group. However, not all the outcomes
confirmed the hypothesis. Even though the increases in strategy use tended to be of
greater magnitude for the experimental than for the control group during the
intervention period, results showed no overall significant increase in strategy use by
the experimental group over the control group. Rather, both groups reported an
overall increase in strategy use over time which did not significantly differ. Finally,
although it was not surprising that a slight decrease in strategy use should occur
amongst the experimental group, post-intervention, it was expected that their strategy
use would have been maintained. This, however, did not occur, the final results
indicating no significant differences between the groups over time occurred for any
intervention strategy.
6. Findings of Part 3 of the Study

6.1 Introduction

In this third study changes to participants’ aural comprehension of Indonesian language (L2) were investigated. The study is divided into four parts. One part considers what changes occurred in aural comprehension amongst all participants. The second part considers changes in aural comprehension within the control group. The third part describes changes in aural comprehension within the experimental group. The final part compares the control and experimental groups’ aural comprehension results. The hypothesis for this part of the study was that training in LLS would result in improved aural proficiency among the experimental group.

The research was carried out over a one semester period at the beginning of the Year 9 Indonesian language course. The 37 participants were presented with L2 audio materials based on the regular Year 9 Indonesian program at their school. These materials were used to test the aural comprehension of the participants via short answer and multiple choice questions. The testing occurred periodically eight times over the semester.

In addition, four learning strategies were taught one by one to the experimental group (19 participants), and practised and revised over the semester. Two were cognitive strategies (elaboration and inferencing) and two were metacognitive strategies (self-monitoring and selective attention). These four strategies were taught as recommended by Chamot, Kupper and Impink-Hernandez (1988b) according the training procedure outlined by Wenden (1991). The control group (18 participants) received no strategy training.
6.2 Changes in Aural Comprehension for All Participants

The learning conditions prior to the first aural comprehension test were the same for each participant group but, given the intervention program in the experimental group, these conditions were different for the remaining seven tests. Test 1 was used as the baseline test and thus given with no input from the researcher about strategy use to either the experimental or the control group. Thereafter, however, the experimental group was trained in four aural comprehension learning strategies over the semester. The control group was given no strategy training. During this period Tests 2 to 8 were given on a regular basis to both classes, each test conducted at a similar time. Mean results and standard deviations (SD) of the tests for the entire participant group are shown in Table 49.

<table>
<thead>
<tr>
<th>Aural Tests</th>
<th>Mean (%)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>49.89</td>
<td>11.24</td>
</tr>
<tr>
<td>2</td>
<td>44.40</td>
<td>17.92</td>
</tr>
<tr>
<td>3</td>
<td>43.89</td>
<td>22.02</td>
</tr>
<tr>
<td>4</td>
<td>46.11</td>
<td>25.74</td>
</tr>
<tr>
<td>5</td>
<td>62.19</td>
<td>21.43</td>
</tr>
<tr>
<td>6</td>
<td>34.86</td>
<td>16.14</td>
</tr>
<tr>
<td>7</td>
<td>33.23</td>
<td>17.85</td>
</tr>
<tr>
<td>8</td>
<td>40.00</td>
<td>21.21</td>
</tr>
</tbody>
</table>

Total mean score: 44.32
The mean scores for aural tests ranged from 33.23 % (Test 7) to 62.19 % (Test 5) and fell into three distinct groups. The scores for Tests 1 to 4 were between 43.89% (Test 3) and 49.89% (Test 1), a range of only 6.00%. Similarly, the mean scores for the last three tests were relatively close, falling between 33.23% (Test 7) and 40.00% (Test 8), a range of 6.77%. However, the highest mean score of 62.19% for Test 5 represented a departure from the pattern; there was a difference from Test 1 of 12.30% and a difference from Test 4 of 16.08%, which were the next two highest mean scores. This pattern is seen clearly in Figure 8.

![Figure 8. Mean scores for aural tests.](image)

It is clear that the mean result for Test 5 was substantially higher than results for the other tests. In order to determine how significant this difference was, and the
degree of difference between the aural tests, a pairwise comparison of means was performed. Results indicated that only Test 5 differed significantly from every other test. However, there were significant differences between pairs of other tests, as can be seen in Table 50.

Table 50

*Differences Between Means of Aural Comprehension Tests*

<table>
<thead>
<tr>
<th>Aural Test</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-5.49</td>
<td>-6.00</td>
<td>-3.78</td>
<td>12.30**</td>
<td>-15.03**</td>
<td>-16.66**</td>
<td>-9.89*</td>
</tr>
<tr>
<td>2</td>
<td>-0.51</td>
<td>1.71</td>
<td>17.79**</td>
<td>-9.54*</td>
<td>-11.17**</td>
<td>-4.40</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2.22</td>
<td>18.30**</td>
<td>-9.03*</td>
<td>-10.66*</td>
<td>-3.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>16.08**</td>
<td>-11.25*</td>
<td>-12.88**</td>
<td>-6.11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>-27.33**</td>
<td>-28.96**</td>
<td>-22.19**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>-1.63</td>
<td>5.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.77</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Mean scores as a percentage.

* * Mean difference is significant at the 0.05 level.

** ** Mean difference is significant at the 0.01 level.

Test 5 represented an anomaly compared to the other scores, and therefore will be considered separately. The mean score for Test 5 was much higher than that of any other aural test, the least difference being from Test 1 (12.30%) and the greatest difference from Test 7 (-28.96%). Furthermore, comparisons between all other tests and Test 5 indicated that the differences were significant at the 0.01 level. Another anomaly with Test 5 was that the mean scores of the other tests established a pattern which was abruptly interrupted by the magnitude of this test result (see the description of the trend in aural comprehension results following Table 51).
This result indicates that the content of Test 5 was likely to have been considerably less difficult than was the content of the other tests. This was despite efforts to standardise the level of difficulty for all tests prior to the commencement of the study.

Comparison of tests 1 to 4 and 6 to 8, indicated there were two groups of similar results. Firstly, there were no significant differences between mean scores among the earlier tests (1, 2, 3 and 4); similarly, there were no significant differences between the last three tests (6, 7 and 8). Secondly, significant differences existed between the first four tests and most of the later ones. These differences are described below.

The mean score for Test 1 differed significantly from each of the last three tests: Test 6 (-15.03, p<0.01), Test 7 (-16.66, p<0.01) and Test 8 (-9.89, p<0.05). Tests 2, 3 and 4 also differed significantly from the mean scores of Tests 6 and 7, but not from Test 8. The mean for Test 2 differed significantly from Test 6 by -9.54 (p<0.05) and from Test 7 by -11.17 (p<0.01). The score for Test 3 significantly differed from Test 6 (-9.03, p<0.05) and from Test 7 (-10.66, p<0.01). The significant difference between Test 4 and Test 6 was -11.25 (p<0.01) and between Test 4 and Test 7 was -12.88 (p<0.01). For all these comparisons, the difference was negative, indicating that the participants’ earlier mean scores (tests 1-4) decreased when they were tested later (tests 6-8).

Overall, results indicated that the participants’ aural comprehension showed a significant decrease from the beginning to the end of the testing period. The mean score for Test 1 was 49.89% and the score for Test 8 was 40.00%, a difference of -9.89 (p<0.05). This trend over time was significant, as determined by a repeated
measures analysis of variance (ANOVA) performed on the data. The results of this analysis are seen in Table 51.
### Table 51

*Trends in Aural Test Results*

<table>
<thead>
<tr>
<th>Trend</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>17.186 **</td>
</tr>
<tr>
<td>Quadratic</td>
<td>3.091</td>
</tr>
<tr>
<td>Cubic</td>
<td>0.008</td>
</tr>
<tr>
<td>Order 4</td>
<td>28.639 **</td>
</tr>
<tr>
<td>Order 5</td>
<td>4.307 *</td>
</tr>
<tr>
<td>Order 6</td>
<td>7.968 **</td>
</tr>
<tr>
<td>Order 7</td>
<td>15.719 **</td>
</tr>
</tbody>
</table>

Note. $df = 1, 35$

* Significant at the 0.05 level.
** Significant at the 0.01 level.

There were five significant trends shown in these results, however, only one (linear) was meaningful for this study. As only eight tests were conducted, it is unlikely that patterns in mean scores beyond linear (one direction) or quadratic (two directions) deserve consideration. Furthermore, because the result for Test 5 was so significantly different from the other test scores, it is likely to have skewed the results. Therefore, although the trend with the greatest significance was Order 4 or quartic ($F(1,35) = 28.639, p<0.01$), this result seems to have little meaning. On the other hand, the linear trend ($F(1,35) = 17.186; p<0.01$) appears more meaningful. This result indicated that on average the participants’ aural comprehension tended to decline over time.

This result may suggest that the difficulty of all tests was not standardised, and that they became increasingly more challenging. However, such a conclusion needs to be tested by considering the individual results for the control and experimental groups. These are described next.
6.3 Changes in Aural Comprehension in the Control Group

Table 52 shows the mean scores and SDs for the eight aural comprehension tests taken by the control group. Figure 9 shows the pattern of mean results in graphic form.

Table 52

Means of Aural Comprehension Tests for Control Group

<table>
<thead>
<tr>
<th>Aural Tests</th>
<th>Mean (%)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>46.05</td>
<td>11.24</td>
</tr>
<tr>
<td>2</td>
<td>40.69</td>
<td>19.56</td>
</tr>
<tr>
<td>3</td>
<td>42.44</td>
<td>16.64</td>
</tr>
<tr>
<td>4</td>
<td>41.45</td>
<td>29.51</td>
</tr>
<tr>
<td>5</td>
<td>67.61</td>
<td>25.20</td>
</tr>
<tr>
<td>6</td>
<td>28.89</td>
<td>16.05</td>
</tr>
<tr>
<td>7</td>
<td>25.13</td>
<td>19.83</td>
</tr>
<tr>
<td>8</td>
<td>48.33</td>
<td>23.83</td>
</tr>
</tbody>
</table>

Total mean score: 42.57
These results indicate some considerable variation. It can be seen clearly from Figure 9 that the results for the control group fluctuated noticeably after the fourth test. For Tests 1 to 4 there was little variation in means but striking changes occurred for Tests 5, 6 and 8. The standard deviations, however, indicate that within the control group, variations also occurred for certain tests. For example, the mean result for Test 4 was not noticeably different from earlier tests, but it had the highest SD of 29.51, indicating that some participants scored considerably higher than the mean and others very much lower. Other high SDs were seen for Test 5 (SD = 25.20) and Test 8 (SD = 23.83) while the smallest SDs in the control group scores occurred for Test 1 (SD = 11.24), Test 6 (SD = 16.05) and Test 3 (SD = 16.64). Therefore the most stable results within this group were
seen for Test 1 and Test 3, where the mean results fell close to the total mean score (42.57%) and there was less variation in participants’ scores.

Speculation that the tests became increasingly difficult over the semester (see section 6.2) is not confirmed by the results for the control group. Rather, the picture emerging from them is one of volatility, especially after the first three tests were conducted. The volatility was seen both within and across the entire control group. It was confirmed when a pairwise comparison of means for the control group was conducted to determine any significant differences in results. Table 53 shows these differences, which were significant for Tests 5, 6, 7 and 8.

Table 53

*Differences Between Means of Aural Comprehension Tests for Control Group*

<table>
<thead>
<tr>
<th>Aural Test</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-5.36</td>
<td>-3.61</td>
<td>-4.60</td>
<td>21.56**</td>
<td>-17.16**</td>
<td>-20.92**</td>
<td>2.28</td>
</tr>
<tr>
<td>2</td>
<td>1.75</td>
<td>0.76</td>
<td>26.92**</td>
<td>-11.80*</td>
<td>-15.56**</td>
<td>7.64</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>-0.99</td>
<td>25.17**</td>
<td>-13.55**</td>
<td>-17.31**</td>
<td>5.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>26.16**</td>
<td>-12.56</td>
<td>-16.32*</td>
<td>6.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>-38.72**</td>
<td>-42.48**</td>
<td>-19.28*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-3.76</td>
<td>19.44**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>23.20**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Mean scores as a percentage.

*Mean difference is significant at the 0.05 level.

**Mean difference is significant at the 0.01 level.
There were significant differences shown for the later tests, especially for Tests 5, 6 and 7. The mean result for Test 5 was substantially higher than results for the other tests; likewise, the comparisons of means indicated that Test 5 differed significantly from every other test. However, there were numerous significant differences between pairs of other tests. Test 7 differed significantly from all tests except Test 6, while Test 6 differed significantly from five of the seven other tests.

The anomalous score for Test 5 seen in the overall results (see section 6.2) was reflected in the score for the control group. The highest significant mean differences were observed between Test 5 and five other tests, all at the 0.01 level; these included Test 7 (-42.48%), followed by Test 6 (-38.72%), Test 2 (26.92%), Test 4 (26.16%) and Test 3 (25.17%). The other tests, however, also differed significantly from Test 5, including Test 1 (21.56, p<0.01) and Test 8 (-19.28, p<0.05).

Test 7 showed significant differences from six of the seven other tests. Besides its strong significant difference from Test 5, other differences occurred between Test 7 and Test 8 (23.20%), Test 1 (-20.92%), Test 3 (-17.31%), Test 2 (-15.56%); all these differences were at the 0.01 level. The mean score for Test 4 also differed significantly from Test 7 (-16.32, p<0.05). Only the mean score for Test 6 did not differ significantly from that of Test 7.

Mean scores for Test 6 differed significantly from those for Tests 1, 2, 3, 5, and 8. Differences at the 0.01 level were seen between Test 6 and Test 5, as well as Test 8 (19.44%), Test 1 (-17.16%) and Test 3 (-13.55%). Test 6 also differed significantly from Test 2 (-11.80%, p<0.05).
These differences reaffirm the volatile aural comprehension results in the control group in two ways. Firstly, more than half the differences (16 of 28) were significant, while the majority of them (13) were significant at the 0.01 level. This indicates that from one test to the next the mean results changed markedly. Secondly, the direction of change varied, with some mean differences positive and others negative. This shows that mean scores went up and down from test to test in an unpredictable manner. This was confirmed when a repeated measures analysis of variance was performed on the data for the control group.

In order to determine any significant trends in the results for the control group a repeated measures ANOVA was conducted (see Table 54). The trend in aural comprehension results over time showed significance only at order 4 and beyond⁶. However, there was no meaningful trend indicated, neither linear nor quadratic. These results confirm the earlier conclusions that the dominant pattern amongst the test results for the control group was one of great fluctuation.

⁶ Order 4 here indicates four significant changes in direction; i.e., a pattern of decrease, followed by an increase, then a decrease, and another increase in aural comprehension results.
Table 54

*Trends in Aural Test Results for Control Group*

<table>
<thead>
<tr>
<th>Trend</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>2.701</td>
</tr>
<tr>
<td>Quadratic</td>
<td>0.219</td>
</tr>
<tr>
<td>Cubic</td>
<td>2.388</td>
</tr>
<tr>
<td>Order 4</td>
<td>23.936 **</td>
</tr>
<tr>
<td>Order 5</td>
<td>6.188 *</td>
</tr>
<tr>
<td>Order 6</td>
<td>5.923 *</td>
</tr>
<tr>
<td>Order 7</td>
<td>17.953 **</td>
</tr>
</tbody>
</table>

Note. \( df = 1, 17 \)

* Significant at the 0.05 level.
** Significant at the 0.01 level.

The results for the control group showed that not only did mean results fluctuate greatly, but the range in SDs indicated further inconsistencies. Such volatility, both between tests and within them, is unlikely to be explained by the content of the tests alone. It is more likely that this group had little control over their aural comprehension. Furthermore, it seems likely that the divergent results for the control group affected the overall variation in results for the entire group. This is further examined in section 6.4 which considers the results for the experimental group.

6.4 *Changes in Aural Comprehension in the Experimental Group*

Although there was less volatility in mean results for the experimental group than for the control group, variation in this group was also evident (see Table 55). The pattern of mean results for the experimental group can be seen in Figure 10.
Table 55

Means of Aural Comprehension Tests for Experimental Group

<table>
<thead>
<tr>
<th>Aural Tests</th>
<th>Mean (%)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>53.52</td>
<td>10.23</td>
</tr>
<tr>
<td>2</td>
<td>47.92</td>
<td>15.95</td>
</tr>
<tr>
<td>3</td>
<td>45.26</td>
<td>26.53</td>
</tr>
<tr>
<td>4</td>
<td>50.53</td>
<td>21.47</td>
</tr>
<tr>
<td>5</td>
<td>57.05</td>
<td>16.16</td>
</tr>
<tr>
<td>6</td>
<td>40.52</td>
<td>14.43</td>
</tr>
<tr>
<td>7</td>
<td>40.89</td>
<td>11.76</td>
</tr>
<tr>
<td>8</td>
<td>32.11</td>
<td>15.12</td>
</tr>
</tbody>
</table>

Total mean score: 45.97

Figure 10. Mean scores for aural tests for experimental group.
The results for the experimental group fluctuated, though less so than for the control group. The highest mean score occurred for Test 5 (57.85%) and the lowest for Test 8 (32.11%). The most notable change in score occurred between Test 5 and Test 6, with a drop of 16.64%. Another notable decline in mean scores was seen between Test 7 and Test 8 (-8.79%). There was also a range in standard deviations; the smallest (10.23) was seen for Test 1 and the largest (26.53) for Test 3; however, there was no notable link between high or low scores and high or low standard deviations. This indicated that there was considerable variation and no predictable pattern amongst the participants’ results. This was also true for the control group, but to a greater degree.

Pairwise comparisons of the results were conducted for the experimental group in order to determine any significant differences. These results can be seen in Table 56.

Table 56

*Differences Between Means of Aural Comprehension Tests for Experimental Group*

<table>
<thead>
<tr>
<th>Aural Test</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-5.61</td>
<td>-8.26</td>
<td>-2.99</td>
<td>3.53</td>
<td>-13.01*</td>
<td>-12.63**</td>
<td>-21.42**</td>
</tr>
<tr>
<td>2</td>
<td>-2.65</td>
<td>2.61</td>
<td>9.14</td>
<td>-7.40</td>
<td>-7.02</td>
<td>-15.81**</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5.26</td>
<td>11.79</td>
<td>-4.75</td>
<td>-4.37</td>
<td>-13.16*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6.53</td>
<td>-10.01</td>
<td>-9.63</td>
<td>-18.42**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>-16.54**</td>
<td>-16.16**</td>
<td>-24.95**</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>0.38</td>
<td>-8.41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>-8.79*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Mean scores as a percentage.
* * Mean difference is significant at the 0.05 level.
** Mean difference is significant at the 0.01 level.
The results for the experimental group show there were fewer significant differences in test scores (9 of 28) than occurred in the control group. However, eight of those nine differences were at the 0.01 level, indicating a high degree of change from test to test. Most significant differences were seen for Test 8 as well as for Tests 1 and 5. These are described below.

Test 8 differed significantly from all tests except Test 6, but the difference from Test 6 tended toward significance. Differences between Test 8 and four of the other tests were significant at the 0.01 level, including Test 5 (-24.95), Test 1 (-21.42), Test 4 (-18.42) and Test 2 (-15.81); two were significant at the 0.05 level, including Tests 3 (-13.16) and 7 (-8.79). All differences were negative, as the Test 8 result was the lowest of all for this group. This indicates either that Test 8 was a difficult test for the experimental group, or that the group failed to try as well when attempting the test. It is a surprising result as the expectation was for increasingly better aural comprehension for the experimental group, with the final test predicted to be an obvious example of this improvement.

The score for Test 1 differed significantly from three tests, including Test 8, but also Test 6 (-13.01) and Test 7 (-12.63). All differences were at the 0.01 level.

Earlier results (sections 6.2 and 6.3) suggested that Test 5 represented an aberration amongst the test results, as the mean scores for the entire corpus and for the control group were significantly higher than for their other test scores. However, the result for Test 5 in the experimental group does not strongly support this conclusion. This is because the scores of only three tests showed significant differences from Test 5 at the 0.01 level, including Test 6 (-16.54), Test 7 (-16.16) and Test 8 (-24.95), but the remaining four showed no significant differences from Test 5. This result may suggest
that Test 5 was considerably easier than many other tests, but it does not confirm it. On the other hand, the volatility and unpredictability of the control group’s aural comprehension performance may be highlighted by contrasting the experimental group’s less volatile results.

The next stage in analysis of the results for the experimental group was to determine any significant trends in the aural comprehension results. A repeated measures analysis of variance (ANOVA) was thus performed on the data for the experimental group (see Table 57).

Table 57

<table>
<thead>
<tr>
<th>Trend</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>18.067 **</td>
</tr>
<tr>
<td>Quadratic</td>
<td>7.223 *</td>
</tr>
<tr>
<td>Cubic</td>
<td>2.288</td>
</tr>
<tr>
<td>Order 4</td>
<td>4.606 *</td>
</tr>
<tr>
<td>Order 5</td>
<td>0.029</td>
</tr>
<tr>
<td>Order 6</td>
<td>2.919</td>
</tr>
<tr>
<td>Order 7</td>
<td>1.581</td>
</tr>
</tbody>
</table>

Note. $df = 1, 18$

* Significant at the 0.05 level.
** Significant at the 0.01 level.

Significance was seen at three levels, including linear, quadratic and quartic. The strongest result was seen for the linear trend ($F(1,18) = 18.067, p<0.01$). This result indicated that within the experimental group there was a significant decreasing trend in aural comprehension scores. There was also a significant quadratic trend in aural
comprehension results, indicating an increase in aural comprehension, followed by a
decrease (F(1,18) = 7.223, p<0.05), but this was a weaker result. The weakest of the
three significant results was at the quartic (order 4) level, indicating fluctuation of test
results for the experimental group; but this result is less likely to be meaningful in a
study of only eight tests.

The significant linear trend highlights three points. One is that, though varied,
these results are less extreme than for the control group. Another is that the linear
decline in test scores for the entire corpus (see section 6.2) was caused by the linear
decline for this group. Finally, however, the trend was not consistent with the
hypothesis that the experimental group would improve their aural comprehension over
time; rather the decreasing pattern indicated a tendency to lesser comprehension.

These outcomes may have occurred due to a variety of factors. One
possibility is that the strategies in which the group was trained, were not, in fact,
implemented by the participants as they undertook the tests, or alternatively that these
strategies detracted from, rather than enhanced, aural comprehension. Another may
be that the tests were not perceived of equal difficulty by the experimental group, but
rather of increasing difficulty. This perception seemed not to have been shared by the
control group, however, as there was no significant linear decline in their test results,
indicating that the attempt to standardise the tests (except for Test 5) may have been
adequate. A range of other ID differences among the participants may also have
impacted their performance in the tests.

The consistency and variation between the control and experimental groups’
aural comprehension results will be further considered in section 6.5.
6.5 Differences in Aural Comprehension Between Control and Experimental Groups

Each of the eight aural comprehension tests was given separately but at a similar time and under the same conditions to both the control and the experimental groups. Results indicated that the experimental group performed better than the control group in six of the eight tests, but that the mean result for the control group was higher for Tests 5 and 8. This and other obvious similarities and differences between the control and experimental groups’ aural comprehension performances are considered below.

The mean scores and standard deviations for both groups are presented in Table 58.

Table 58
Means of Aural Comprehension Tests for Control and Experimental Groups

<table>
<thead>
<tr>
<th>Aural Tests</th>
<th>Control</th>
<th></th>
<th>Experimental</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (%)</td>
<td>SD</td>
<td>Mean (%)</td>
<td>SD</td>
</tr>
<tr>
<td>1</td>
<td>46.05</td>
<td>11.24</td>
<td>53.52</td>
<td>10.23</td>
</tr>
<tr>
<td>2</td>
<td>40.69</td>
<td>19.56</td>
<td>47.92</td>
<td>15.95</td>
</tr>
<tr>
<td>3</td>
<td>42.44</td>
<td>16.64</td>
<td>45.26</td>
<td>26.53</td>
</tr>
<tr>
<td>4</td>
<td>41.45</td>
<td>29.51</td>
<td>50.53</td>
<td>21.47</td>
</tr>
<tr>
<td>5</td>
<td>67.61</td>
<td>25.20</td>
<td>57.05</td>
<td>16.16</td>
</tr>
<tr>
<td>6</td>
<td>28.89</td>
<td>16.05</td>
<td>40.52</td>
<td>14.43</td>
</tr>
<tr>
<td>7</td>
<td>25.13</td>
<td>19.83</td>
<td>40.89</td>
<td>11.76</td>
</tr>
<tr>
<td>8</td>
<td>48.33</td>
<td>23.83</td>
<td>32.11</td>
<td>15.12</td>
</tr>
</tbody>
</table>
There were a few similarities in the mean aural comprehension results for the two groups tested. These similarities are considered next.

One similarity was the comparable decrease in mean score between Test 1 and Test 2, a decrease of 5.36% for the control group and a decrease of 5.60% for the experimental group. As Test 2 was conducted relatively early in the intervention period, this result could indicate that the experimental group’s command over strategy use was still limited and so comparable results between the two groups is not surprising.

Two other similarities between the groups included the increase in score from Test 4 to Test 5, and the decrease in score from Test 5 to Test 6. Initially, the scores for Test 5 seemed anomalous, as both groups scored highest in this test (control 67.61%, experimental 57.05%), indicating that Test 5 was much easier than other tests. This would explain the increase from Test 4 to Test 5 and the decrease from Test 5 to Test 6. However, pairwise comparisons showed that the Test 5 score was not significantly higher than some other test scores for the experimental group. This means that, although Test 5 may have been easier, other reasons for these results could exist. For example: Test 6 could have been more difficult than most other tests; classroom conditions at test times could have affected results; and IDs particularly pertinent to this test and between the groups could have varied.

A final similarity is seen in the fluctuation in test results for both groups. Although the experimental group’s results show a strong linear trend and are thus more consistent than those of the control group, significant variation of Order 4 was evident for both groups, as seen in Tables 54 and 57. This variability again indicates that the
intervention was not successful; rather that other IDs affected the aural comprehension outcomes in this study.

The above similarities between the groups are few, whereas the differences are more numerous and more striking. These differences are explained below.

First, although no intervention had taken place, the mean results for Test 1 differed, the control group scoring 46.05% and the experimental group 53.52%. This disparity was not due to strategy differences, as the groups were formed from matched pairs based on the first SILL test. Therefore, differences between the groups’ aural comprehension performances must have been due to other IDs.

Second, apart from the increase in scores for Test 5 and the two decreases for Tests 2 and 6, all other changes in scores were in opposite directions: where the control group increased its mean score, the experimental group’s score decreased and vice versa. This was particularly conspicuous for Tests 7 and 8 and reflects the volatility in scores for both groups after Test 4. It cannot be explained either by possible inconsistencies in the standardisation of the tests, or by the intervention program, as both the direction and magnitude of the differences in mean scores are highly varied. Again this result suggests that other IDs influenced the participants’ performances.

Another difference was seen in the degree of fluctuation in scores, the control group’s mean results rising and dropping much more noticeably than those for the experimental group. This pattern is clearly seen in Figure 11 and has been described earlier. One conclusion here is that the control group had little control over its strategy use, resulting in this obvious variability in performance.
Finally, despite the intervention, the control group outperformed the experimental group in Test 5 (control 67.61%, experimental 57.05%) and in Test 8 (control 48.33%, experimental 32.11%). These unexpected results are tempered by the higher SDs for the control group in these two tests, suggesting that a number of individuals within the experimental group outperformed individuals within the control group. Nevertheless, the expectation was that the experimental group would outperform the control group, especially after intervention. It is not possible to explain why this occurred, but clearly strategy use was not a significant factor in the results for the experimental group in these two tests, and it is more likely other IDs influenced these participants’ performances.

The final analysis conducted to compare the two groups was a repeated measures ANOVA (see Table 59). This indicated there was no linear interaction between the control and experimental groups which suggested that neither group improved its aural comprehension more than the other over the semester. At the cubic level, however, significance was indicated ($F(1,35) = 4.684; p<0.05$), showing that the control group’s aural comprehension results fluctuated more significantly than did those of the experimental group, in three directions. These fluctuations can clearly be seen in Figure 11.
Figure 11. Mean scores for aural tests for control and experimental groups.

Table 59

Contrasts in Aural Test Results Between Control and Experimental Groups

<table>
<thead>
<tr>
<th>Contrast</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>3.220</td>
</tr>
<tr>
<td>Quadratic</td>
<td>.872</td>
</tr>
<tr>
<td>Cubic</td>
<td>4.684*</td>
</tr>
<tr>
<td>Order 4</td>
<td>9.382**</td>
</tr>
<tr>
<td>Order 5</td>
<td>3.474</td>
</tr>
<tr>
<td>Order 6</td>
<td>.022</td>
</tr>
<tr>
<td>Order 7</td>
<td>5.064*</td>
</tr>
</tbody>
</table>

Note. $df = 1$
* Significant at the 0.05 level.
** Significant at the 0.01 level.
The results of this study do show similarities with few earlier studies. They are consistent with those of O’Malley (1987) which showed an insignificant difference between control and experimental groups’ proficiency outcomes. O’Malley suggests factors other than learning strategies affected his results, such as task difficulty, time limits or variations in other IDs amongst the class. This may also be true for the current study. By contrast, the results of the study by Thompson and Rubin (1996) showed significant increases in aural proficiency by strategy trainees. However, their training was over one academic year, whereas training in the current study was conducted for only one semester; moreover, the aural comprehension results in their study reached significance for video but not for audio materials.

As suggested by O’Malley, other IDs may have impacted on these results. These may include student motivation, such as indicated in Nikolov’s (1999, p. 54.) study where FL learning is impacted by “classroom-related motives even at the age of 14”. The participants in the experimental group may not have appreciated the benefit of learning strategies and only used them when constantly pressed by the researcher rather than adopting them as their own. Further, Dörnyei suggests that “learners tend to demonstrate a fluctuating level of commitment even within a single lesson, and the variation in their motivation over a longer period (e.g., a whole academic term) can be dramatic.” (2003, p.17.); this suggests inconsistent motivation to use the strategies taught may have affected the experimental group in this study. Gender, too, as observed by Carr (2002) may have affected these results, as the majority of participants were boys who prefer active (kinesthetic, tactile) learning, whereas the strategy training was cerebral rather than physical. Moreover, the listening activity itself was passive and non-interactive,
requiring uni-directional listening and short-answer or multiple-choice answers, rather than two-way verbal or physical activity responses; this may have resulted in the boys reacting negatively both to the listening task and to the strategies for tackling it.

Another explanation proposed by Green and Oxford (1995) considers ability, or level of learning, where students may not have learned enough of the L2 to utilise the strategies in which they were trained. Similarly, Bandura (1986, cited by Yang, 1999) says that students’ self-perception of ability will affect their choice of activity; they will avoid an activity if they do not believe they can adequately manage it. Therefore, in this study the experimental group may not have used the strategies they were taught believing that utilising the strategies would not be successful, that they did not have the proficiency or skill to utilise them, or both. Such an explanation is consistent with the further possibility, mentioned in earlier sections of this study, that self-development of strategy use may have been more suited to this group of participants than was active intervention. Alternatively, as Vandergrift (2003. p. 476) suggests, the process of strategy learning is complex and requires the learner “to systematically orchestrate a cycle of cognitive and metacognitive strategies”, meaning here that the experimental group may not have adequately integrated the learned strategies.

Vandergrift (2003) also suggests that the level of skill and proficiency level of the learners affects the efficacy of their strategy use, the higher the skills, the better integrated and utilised the strategies. In addition, he highlights the teacher’s dilemma in learner strategy training by stating that “[a]lthough teachers can prepare students for attentive monitoring, teacher intervention during this phase is virtually impossible.” (Vandergrift, 2003. p. 475) This shows that whether or
not students are implementing taught strategies, and thus how successful their learning may be, can be difficult to monitor.

Further, the above results may have been impacted by factors other than learner IDs, that is, by factors not considered in this study. This may include teaching methodology or strategies, such as by the researcher who implemented the strategy training, or by the regular classroom teachers. Follow-up studies into improving aural comprehension proficiency might focus on elements of teaching as well as on the elements of learning considered here.

6.6 Conclusion

This study demonstrated that the aural comprehension of the participants as a whole showed a linear decrease, with the high result for Test 5 proving to be a significant departure from the pattern. Strong fluctuations characterised the results for the control group, both within the group and for the group as a whole. The experimental group also showed variable test results; however, there was a decreasing linear trend, which was reflected in the results for the entire corpus. Such results suggest that, despite the attempt at standardisation, it is possible that the tests were increasingly difficult on the whole, but that Test 5 may have been considerably easier. In addition, the linear decline in results by the experimental group indicates that the strategy training program was unsuccessful in improving performance for that group.

The results of this study confirm suggestions by O’Malley (1987) that factors other than learning strategies may have greater impact on outcomes, including task difficulty, or other IDs. This conclusion is true for both the control and the experimental
groups, both the groups’ fluctuating results indicating a lack of strategy control and thus a more likely reliance on other IDs, and the experimental group’s declining results indicating a lack of positive impact of strategy training.

Differences between the control and experimental groups were more obvious than similarities, which was seen in the greater variability in aural comprehension results for the control group than for the experimental group, as well as in the unexpectedly superior mean results for the control group in Tests 5 and 8. These comparisons reinforce the conclusion that strategy training for the experimental group did not bring about improved proficiency, but they may also signify that the training tended to stabilise strategy use, thus curbing volatility of results for the experimental group compared with the control group.

Nevertheless, the results of this study indicated that neither group improved or decreased its aural comprehension performance over the other, and that regardless of intervention, aural comprehension performance amongst the participants as a whole, did not significantly improve over the semester. Therefore, the expectation that participants who had been trained in learning strategies (experimental group) would demonstrate better aural comprehension than participants who were not trained (control group) was not fulfilled.
7. Conclusion

This study was conducted to determine what relationships there were between individual differences (IDs) - background factors, affective factors, learning style and aptitude - and language learning strategies (LLS). It also aimed to discover whether training in LLS would improve listening comprehension. The results showed that complex and dynamic relationships exist between IDs and how well students learn. Some IDs including certain background, affective and style factors correlated with LLS, whereas others did not. It was also found that training in LLS was not successful either in increasing the use of LLS or in improving aural comprehension. In addition, the study indicated that positive affective factors, particularly motivation, seemed to be significant in successful FL learning. This chapter will consider the outcomes and draw some conclusions about the effect of training in LLS, and the effects of IDs on training and foreign language (FL) learning. Implications which may be important for researchers and for teachers will be discussed. The limitations of this study will also be considered.

The correlation of background factors with LLS varied in this study. For example, the immediate appeal of and self-efficacy about language learning (enjoyment of studying the L2 and perceived proficiency compared with classmates) seemed to correlate with LLS use, whereas a broader interest in language learning (perceived proficiency compared with native speakers and perceived importance of language proficiency) did not. Language learning experience correlated with only a few LLS, despite the fact that most participants had relatively equal L2 learning experience. The result did not mirror all previous studies, rather it confirmed Oxford’s (1990a) conclusion that more experience
does not necessarily mean students use more or better strategies. Gender profoundly influenced the overall result for the strategy ‘inferencing’, thus suggesting that teachers need to be aware of the gender divide in their classes, so that they do not assume homogeneity where it does not exist. All these results indicate that strategy choice is influenced by various IDs in a complex and dynamic way.

The influence of various IDs in the classroom was also seen in the results of the Affective Survey and their correlation to LLS. However, the strong relationship between motivational factors and LLS was particularly notable.

The significant correlations with LLS of all four motivational factors tested in the Affective Survey (effort to study the L2, intrinsic motivation, desire to use the L2 outside class and extrinsic motivation) indicate the importance of motivation in FL learning. For teachers who choose to teach learning strategies, the results suggest that motivation may be a useful pre- or co-requisite for such training.

The motivational factor emerged as one possible reason for several results in this study. For example, participants in this study liked and made an effort in the L2, but did not make an effort to learn LLS. This was notable for the young adolescent boys in this study who were more disinclined to use strategies when compared with girls. It may be that motivation to learn the L2 is clearer or more definitive to the students whereas learner strategies are seen as abstract and not relevant. The results indicated that if learners are convinced or motivated to use strategies, they will use them, but without such conviction they may or may not. Similarly, the participants’ negative attitude to tests may have impacted on their results in aural comprehension which was tested eight times over one semester. If
the aural comprehension tests were perceived negatively, levels of endeavour may have been low, something common in adolescent students according to Sigelman (1999, cited in MacIntyre, Baker, Clément, & Donovan, 2003). The results here indicate that motivation to learn a FL may be a significant if not the most important factor in learning and in using strategies; therefore, teachers may be best advised to encourage such motivation. If this is so, then employing strategies to motivate might be a first and more important step in teaching practice than training young adolescents in learner strategies. Further studies of motivational factors and strategy use among young adolescents learning FLs are required as few exist. In addition to investigating correlations between these factors, and in order to clarify some of the issues mentioned above, such future studies could include interviews of learners about their motivation to use or not use strategies.

The study showed that a number of positive affective factors correlated significantly with use of LLS (enjoyment, proficiency, effort, motivation and authentic use of L2). However, not all affective factors correlated with LLS, again demonstrating the complexity of IDs. For example, confidence levels (L2 proficiency compared to peers) showed no correlation with strategy use, contrasting with Oxford and Ehrman’s (1995) study of adults. Despite the obvious age difference between this and Oxford and Ehrman’s study the reason for the contrasting results may be more complex than simply age, with gender, stage of development, attitudes and/or language learning experience also contributing to the differing results. Teachers, therefore need to be aware of such complexities when teaching LLS.

Results of the interaction between learning style and LLS were also complex. Several Language Style Questionnaire (LSQ) factors correlated with
LLS, whilst others did not. For example, participants favoured group learning which showed no significant correlations with LLS, but all correlations were negative, and they also favoured kinesthetic learning which did show strong correlations with LLS. Results for the Language Style Profile (LSP) showed similar variability, with few of the 23 variables correlating with LLS, but ‘sequential processing’ and ‘categorisation’ correlating significantly with more than half the LLS.

The style factors characteristic of this group of participants may have had a negative impact on training in LLS. For example, results showed the participants generally were physically active, talkative and outspoken, and preferred studying in large groups, in the mornings but not in the afternoons. They did not visualise ideas, hear ideas or react emotionally to ideas when learning. They were disinclined to remember things, or to focus attention; they were easily distracted and they did not favour analysing problems. Although this group showed stronger preference for morning and less for afternoon study than did Keefe and Monk’s (1986) larger population of Year 9 students, and were more distracted and less inclined to focus on detail or analyse, nevertheless, their style preferences may indicate that Year 9 FL students’ learner style may impede strategy training. Most of the reported characteristics could be seen as conflicting with the requirements of the specific strategies in the training program where students were required to sit and listen as individuals or as a class. To practise ‘selective attention’ students had to identify, focus on and listen for certain ideas without being distracted by other ideas or sounds they heard. For ‘elaboration’ they had to relate or associate ideas or items to other ideas or information they already had. For ‘inferencing’ students had to guess unknowns by understanding in context
other language they heard. Finally, ‘self-monitoring’ required checking, and verifying or correcting their comprehension. All of these require learning characteristics that were not readily favoured by the group. Furthermore, the training occurred in the afternoon, they had to listen and concentrate both when strategies were demonstrated and when they practised strategies, and they were supposed to remember and then practise and demonstrate a series of four strategies over one semester. The unsuccessful outcome of the intervention program seems therefore to reinforce for practitioners the importance of learner style in teaching and learning.

As the number of studies testing strategy use and learning style is limited, and those that exist differ from the results in the current study, it is clear that further research into these factors is called for, especially among young adolescent learners.

The final ID tested, language learning aptitude, indicated that the participants were of average ability. There was a weak relationship between aptitude and strategy use with only one part of the test (rote memory) correlating significantly with LLS.

There is a dearth of information available comparing FL learning aptitude with strategy use. This is a field in which much work could be done in future.

In this study training in LLS was unsuccessful in two ways. Firstly, use of LLS was not altered by the training program. Secondly, aural comprehension performance was unaffected by strategy training. A summary of each of these and possibilities for further research are presented below.

Despite results showing an overall increase in strategy use for all participants, which was also shown by both weak and strong FL students Chamot
and Kupper’s (1989) study, there was a lack of significant difference between the control and experimental groups’ use of LLS. Hence, for this group of participants, factors other than strategy training affected their use of strategies. One possibility is that the mere presence of the trainer in the classrooms may have raised student awareness of learning strategies, even in the control group, thus boosting LLS use amongst both groups. However, as use of LLS over the 10 month period tended to decrease for the experimental group, while the control group was more inclined to maintain their strategies, the question arises as to whether the training restricted the use of other LLS in the trainees, such that their overall usage tended to decline. Another question emerges as to whether increased experience in language learning (such as length of time studied, level of proficiency) may advance the use of LLS (Green & Oxford, 1995) and thus these young adolescents’ limited experience may have negatively affected the results. Alternatively, one can ask whether the use of LLS may be a natural developmental process in young adolescents which cannot be altered through training. A longitudinal study over a number of years monitoring natural changes in LLS for young and adolescent (or even adult) learners may be called for here. As there is no explanation as to why use of LLS did not increase due to training, the way is open for future studies to consider whether other learners would similarly not gain from such training, and also whether the type of training or any training at all should be recommended for adolescent learners.

As well as not changing LLS use, strategy training did not affect aural comprehension performance. There was no significant change in aural comprehension overall, nor any significant difference between the control and experimental groups’ aural comprehension, which meant that the hypothesis that
training in LLS would improve aural comprehension was not proven. This may have been attributable to various factors.

Firstly, there may have been flaws in the aural comprehension tests. For example, the eight aural comprehension tests may not have been properly standardised. Alternatively, the content of some aural comprehension tests may have closely matched the language which students learned prior to taking the tests, thus resulting in higher scores (e.g., Test 5); on the other hand, the content of other tests may not have matched the language studied prior to participants sitting the tests, resulting in lower scores. This possibility is even more likely in that the two classes were taught by two different regular classroom teachers. Further, it may be that audio materials are not used regularly by class teachers, resulting in lack of familiarity with or appreciation of the materials presented by an outsider.

Secondly, once all the data had been collected and analysed it was apparent that the participants’ learning style seemed mismatched to the training program. For example, the participants favoured morning study and disfavoured afternoon study, but because of timetable constraints there was a preponderance of afternoon intervention classes (4 of 19 classes were during Period 1; 15 were during Period 5 or 6 of a six-period school day). Participants were readily distracted, were not individual learners but were small group learners who liked kinesthetic and tactile tasks (style factors common amongst males (e.g., Carr, 2002) which the greater majority of these participants were) yet they were required to concentrate, individually, on non-kinesthetic, non-tactile training activities. Moreover, not only were the training activities mismatched to the participants’ style, but also the aural comprehension tests did not match their style preferences. Implementing recommended strategy training programs such as
Wenden’s (1991) and teaching recommended strategies such as those suggested by Chamot, Kupper and Impink-Hernandez (1988b) therefore seem suitable only if the students’ learning styles are appropriately incorporated. This is a point that teachers need to be cognisant of when programming their teaching.

Thirdly, the implementation of the training program may have been inappropriate for the specific circumstances of this study. The timing of the program may have been unsuitable (e.g., too rushed, or inadequate revision and practice time). The training may not have been adequately integrated into the regular classroom program (e.g., aural comprehension tasks presented by the researcher may not have closely enough matched those presented by the regular classroom teacher). The researcher as an occasional visitor may not have been well accepted as a trainer in LLS; rather the participants may have responded better to a regular classroom teacher as their trainer. The value of strategy use may not have been clear to the participants during the training program or during the preparation stage of the program (O’Malley & Chamot, 1988). Even the specific classroom conditions on the day of the tests (heat/cold, previous activities, anticipated later activities) may have negatively influenced the results.

Finally, it is likely that the many, various other IDs may have affected individual participants’ aural comprehension performance. These may include motivation (e.g., temporal motivation which particularly affects adolescents according to Dörnyei (2003) or Nikolov’s (1999) “classroom-related motives”), experience, age, background, aptitude or learning style. However, IDs not identified in this study such as student personality variables (e.g., poor self-perception of ability (Bandura, 1986, cited by Yang, 1999)), or environmental factors such as group dynamics within specific classrooms, student perceptions of
the tests’ content and relative difficulty, as well as the range of teaching variables may also have had an impact resulting in participants’ aural comprehension performances varying as they did. All these possibilities leave room for follow-up studies; such studies could include post-intervention tests not only of LLS, but also of the other IDs, and may incorporate interviews of participants.

A limitation to this study is clearly seen in the small number of participants (N=37). Although some comparisons of this study can be and have been made with other studies, no generalisations of these results are possible due to this very small sample size. Nevertheless, this study presents numerous issues of importance to classroom practitioners, including those related to IDs, as mentioned above, and to those concerning strategy training.

The results of this study present implications for researchers of LLS training programs in listening comprehension. One consideration for further research may be the matching of the listening comprehension activities more closely to the learning styles of the students. For example, the listening task could require kinesthetic learners to do something physical, rather than to choose a correct answer or to write a short answer response. Alternatively, rather than the training program being ‘fully informed’ (Brown, Bransford, Ferrera & Campione, 1983; Wenden, 1987b), the students could be trained as ‘blind’ or ‘partially informed’ participants. Despite Wenden’s misgivings about ‘blind’ and ‘partially informed’ LLS training, given the IDs of the group in this study (such as their level of confidence) a modified training program may be more suited to young adolescent students like these. Birch’s (2001) study found this was true for Year 8 immersion French students who used more strategies after implicit instruction than did students who had explicit instruction in LLS. However, Vandergrift
(2003) says teachers cannot monitor if LLS are being implemented as they cannot intervene at the time of the activity, which is an argument for using follow-up interviews to help determine if and why or why not LLS are used.

This study also has pedagogical implications for teachers attempting to optimise learning in their FL classes. Teachers should consider the lack of success of the training program in this study and decide what changes ought to be made if they were to implement a similar program. On the other hand, with results indicating that use of LLS increased for all participants with or without intervention, teachers may consider a training program to be unnecessary; they may think the development of LLS should be allowed to progress naturally among young adolescent learners. However, as the results throughout this study indicated a strong impact of motivational factors on student learning, teachers may decide their efforts are better directed to enhancing student motivation.

It is clear from this study that individual learner differences played a major role in FL learning. Positive affective factors such as motivation seemed to be significant contributors to successful FL learning. Notwithstanding the results of prior studies of LLS and training in LLS, it seems that teachers of FLs need to recognise that the plethora of IDs amongst FL learners have a complex relationship with learning. When considering the optimal environment and activities for teaching and learning of foreign languages in their classes, not only should teachers focus on language learning skills, such as LLS, but they should also pay attention to other IDs among their students. Teachers should accommodate their teaching programs and facilitate learning programs flexibly in accordance with the uniqueness of their individual classes. This will include recognising the value of examining their learners’ backgrounds, learning styles,
affective preferences, and personalities. How training students in LLS can best be adapted to these myriad factors may well be as unique as each classroom, and certainly an area requiring much further research, especially for this age group.
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mailbox://C%7C/Program%20Files/iiNet/WWW/M...52.CAA19564@x08.infonautics.com&number=21


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Appendix A

Background Questionnaire

Note: Based on Oxford, 1990, p. 282

1. Name: ______________________  2. Date: ______________________
6. Language(s) you speak at home: _________________________________
7. Language you are now learning. (One language only.) ________________
8. How long have you been studying the language listed in #7? ________________
9. How do rate your overall proficiency in the language listed in #7 as compared with the proficiency of other students in your class? (Circle one)
   Excellent       Good       Fair       Poor
10. How do rate your overall proficiency in the language listed in #7 as compared with the proficiency of native speakers of the language? (Circle one)
    Excellent       Good       Fair       Poor
11. How important is it for you to become proficient in the language listed in #7? (Circle one)
    Very important       Important       Not so important
12. Why do you want to learn the language listed in #7? (Tick ALL that apply.)
    _____ interested in the language
    _____ interested in the culture
    _____ have friends/relatives who speak the language
    _____ required to take the language course to graduate
    _____ need it for my future career
    _____ need it for travel
    _____ other (list): ________________________________
13. Do you enjoy language learning? (Circle one)  Yes  No
14. What other languages have you studied? ________________________________

15. What has been your favourite experience in language learning?
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
Appendix B

Strategy Inventory for Language Learning (SILL)

Version for English speakers learning a new language.
Appendix C

Worksheet for Strategy Inventory for Language Learning (SILL)

Appendix D

Affective Survey

[based on "Affective Survey" by Madeline E. Ehrman, 1991, United States Department of State, School of Language Studies, Foreign Service Institute, 1400 Key Boulevard, Arlington, Virginia 22209]
Appendix E

Learning Style Questionnaire

Appendix F

Learning Style Profile

Source: Keefe and Monk, 1986.
Appendix G

MODERN LANGUAGE APTITUDE TEST
FORM A

John B. Carroll and Stanley M. Sapon

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**Appendix H**

*Study Program for Experimental Group*

*Note: Program prepared by regular classroom teacher. Items in **bold** (added later) indicate intervention program for current study.*

**XXXXXXX SCHOOL**

**PROGRAMME YEAR 9: INDONESIAN**

**TERM 1, 2000**

**CYCLE 1A:**
- Day 2: p.6 **50 minute Aur Comp Pre-test** by Ibu W Young
- Day 3: p.5 **50 minute Aur Comp Pre-test** by Ibu W Young
- Day 4: p.6 Latihan Mengeja (revising Indonesian alphabet: sing the ABC) & Kenalkan
- Day 7: p.5 Kegiatan Sehari-hari (Daily Activities): Bangun tidur pada jam 7 pagi

**CYCLE 2B:**
- Day 1: p.1 Kegiatan sehari-hari: Reading Comprehension: from H. Hendrata’s course book. Lagu Indonesia: Bangun tidur ku terus mandi
- Day 2: p.6 **25 minute Aur Comp. Kegiatan sehari-hari by Ibu W. Young (14/2/2000)** & Latihan: kegiatan setiap hari (every day I go to school at 8 am etc…)
- Day 3: p.5 Latihan Mendengar Daily Activities (kegiatan anak-anak di Indonesia)
- Day 5: Essay: Kegiatan Sehari-hari (minimum 60 words) 15/2/2000
- Day 7: p.5 Waktu senggang dan kegemaran atau hobi (Leisure and Hobbies) 21/2/2000
  - B.T.1 page 42 & latihan suka, sangat suka, kurang suka, benci, dll.

**CYCLE 3C:**
- Day 1: p.1 Kegemaran: tell us about your hobbies! Saya juga senang berenang …
- Day 3: p.5 Latihan Kegemaran & Reading Comprehension waktu senggang & hobi

**CYCLE 4 A:**
- Day 1: p.1 Kebudayaan (culture): SUKU BANGSA INDONESIA (the ethnic groups of Ind.)
- Day 2: p.6 **25 minute Aur Comp with Ibu W. Young & SUKU BANGSA: diteruskan (cont’d) 3/3**
- Day 3: p.5 SUKU BANGSA (ke perpustakaan: to the library) 7/3/2000
- Day 4: p.6 SUKU BANGSA bekerja di kelas dengan guru (work in class)

**CYCLE 5 B:**
- Day 1: p.1 Percakapan: sendiri, keluarga, hobinya, sekolah
  - Kebudayaan: Pakaian Indonesia dan pakaian sekolah & pakaian biasa.
- Day 2: p.6 **ORAL TEST : SELF & FAMILY & HOBBIES**
- Day 7: p.5 Suku Bangsa Assignment: due & Introducing: Days of the Week

**CYCLE 6 C:**
- Day 1: p.1 Days of the week: *Pada hari Senin saya ke sekolah: saya suka berenang pada hari Sabtu*
- Day 7: p.5 Sekolah: Buku B.T. 1 page 30 di sekolah: Sekolah di Indonesia & sekolah di Australia

**CYCLE 7A:**
- Day 1: p.1 Sekolah di Indonesia dan sekolah di Australia: latihan bertanya jawab
- Day 2: p.6 **25 minute Aur Comp with Ibu W. Young: sekolah**
- Day 3: p.5 Permainan (games) Congklak
- Day 4: p.6 Permainan Congklak

N.B. Assessments are underlined. Other assessment may be used. Weightings are equal over the year for: LISTENING, SPEAKING, READING, WRITING, CULTURE and TESTS (grammar and vocabulary etc.)
**Cycle A:**
Day 7A: Hari Jumat  
Selamat Datang ke Kelas 9: Senang kembali ke sekolah?  
*Sekolah, sehari- hari revision*

**Cycle B:**
Day 1B: Hari Senin  
*Binatang: Anda memelihara binatang?*  
B.T.1 (hal. 28) & Kenalilah Indonesia (hal 89)

Day 2B: Hari Selasa  
Bercakap-cakap mengenai binatang: do you have a pet?  
*Do you like animals?  
25 min. Aur Comp with Ibu W. Young: Binatang:*  
(e.g. *Orang Bali memelihara anjing*) 2/5/00

Day 3B: Hari Rabu  
*Binatang: kesukaannya, kebiasaannya, sifatnya, kebaikannya, dll.* (animals characters)

Day 7B: Hari Selasa  
*Binatang: bernyanyi dari Buku Kenalilah Indonesia: Old McDonald had a farm : 9/5/2000*  
Binatang Pak Agung dan bunyinya (*the sound those animals make*) & binatang di Indo.

**Cycle C:**
Day 1C: Hari Rabu  
*Binatang Test (written with pictures and Reading Comprehension)* 10/5/00

Day 2C: Hari Kamis  
*25 Aur Test with Ibu Young on Binatang: Adjectives & comparisons*  
(kata sifat: buku merah; mobil BMW lebih mahal d.p. Toyota)

Day 3C: Hari Jumat  
Comparisons (*perbandingan*) mutu lebih baik, ini tertinggi, paling mahal, *berbelanja apa*

Day 7C: Hari Kamis  
*Adjectives & comparisons Barang-barang belanjaan dan harganya*  
(expensive goods)

**Cycle A:**
Day 1A: Hari Jumat  
Food Shopping: (*berbelanja makanan, bagaimana makanan itu, enak, segar, sehat, mahal*)

Day 2A: Hari Senin  
*25 min. Aural Comp. with Ibu W. Young: adjectives & comparisons*  
22/5/00

Practice shopping: *suka apa? ingin membeli apa? Wah, mahal, boleh menawar?*

Day 3A: Hari Selasa  
*Test: Shopping: bebelanja makanan berapa harganya*  
*Oral Test: Berbelanja: at a shop 2 people buy and sell*

Day 4A: Hari Rabu  
Continue with *Oral test Berbelanja 24/5/00*

Day 7A: Hari Senin  
*Clothing (pakaian): ukuran dan warna dan macamnya*  
(*31/5/00*)

**Aural Test with Ibu Young on Berbelanja**

**Cycle B:**
Day 1B: Hari Kamis  
*Surat menyurat (correspondence): Marilah kita bersahabat pena*  
Let’s write to Indonesian pen friends: *Kenalkan, Keluarga Saya, Rumahku dan Daerahnya, Sekolah, Kegemaran, Binatang, kegiatan sehari-hari, teman-teman, pakaian, dll.*

Day 2B: Hari Jumat  
*Surat Menyurat: continue writing letters in Indonesian & Reading*  
Indonesian letters.

Day 3B: Hari Selasa  
*Aural Test with Ibu W. Young: sekolah dan murid murid Indonesia*  
6/6

*Membaca surat dan membalasnya* (reading & answering letters)

Day 7B: Hari Senin  
*Written Test: Menulis Surat untuk dikirim: writing letters in Indonesian*
Cycle C:
Day 1C: Hari Selasa
Let’s look into our grammar: tatabahasa: adalah, ada, sedang, Possession (kepunyaan): ku, mu, nya, anda, Ibu, Bapak Tense: (kapan?) hari ini, kemarin, besok, tahun depan ...

Day 2C: Hari Rabu
Aural Test with Ibu W. Young: topiknya apa saja untuk diulangi (for revision) 14/6/00 Latihan latihan: tatabahasa yang dipelajari (grammar exercise)

Day 3C: Hari Kamis
Kenalilah Indonesia Book 1 Pelajaran 5: Buah buahan dan Makanan & Minuman Ind.

Day 7C: Hari Rabu
Di Restoran: Reading Comprehension Kenalilah Ind (hal 82): Rumah Makan Perak Belajar Daftar Makanan (Menu) dan harganya

Cycle A:
Day 1A: Hari Kamis
Hiburan di Australia: entertainment: Pergi ke rumah makan, ke bioskop atau ke disko?

Day 2A: Hari Jumat
Hiburan di kota Perth: Apa yang anda lakukan? (What do you do on Saturday?) Pada hari Sabtu biasanya saya ..., tetapi kadang-kadang saya .... kalau ada uang ...

Day 3A: Hari Senin
Aural Comp. with Ibu Young: hiburan

Day 4A: Hari Selasa
Test with Ibu W. Young: Selamat Tinggal, anak-anak!

Day 7A: Hari Jumat
Pelajaran terakhir, boleh bersenang-senang! Selamat Berlibur!

N.B. Assessments are underlined. Other assessment may be used.
Appendix I

Listening Activities (Berbelanja) – Example of Transcript to Practise Listening Strategies.

Berbelanja - Test Transcript

This is a listening test on the topic Berbelanja. There are three dialogues. You will hear each dialogue three times. Choose the best answer to each question, based on the dialogues.

First Dialogue

Before beginning, read through the questions for the first dialogue "Membeli Tas". Decide how you will tackle the questions. You will now have 30 seconds to read the questions 1 to 4 for "Membeli Tas" and plan how you will answer the questions.

(30 seconds)

We will now hear the dialogue "Membeli Tas". First reading.

(Membeli Tas)

Before hearing the dialogue again, answer the questions you can. Then think about how you will try to confirm your answers during the second listening. You now have a few seconds to do this before the second reading.

(10 seconds)

Second reading

(Membeli Tas)

Before the third reading, think again about how you will confirm your answers.

(5 seconds)

Final reading

(Membeli Tas)

Now complete your answers to the first dialogue.

(5 seconds)

Second Dialogue

Now read the three questions for the next dialogue, "Membeli Pakaian". Decide how you will tackle the questions. You will now have a few seconds to do this.

(20 seconds)

"Membeli Pakaian". First reading.

(Membeli Pakaian)

Answer the questions you can. Then think about how you will listen during the second reading. You now have a few seconds to do this.

(5 seconds)
Second reading
(Membeli Pakaian)
Before the third reading, think again about how you will confirm your answers.
(5 seconds)
Final reading
(Membeli Pakaian)
Now complete your answers to the second dialogue.
(5 seconds)

Third Dialogue
Now read the three questions for the third dialogue, "Membeli Sepatu". Decide how you will tackle the questions. You will now have a few seconds to do this.
(20 seconds)
"Membeli Sepatu ". First reading.
(Membeli Sepatu)
Answer the questions you can. Then think about how you will listen during the second reading. You now have a few seconds to do this.
(5 seconds)
Second reading
(Membeli Sepatu)
Before the third reading, think again about how you will confirm your answers.
(5 seconds)
Final reading
(Membeli Sepatu)
Now complete your answers to the final dialogue.
(5 seconds)
### MEMBELI TAS

1. What does she want to buy?
   - a. a formal handbag
   - b. a cheap bag
   - c. a black bag
   - d. a bright coloured bag

2. How does she reduce the price?
   - a. bargains
   - b. asks for a discount
   - c. uses her Diners card
   - d. buys more than one

3. Which bag is cheaper?
   - a. the red one
   - b. the black one
   - c. the yellow one
   - d. the green one

4. How much does she pay all together?
   - a. 100 000
   - b. 90 000
   - c. 60 000
   - d. 50 000

### MEMBELI PAKAIAN

1. What is the man looking for?
   - a. a light blue shirt
   - b. a dark blue shirt
   - c. light blue trousers
   - d. blue jeans

2. What is long?
   - a. the sleeves
   - b. the jeans
   - c. the trousers
   - d. the tie

3. What does he pay?
   - a. Rp 70 000 for the shirt
   - b. Rp 70 000 for the shirt and trousers
   - c. Rp 100 000 for the blue jeans
   - d. Rp 100 000 for the lot

### MEMBELI SEPAATU

1. What is wrong with the first item?
   - a. too big
   - b. too small
   - c. too old
   - d. wrong colour

2. Which product does she buy?
   - a. size 40
   - b. the red ones
   - c. the big ones
   - d. the cheap ones

3. Why can't she bargain?
   - a. it's a market
   - c. she doesn't know how to
Listening Activities: Example of Short Answer and Multiple Choice Questions

Year 9 Listening Test

Nama saya ___________

Memelihara Binatang

Binatang Lisda

1. Why do they have chickens? (2)

2. How many rabbits do they have? (1)

3. How many dogs do they have? (1)

4. Who looks after the animals? (2)

Memelihara kucing

5. Who owns the cat?
   a. The first speaker  
   b. The first speaker's brother/sister
   c. The second speaker  
   d. The second speaker's brother/sister

6. Why is the cat well-named?
   a. It is really fat  
   b. It is naughty
   c. It is black  
   d. It is pretty

Memelihara anjing

7. Why doesn’t she like the dog? (2 reasons)
## Appendix J

**Teacher Interview Guide**

---

1. **PRONUNCIATION**
   
   You want your students to pronounce several words. You say them aloud. They must repeat them, using the same pronunciation as you.

   **My questions are:**
   
   1. Do you do this activity in your class?
   2. Do you teach any special ways to make sure that students copy your pronunciation? (Any ways they can remember the pronunciation?)

2. **ORAL DRILLS/GRAMMAR EXERCISES**
   
   You ask your students to: (pick an appropriate example)
   
   1. Repeat a sentence
   2. Memorise a dialogue
   3. Change positive to negative (give example)
   4. Answer questions (give example)

   **My questions are:**
   
   1. Do you do this in your class?
   2. Do you teach your students ways to remember what you say?
   3. Do you teach your students any special techniques to understand the sentences?

3. **VOCABULARY LEARNING**
   
   You want your students to learn the meanings of ten new words in Indonesian.

   **My questions are:**
   
   1. Do you do this in your class?
   2. Do you teach students any special tricks to help them learn and remember new vocabulary words?

4. **INSTRUCTIONS/DIRECTIONS**
   
   In this situation, you ask your students to do some activity. They must understand what you say, remember the steps needed to do the activity, and then actually do it.

   **My questions are:**
   
   1. Do you do this activity in your class?
   2. Do you teach your students any special tricks to help them understand or remember?

5. **OPERATIONAL (FUNCTIONAL) COMMUNICATION**
   
   Your students need to buy something in a shop or market. Or they need to make a telephone call for information.

   **My questions are:**
   
   1. Do you expect them to prepare beforehand? If so, how?
   2. Do you teach them ways to help understand what other person(s) say to them?
   3. Do you teach them ways to make themselves understood?

6. **INFORMATION PRESENTATION (RECALL/ANALYSIS)**
   
   Your students are to hear someone conveying information (monologue) in Indonesian, either live (teacher or student speaking at the front) or recorded on tape. They are expected to understand, get the main idea, and then answer questions.

   **My questions are:**
   
   1. Do you do this in your class?
   2. Do you teach them techniques that may help them understand?
   3. Any techniques to help them remember the main idea and details?

7. **INFORMATION PRESENTATION (INFERENCE)**
   
   The speaker in the information presentation (monologue) says some sentences with words that students may not know. They have to figure out the meaning.

   **My questions are:**
   
   1. Do you teach them any special tricks to help them do this?
## Appendix K

### Observation Sheet for EXPERIMENTAL Group

<table>
<thead>
<tr>
<th>Guidelines &amp; Objectives for strategy training</th>
<th>Yes/No</th>
<th>Comments:</th>
</tr>
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<tbody>
<tr>
<td><strong>1. Is the strategy training INFORMED?</strong></td>
<td></td>
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<tr>
<td>ie Do students know fully what they are doing and why?</td>
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<tr>
<td><strong>1a. Is the concept 'strategy' introduced?</strong></td>
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<td><strong>1b. Is the strategy named and demonstrated?</strong></td>
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<td><strong>1c. Is the significance of the strategy explored?</strong></td>
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<td><strong>2. Is the strategy training SELF-REGULATED?</strong></td>
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<td>ie Are students shown how to regulate their strategy use / be in control of their strategy use?</td>
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<tr>
<td><strong>3. Is the strategy training CONTEXTUALISED?</strong></td>
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<td>ie Are strategies presented in the context of the language?</td>
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<td>ie Are strategies presented in the context of language skills (ie listening, speaking, reading, writing?)</td>
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<tr>
<td>ie Are strategies presented in the context of the students' experience?</td>
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<tr>
<td><strong>4a. Is in-class practice provided?</strong></td>
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<tr>
<td><strong>4. Is the strategy training INTERACTIVE?</strong></td>
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<tr>
<td>ie Does the teacher monitor and assist students' strategy practice?</td>
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<tr>
<td><strong>4b. Are outcomes of practice sessions evaluated?</strong></td>
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<td><strong>5. Is the strategy training DIAGNOSTIC?</strong></td>
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<tr>
<td>ie Does the teacher determine strategies used by students and teach new strategies accordingly?</td>
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<td><strong>6. Are strategies reviewed in a cyclical manner?</strong></td>
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Date: ____________
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<tbody>
<tr>
<td><strong>7. TIMING:</strong></td>
<td>How long did the training session take?</td>
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<tr>
<td><strong>8. MATERIALS:</strong></td>
<td>What materials were used?</td>
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<tr>
<td></td>
<td>(e.g. taped dialogues, question sheets, etc)</td>
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<tr>
<td><strong>9. OTHER MATTERS:</strong></td>
<td>What other matters (negative or positive) seemed to impact upon the training session?</td>
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</table>

Please write further comments below:

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<th>Checklist</th>
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<tbody>
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<td><strong>Date:</strong></td>
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<tr>
<td>1a. Is the concept 'strategy' introduced?</td>
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<td>1b. Is any strategy named and demonstrated?</td>
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<td>1c. Is the significance of strategy use mentioned?</td>
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<td>2. Are students shown how to regulate their strategy use / be in control of their strategy use?</td>
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<tr>
<td>6. Are any strategies reviewed in later classes?</td>
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<td>(eg taped dialogues, question sheets, etc)</td>
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<td></td>
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<tr>
<td>9. OTHER MATTERS:</td>
<td></td>
<td></td>
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<tr>
<td>What other matters (negative or positive) seemed to impact upon the teaching session, especially with reference to strategy awareness/training?</td>
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Please write further comments on the other side of this sheet.