COGNITIVE AND METACOGNITIVE LEARNING STRATEGIES USED BY ADULT LEARNERS OF ARABIC AS A FOREIGN LANGUAGE

By

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(ABSTRACT)

The purpose of this study was to investigate the cognitive and metacognitive strategies used by learners of Arabic as a foreign language (AFL) guided by three research questions: 1) What cognitive and metacognitive strategies do learners of Arabic as a Foreign Language (AFL) use?; 2) Do male and female learners of AFL use similar or different cognitive and metacognitive strategies?; and 3) What is the relationship between the levels of Arabic proficiency and the use of cognitive and metacognitive strategies?

Six classes of students (N=82) learning AFL were selected from an institution in the metropolitan Washington, DC area. The independent variable was the strategy use, and the dependet variables were gender and levels of proficiency. To account for the missing advanced female learners, the researcher has dropped the advanced male learners in order to have equal cells for questions 2 and 3.

Oxford's (1989) Strategy Inventory for Language Learning (SILL) was used as instrument to collect the data. SILL is a questionnaire developed to assess the frequency of various strategies used by learners of foreign languages and is an 80-item, likert-scaled, self-report instrument. Descriptive statistics were used to analyze data for question 1. An analysis of variance was conducted for questions 2 and 3. It is hypothesized that learners of Arabic as a foreign language use a variety of cognitive and metacognitive strategies in learning language. It is also hypothesized that there is a difference between male and female learners of AFL in use of cognitive and metacognitive strategies. Finally, it is

hypothesized that there is a relationship between proficiency level of the learners and their use of learning strategies.

Results showed that learners of AFL use cognitive and metacognitive strategies in the medium range (M =3.2, SD = 0.65 and M = 3.3, SD = 0.90 respectively). There were no significant differences between men and women in using either cognitive or metacognitive strategies, although certain strategies were used more often by men. There were no significant differences regarding various levels of proficiency .

To My Parents with Love and Appreciation

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CHAPTER I

THE PROBLEM

Introduction

Research regarding learning strategies is relatively new (Weinstein & Mayer, 1986). It emerged as a result of trends, giving more attention to the specific factors of each learner that affect the learning process. In this study, the researcher investigated the cognitive and metacognitive strategies used by learners of Arabic as a foreign language (AFL). Learners use certain cognitive processes to maximize learning. They include the use of background knowledge, learning styles, and learning strategies.

For the last twenty years, learning strategies have been under investigation (Black, 1993) and the findings show that learners utilize various techniques to improve learning. These techniques are of great importance because they assist learners in storing, remembering and retrieving information.

Background knowledge refers to the knowledge already stored in memory. This already existing knowledge is called Schema. Schemata (plural of schema) are knowledge structures that represent the general features of classes of objects, events, or situations (Rumelhart, 1980) Schemata are activated by two modes of processing; bottom-up and top-down. Bottom-up processing is carried out when individuals rely on available data to identify incoming stimuli, therefore, this mode of processing is called data-driven processing. In contrast, top-down processing takes place when individuals depend on the context surrounding the stimulus. This mode is called conceptually-driven processing.

Learning styles are more like fingerprints. They are ways of learning that make learners different. Learners have different preferences in the way they approach a learning task. Researchers have identified several learning styles. Learners are either analytic, global or sensory. Analytic learners tend to concentrate on details rather than the general idea as in case of global learners. Some prefer auditory, others visual, while a third group may prefer kinesthetic. Auditory students prefer verbal interaction, whereas visual students like to read and visualize things. Kinesthetic students are touch-oriented; they prefer movements and playing with things. These individual differences are to be taken into consideration by teachers in lesson planning (Shrum & Glisan, 1994).

Learning strategies are actions and thoughts used to achieve a learning task. Learning strategies differ in form and frequency and can be either a specific technique or a general plan for completing a task (Derry, 1990). Learning strategies have a definite purpose; to store, retrieve, and understand new information and skill (Weinstein & Mayer, 1986). There are two types of learning strategies, observable or non-observable. Observable strategies include taking notes for new information or drawing a diagram to understand or remember an event or short story. Non-observable strategies that take place in the head include enhancing prior knowledge or attending to the message through listening to a radio broadcast (Chamot, 1992).

A positive relationship was identified between the use of strategies and proficiency development. (O'Malley & Chamot, 1987; Marrie & Nittan, 1991). Moreover, it was found that successful learners use more strategies than less successful learners (Wenden & Rubin, 1987; Chamot & Kupper, 1989; Derry, 1990; O'Malley & Chamot, 1990). Chamot and Kupper (1989) discovered that the difference between

students was in their use of learning strategies. In many cases, less successful learners were not aware of these applications, and were thus unable to use them effectively.

In reviewing the materials, some factors identified by researchers were believed to affect the use of learning strategies. In exploring the role of gender, several studies have shown that female learners use more strategies than male learners (Ehrman & Oxford, 1988; Oxford, 1990a, 1990b, 1990c; Nyikos, 1990; Willing, 1988). These studies involved learners of English, French, Spanish, and Japanese. A limited number of studies were conducted regarding Arabic (Awiess, 1993). These studies have primarily focused on investigating learning strategies, regardless of the factors of gender or proficiency levels. The present study investigated the relatively unexplored relationship between the learning strategies used by learners of the Arabic and the factors of gender and proficiency levels.

Statement of the Problem

The research questions were:

1. What cognitive and metacognitive learning strategies do adult learners of AFL use?
2. What strategies do male and female learners of the Arabic language use?
3. What is the relationship between levels of Arabic proficiency and the use of cognitive and metacognitive strategies?

To answer these above questions, the researcher investigated the cognitive and metacognitive strategies used by adult learners of the Arabic language. The researcher also investigated the effect of gender and proficiency as they relate to the learner's choice of strategy.

Present studies in learning strategies reflect such variables as gender, learning styles, level of proficiency, and motivation. The least research is available in the variable of gender. Oxford, Nyikos, and Ehrman (1989) discovered that of the eighty studies available, only four mention gender variables.

In a 1983 study, Politzer reported that female college students use social strategies, strategies that deal with the learners' use of foreign environments to maximize their ability to use the language. Using questions for clarification, cooperating with others, and developing cultural understanding are examples of social strategies used more by female students than by male students. Oxford (1989) concurred that female learners used more strategies in the four strategic categories of general study, negotiation of meaning, self-management, and functional practice. Regarding the level of proficiency in language learning, O'Malley and Chamot (1990) found that intermediate and advanced learners used more strategies than beginners did. In another study conducted through Spanish speakers learning English, Green and Oxford (1995) found that strategies used by men differed from those used by women. Fifteen of the fifty SILL items were used differently by men and women, and the overall results showed that females applied more of the strategies available.

Researchers have conducted studies on the relationship between language proficiency and learning strategies. Chamot was the first to consider language proficiency as a factor in the process of using language strategies. In her study (1990) on learners at two levels: intermediate and beginning levels, she found that intermediate students use more strategies that beginners. Sims (1996) reported the same results a study on students learning German at University of Minnesota. In his study, he found that

advanced learners of German use strategies more frequently than intermediate and beginners.

Significance of the Problem

Importance of strategy use

Historically, research in language learning was influenced by behaviorism, the school in psychology that emphasizes the role of the environment in learning. In the last twenty

years, the field of language learning came under the influence of cognitive psychology, giving priority to mental processes. This influence is responsible, to a greater degree, for the emergence of research in learning strategies.

Several studies demonstrate that successful learners use a wide variety of strategies; whereas those who are less successful use a limited number (Rubin, 1975; Stern, 1975; Wenden, 1987; O'Malley & Chamot, 1990; Oxford, 1990; Gardner & McIntyre, 1993; Oxford & Green, 1995). The above studies concluded that there are benefits in the identification of effective strategies, as teaching strategies proved to be beneficial to second language learners (O'Malley & Chamot, 1990; Oxford, 1994).

Although there is no consensus among researchers regarding categories of strategies, the literature expressed two types: communication and learning (Ellis, 1986). Oxford

(1990b) further divided learning strategies into direct and indirect, explaining direct strategies as cognitive, memory, and compensation strategies. Indirect strategies, although not directly involved in the learning process, assist learners in developing proficiency in foreign languages. Metacognitive, social and affective strategies are

examples of indirect strategies. Oxford's classification system is one of the most comprehensive, practical, and theoretically grounded systems presently available. It encompasses a wide range of mental, social and linguistic strategies (Tamada, 1997).

Research in AFL

Research regarding the instruction of Arabic as a foreign language is fairly recent and is restricted to two major questions: what to teach; and how to teach (Suleiman, 1992). The question of what teachers of AFL should teach is a result of diglossic situation in the Arab World. Diglossia is a linguistic phenomenon where two or more varieties of a language coexist and are used simultaneously (Brosh & Olshtain, 1995). In the case of Arabic there are three varieties: Modern Standard Arabic (MSA), Classical Arabic (CA), and Formal Spoken Arabic (FSA). This situation imposes a challenge to teachers of AFL in determining which variety to teach. Some solutions were proposed by researchers. Ryding (1991) believes that for the learners to reach 'Functionally Native Proficiency' learners have to master at least three varieties: Modern Standard Arabic (MSA), Classical Arabic (CA), and Formal Spoken Arabic (FSA) (p. 216). Regarding learning strategies, a very limited number of studies were conducted. (Awiess, 1993; Smadi & Al-Abed-Al-Haq, 1995). Awiess's study (1993) on a group of Americans learning Arabic as a second language investigated the role of background knowledge and the use of cognitive strategy on reading comprehension. Awiess found that using cognitive strategies maximized comprehension and improved retention. Smadi and Al-Abed-Al-Haq (1995) on the other hand, have studied the problems Malaysian students learning AFL encounter in expository writing. Although the role of learning strategies in

developing writing is of great help for learners of AFL, Smadi and Al-Abed-Al-Haq did not consider them because this problem was beyond the scope of their study.

The following are some of the expected benefits from this study as they relate to language learning. The study attempts to increase knowledge about learners' characteristics and self-reported accounts of how individual learners go about learning. In addition, the description and analysis of students' self-reported use of cognitive and metacognitive strategies should 1) help in targeting and focusing the recommendations of theorists and educators in language teaching and learning; 2) help in future language teaching projects and products, geared for use in college settings similar to the setting of this study on students learning Arabic; and 3) assist teachers in their endeavor to develop effective teaching methods.

Research findings suggest that cognitive and metacognitive strategies are important variables that affect, or at least mediate, student learning and achievement (Oxford, 1990; O'Malley & Chamot, 1990). This study aims to verify some of these relations within a particular setting.

Assumptions

This study examines the use of cognitive and metacognitive strategies in AFL. It is assumed that the adult subjects of this study are representative of other adult learners of Arabic in the US, and that the strategies used by this sample would be used by other adult learners of Arabic.

Hypotheses

There are three hypotheses concerning the questions of this study. (1) It is hypothesized that adult learners of AFL use a variety of cognitive and metacognitive strategies. (2) It is hypothesized that there are differences between male and female learners of AFL in using cognitive and metacognitive strategies. (3) It is hypothesized that there are differences between learners at various levels of Arabic proficiency in using cognitive and metacognitive strategies.

Definition of Terms

Cognitive strategies "Strategies concerned with manipulation or transformation of the target language by the learner" (Oxford, 1990, p. 43).

Foreign language Language other than one's native language.

Information processing "The approach that describes cognition as the coordinated operation of active mental processes within a multi-component memory system (Ashcraft, 1994, p. 701).

Learning style "Ways and approaches of interacting when learning language" (Shrum & Glisan, 1994, p. 199).

Learning strategies "Techniques, approaches or deliberate actions that students take in order to facilitate the learning and the recall of both linguistic and content area information" (Chamot, 1987, p. 71).

Metacognitive strategy "Strategies which go beyond purely cognitive devices, and which provide a way for learners to

	coordinate their own learning process" (Oxford, 1990, p. 136).
Non-observable strategies	Strategies that cannot be observed because they are internal.
Observable strategies	Strategies that can be observed, such as note-taking.
Taking notes	Writing down the main idea or specific notes.
Prior knowledge	Previously obtained knowledge or experience.
Schema	"An active organization of past reactions or experiences" Bartlet, (1932, p. 201).
Strategy	An action or tactic and that learners use to improve their learning.
Strategy Inventory for Language Learning (SILL)	A questionnaire developed by Oxford (1989) for data collection.

Delimitations of the study

This study is limited to the description of cognitive and metacognitive learning strategies used by adult learners of Arabic in a single institute in a large urban US location. Description is limited to investigating the role of gender and level of proficiency in strategy choice.

Limitations

There are two limitations for this study. First, the results of this study are generalized to the setting where the study was conducted. The second limitation is that two parts of the Strategy Inventory for Language Learning (SILL) were selected for data collection. Since the study used only two parts of SILL, the reliability of the questionnaire is expected to be lower than if the whole questionnaire had been used. This study is generalized to the setting where it was conducted.

CHAPTER II

Review of Literature

During the 1980s and early 1990s, a focal shift occurred in second language acquisition (SLA) studies. The shift was from teachers to learners and led to a heightened interest in the successful characteristics of the learners' role, rather than the teachers' role. Among these characteristics is the use of learning strategies. Analyzing and understanding such characteristics is the first step toward improving the learning process (Nunan, 1993).

This chapter depicts a brief examination of early and current SLA research, which identifies the cognitive effects on second language acquisition. Two acquisition theories are presented. The first is information processing, which is considered as the framework for learning strategy research. Second is Krashen's Input Hypothesis, which distinguishes between conscious learning and subconscious acquisition.

A research base for the characteristics of successful language learners and learning strategies is developed. This research base is then followed by an in-depth study of language learning strategies showing their effects within the variables of proficiency and gender.

Second Language Acquisition: Background

Second Language Acquisition (SLA) emerged less than three decades ago (Larsen-Freeman, 1991) and refers to how individuals acquire or learn a foreign language in addition to their mother tongue. Ellis (1986) offers a further definition in his belief

that acquisition is the process of acquiring a foreign language in naturalistic and classroom situations.

Early SLA research focused on the role of grammatical rules in learning native and foreign languages (Ellis, 1986). The focus on acquiring grammatical rules resulted from the influence of Chomsky's Generative-Transformational Theory (1965), in which he distinguishes between performance and competence. According to Chomsky, performance is the ability to use grammatical rules in speech, perception, and production; competence, on the other hand, is the grammatical system internalized by every native speaker.

These concepts are of great importance because they present the distinction between abstract knowledge of language rules and its actual usage. Although the concept of competence, as Chomsky defined it, is important, it is considered by certain researchers as inadequate because it did not include any reference to either the appropriateness of an utterance to a particular situation or context or its sociocultural significance (Omaggio, 1993).

As a result, Chomsky's concepts of competence and performance were later expanded by researchers who felt that knowledge of language was not restricted to grammar. Grammar is a significant part of language competence, but the question is whether grammatical knowledge by itself is sufficient to make learners proficient in learning foreign languages. In fact, learners need more than grammatical knowledge to be able to speak, write, understand and comprehend a foreign language. Dissatisfaction with Chomsky's distinction lead to a new trend in language learning and teaching that stresses factors related to sociolinguistic norms, discourse and strategic competencies.

These competencies are combined with grammatical competence to move toward communicative competence. a new perspective that focuses on the communicative aspects of language.

In communicative competence the primary goal is to enable learners to communicate naturally by using authentic materials and situations. Savignon (1972) defined communicative competence as "the ability to function in a truly communicative setting that is, in a dynamic exchange in which linguistic competence must adapt itself to the total information input, both linguistic and paralinguistic, of one or more interlocutors" (p.8). Later, Savignon redefined communicative competence, she added some characteristics: Communicative competence is a dynamic rather than static concept and depends on the negotiation of meaning between two or more persons who share some knowledge of the language. Further, communicative competence includes both spoken and written language, and depends largely on the context. Communication takes place in a situation or context, which imposes some limitations on language users. They have to make appropriate choices in register or style to fit the particular situation in which communication occurs (1983, p. 9).

Another contribution came from Canale and Swain. Canale and Swain (1980) advocated sociolinguistic, strategic, and discourse competencies to grammatical competence. Sociolinguistic competence has two features; it recognizes the sociocultural context of language and the appropriateness of speech to the attitude and register or style. Discourse competence is used in situations where social rules play an important role in what is said. i.e. setting, norms of interaction, topic, demonstrating both written and spoken eloquence: and coherence, i.e. grammatical links and suitable speech

patterns. Strategic competence relates to the ability to use both verbal and nonverbal communication to compensate for inadequate variables. Learners developing proficiency in foreign languages need all the competencies mentioned above. One way of helping learners is using learning strategies that are part of strategic competence. As actions, thoughts, and tactics, learning strategies assist in developing communicative competence. They help learners communicate naturally and create an authentic environment where language is used for meaningful purposes. For example, metacognitive strategies direct the learner's attention to the importance of planning, regulating, and evaluating their progress. Affective strategies help learners develop self-confidence and patience needed for learners to involve themselves actively in language learning; and social strategies enable learners to interact with other learners to create a positive relationship toward the target language and culture.

Second Language Acquisition Theories

Long (1993) believes that between forty and sixty theories of second language acquisition exist in this field and they all differ in form, source, and scope. SLA theories are grouped by form into three categories: nativist, environmentalist, and interactionist (Larsen-Freeman & Long, 1991; Long 1993). Different sources include work in linguistics (Cook, 1988), psychology (McLaughlin, Rossman, & McLeod, 1983), sociolinguistics (Tarone, 1983), neurolinguistics (Lamendella, 1977) and psycholinguistics (Clashen, 1987). Theories also differ in scope or range of data. For example, Schumann (1978) addresses naturalistic SLA; Ellis (1990) instructed SLA; and Krashen (1985) addresses both naturalistic and instructed.

SLA diversity results when theorists offer new discoveries via the investigation of given factors: biological, philosophical, psychological, and social. Long (1993) also attributes this diversity to the field's continued expansion; for example, theories must address how both children and adults acquire a second language.

Recent developments in cognitive psychology have attracted language researchers to conduct studies within this perspective. Since the main concern of cognitive theories is the mental processes involved in learning, language researchers found that these developments are in lines with their shift of focus from teachers to learners. This makes discussion of this perspective in detail inevitable.

Information Processing Theory

This theory describes in a detailed fashion how knowledge is acquired, stored and later retrieved from memory. In this section, the researcher will discuss the major themes in information processing theory: storing, processing, and remembering. The first theme to be considered is memory components.

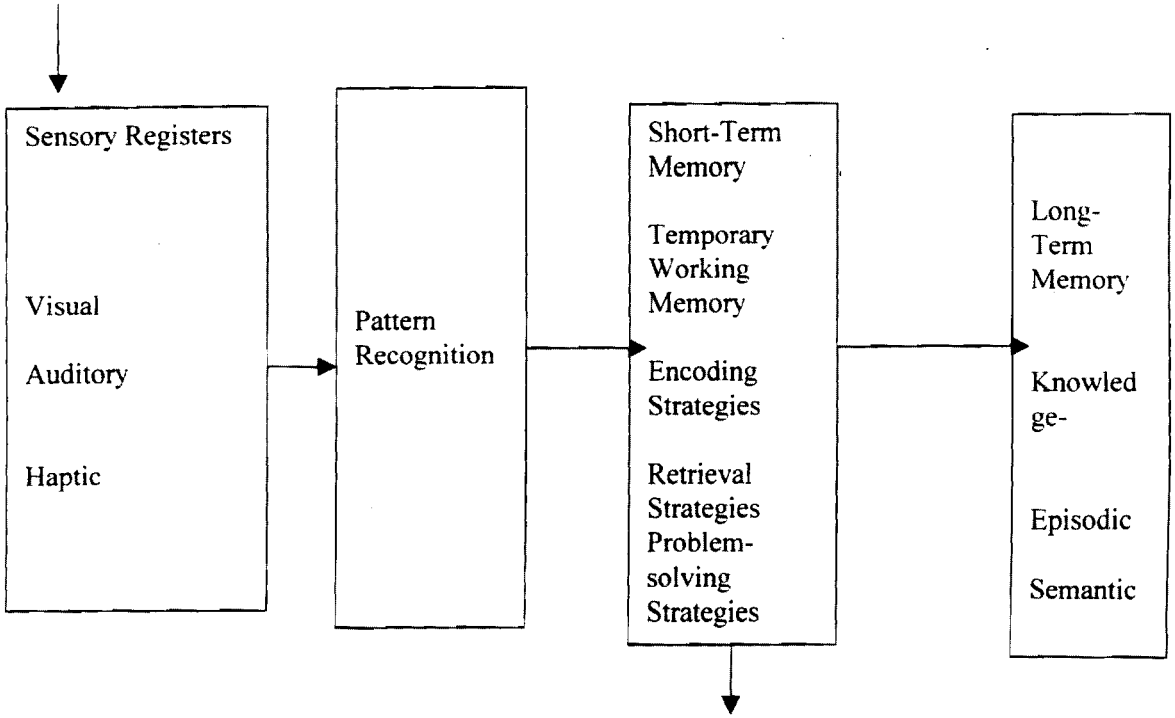

Figure 1 Structure and processes of the information processing system. (From Hamilton, R. and Ghatala, E. Learning and Instruction, (p.81). Copyright 1994. Reprinted by permission of McGraw-Hill, Inc. New York).

Memory components

As depicted in Figure 1, in information processing theory, memory is comprised of three components: sensory memory, short-term memory and long term-memory. These three components make up the storage of knowledge. The first component is the sensory memory. Individuals receive stimuli from the external world through the sensory receptor and becomes represented in sensory memory. Sensory memory holds information for a fraction of a second. It is assumed that there are as many types of sensory memories as senses and receptors. In processing information, two sensory memories are important, the visual sensory memory, which contains copies of, retained images, and auditory memory, which contains auditory images or echoes. The importance of sensory memory is crucial in perception because it holds information for a short time to be processed later. Research on sensory memory shows that there are implications for teaching. First, the short duration of information in the sensory memory points up the need to carefully pace the delivery of information to students so as not to overwhelm sensory memory capacity. Second, there may be some benefits to presenting information both aurally and visually since entering the same information into both memories should increase the chances for further processing (Glover, Ronning, & Bruning, 1990).

Processing Information in the Sensory Memory

Information is processed as soon as it enters the sensory memory. The system begins processing information by analyzing its features and attempting to match these features with knowledge in long-term memory. This stage is called pattern recognition, where visual and auditory patterns are identified. At the pattern recognition stage,

meaning is assigned to an input stimulus. One theory that accounts for pattern recognition is the Schema Theory. Schema is a knowledge structure stored in memory as a previously acquired knowledge or experience. This theory presents a view that incorporates the basic ideas of the previous views.

A schema in long-term memory is activated when one or more features of a stimulus in sensory memory fits the slots of the schema. Then the schema helps the system in searching for more information to fill the rest of its slots. At this stage feature analysis and initial schema activation is conducted automatically and there is no need for attention. Since it is not easy for individuals to process everything they hear or see simultaneously, individuals select certain receptors for focal attention. Attention helps activate schema to its full capacity. Slots of a schema may be filled by inferences rather than by features actually presented in the stimulus. These inferences are results of the constructive nature of perception. Therefore, perception involves constructing an interpretation of environmental stimuli by using previously acquired knowledge. The constructive nature of perception can explain the differences between individuals' accounts in reporting a witnessed incident. Individuals tend to fill in missing information from their own schemas (Rumelhart, 1980).

Moreover, schemas are activated by two modes of processing: Bottom-up processing and top-down processing. Bottom-up processing is carried out when individuals rely on available data to identify incoming stimuli; therefore, this mode of processing is called data-driven processing. In contrast, top-down processing takes place when individuals depend on the context-surrounding stimulus. This mode is also called conceptually-driven processing. To facilitate schema activation, teachers have to

provide rich context to the material taught so learners are able to use such context in constructing meaning and comprehension (Ashcraft, 1989) Several researchers elaborated on the role of schema in comprehension. Comprehension is applying pattern recognition and perception to verbal messages contained in text or speech. In addition, comprehension involves discovering a schema or schemata that provide plausible account of message and allow us to assimilate it to something we know (Anderson, Reynolds, Schallert, & Goetz 1977; Rumelhart, 1984).

Schemata are helpful in teaching when the main goal is understanding material. For learners to be able to understand, teachers have to relate new material with students' existing schemata or give them a new schema that they can use to understand the material. It is crucial for teachers to understand that comprehension failure is caused by lack of background knowledge necessary for assimilating new material or when students possess requisite schemata but fail to activate them. To overcome this obstacle, teachers can help students by using advance organizers. Advance organizers are drawings, outlines, discussions, and diagrams that provide a scaffold, which can subsume more detailed material. Advance organizers are also helpful to students in activating the relevant schema to the new material to be assimilated by learners (Ausubel, 1960; Ausubel, Novak & Hanesian, 1978; Derry, 1984; Mayer, 1984b). After the stage of pattern recognition, information is held in the short-term memory, another memory component.

Short-Term Memory

One of the early information processing models is that of Shiffrin and Schneider (1968). In this model, short-term memory was described as a place where information is

held temporarily to be processed later. Since information in short-term memory does not last for more than 30 seconds as research shows, learners can extend the life of this new information through rehearsal, that is, by repeating new information over and over again to be transferred into the long-term memory where it is stored for later use. In a recent view of information processing, short-term memory is not viewed as a place for holding new information, rather, as a working memory, that part of memory system where mental work is performed by applying attention to tasks.

Attention is a person's allocation of cognitive resources to the task at hand (Kahneman, 1973). Kahneman draws an analogy between attention and electrical power. In using machines we need electricity and machines differ in their capacity to perform. Huge appliances need more electricity than small ones. This depends in large part on the task performed by a particular machine. This is similar to what individuals do. In other words, allocation of resources depends on tasks. If we want to perform high-order tasks we need more resources, in other words, more attention to the tasks. Lower-order tasks, on the other hand, need less energy, or less attention. Therefore, some tasks are performed automatically without attention; others are controlled and need more attention.

One aspect of automatic processing is that tasks are carried out simultaneously. Thus, skillful individuals can perform more than one task at the same time. For example, skillful drivers can drive and talk in the telephone. On the contrary, novice drivers are not able to do so because they need more attention to perform the primary task, which is driving. Skills become automatic through intensive practice. Teachers could help students perform better by directing their attention to the main ideas in a text or a

conversation. Another way that teachers can help learners manage their limited resources is to provide practice on basic processes until they become automatic.

In relating attention to the memory system, researchers think of short-term memory as attentional capacity. Incoming information enters short-term memory to be processed. This mental activity is an effort or work. Then we can think of short-term memory as a working memory.

Working Memory

Working memory is where attention-demanding tasks are performed and the internal work of putting ideas together happens. In other words, working memory is where information is processed. When something is in the working memory, it means that it is consciously processed. To perform a task, individuals have to operate on information and store the products of those operations (Baddeley, 1986; Case, 1985). Operating and storing information need mental effort to be processed, which occurs in working memory. After initial processing, information is transferred into another component, that is, the permanent storage of knowledge. This storage is called long-term memory.

Long -Term Memory

Long-term memory is the main storage of knowledge. Knowledge is stored in the long-term memory permanently. This stored knowledge is divided into two main types; episodic knowledge and semantic knowledge. Episodic knowledge is the personal account or personal experiences and events. They reflect what happened and where it happened. Events and experiences are remembered in their relation to time or place (Tulving, 1983). In contrast, semantic knowledge is not personal experience. Semantic

knowledge refers to the general knowledge of concepts and principles and their associations. In addition, our organized knowledge of words and concepts and the way they are organized is part of our semantic knowledge. Scientists further divided semantic knowledge into declarative knowledge and procedural knowledge.

Anderson (1985) proposed a model that differentiates between procedural knowledge and declarative knowledge. Procedural knowledge refers to the rules and principles that individuals have regarding any skill that is, how individuals perform the task. Declarative knowledge is the knowledge that individuals have already stored. However, both types must be used to learn a task; for example, to master a skill like driving, knowing the rules is not enough, because rules alone will not help the learner become a good driver. Learners must apply the rules through practice i.e., procedural knowledge.

Knowledge Representation in Memory

One important theme in information processing theory is the way knowledge is represented and organized in memory. Knowledge is represented in memory in terms of concepts, propositions, and productions. Several models were presented to account for knowledge representation. One of the early models is that of Collins and Quillian (1972, 1975) and Collins and Loftus (1975). In these models, concepts are viewed as nodes in a network, an interrelated set of concepts. Each concept in the network is represented as a node or a point or location in the semantic system. Pathways, directional associations between concepts, connect nodes to each other.

Spreading activation is defined as the mental activity of accessing and retrieving information from this network. Activation is important because it spreads through the

whole network. In sum, this model is helpful in understanding the way concepts are stored and organized in memory.

Another important model presented in this regard is that of Anderson (1982). In this model, Anderson (1982) describes how knowledge is acquired. He believes that knowledge is acquired deliberately in three stages: cognitive, associative, and autonomous. In the cognitive stage, students consciously learn to perform a skill from direct instruction or through an example given by the instructor. In the second stage, associative, knowledge becomes declarative, rather than procedural. The advancement to procedural knowledge takes place as the learner eliminates errors and connects the various elements of skill. This transition leads to an error-free skill performance as the learner's response becomes natural, no longer a rehearsal. In the final autonomous stage, a skill becomes automatic and rapid, without cognitive involvement, and knowledge of the rules becomes "implicit" (Anderson, 1985, p. 319).

Moreover, in Anderson's model which was called ACT*, there are three components: working memory, declarative memory and production memory. As stated earlier, working memory is the place where mental work takes place. Various encoding processes bring information from the external world into working memory. These processes include sensory processes along with the attentional mechanisms that transfer sensory memory information into short-term memory.

Another component is the declarative memory. Declarative memory includes both semantic memory and episodic memory. Anderson believes that there is no distinction between these two memories, and this is understood from combining both memories in one declarative memory. Similarly, these two kinds of memory are

interrelated and are operated by the same laws of memory. Anderson's view of declarative memory is similar to that described for semantic memory, that is, semantic memory is stored as an interrelated network of nodes connected by linking pathways, and accessed by means of spreading activation. Moreover, Anderson claims that there are three distinct kinds of knowledge codes. The three codes are: propositional representations, temporal strings and spatial images. These codes are representations and stored in the declarative memory.

The third component of ACT* is production memory. Unlike those described in other models like Collins and Quillian, production memory is related to procedural knowledge, which is the knowledge of knowing how to do things. For example, knowledge of knowing how to drive a car is a procedural knowledge. It is the knowledge of performing acts. These kinds of knowledge are part of production memory. Thus, production memory is the long-term memory store for procedural knowledge.

Productions are a way of representing procedural knowledge in memory. That is, they produce certain actions when certain conditions are met. For example, IF I want to buy bread, THEN I go to the bakery. As it shows in the previous example, there are two clauses: the first clause specifies the condition and the second clause lists the actions that are to take place.

Productions are performed automatically when there is enough practice. Based on this notion, individuals perform without paying much attention. This is true because these two clauses cannot be separated and they are interdependent. The distinction between procedural and declarative knowledge implies that success in learning a second language does not depend solely on knowing the rules i.e., syntactic, lexical, phonological

and semantic. It is, rather, the application of the rules that causes learning to take place: without which learners cannot move from the skill-acquiring phase to the skill-using phase (Rivers, 1983).

Information Processing Theory and Second Language Acquisition

Language educators and researchers studied this new perspective and found that it is possible to make use of it in the field of second language acquisition. Therefore, several studies and projects were conducted within the information processing theory. For example, Bialystok's (1978) model of second language learning acknowledges learning strategies as an "optimal means for exploiting available information to improve competence in a second language" (p.71). She describes four learning strategies and suggests that the use of learning strategy by learners will depend largely on the type of knowledge required for a given task. Bialystok believes that explicit introduction of learning strategies in classrooms contributes to implicit linguistic knowledge and therefore to student's ability to comprehend and produce spontaneous language. So learning strategies may be used consciously and with effort, but they become habitual and automatic with practice (O'Malley, Chamot & Walker, 1987).

Moreover, Faerch and Kasper (1983) applied the distinction between declarative and procedural knowledge to second language acquisition. For them, declarative knowledge constitutes the internalized rules and memorized chunks of language. Procedural knowledge, on the other hand, is knowing how to make use of learning strategies and procedures to process second language data.

Similarly, Cummins (1984) proposed a model of language proficiency. In this model, tasks are located along a continuum from cognitively demanding to cognitively

undemanding, while language varies along a continuum from context-embedded to context-reduced. For example, academic tasks are cognitively demanding and require language in which contextual clues for meaning are reduced. In contrast, tasks outside the classroom are relatively undemanding cognitively and are characterized by language that has rich contextual clues.

Weinstein and Mayer (1986) proposed another model of language acquisition in which new information is acquired in four stages: selection, acquisition, construction, and integration. In the selection stage, learners select information of interest and transfer it into working memory. Learners are not at the mercy of natural stimuli, but make choices that are then retained in working memory. In the acquisition stage, learners transfer information into long-term memory for storage. In the information stage, learners connect information already stored in long-term memory by enhancing background knowledge. New information fits into cognitive structure. In the final stage, integration, learners transfer prior knowledge from long-term memory into working memory for later recall.

Moreover, Chamot and O'Malley (1987) developed The Cognitive Language Learning Approach (CALLA). This instructional model was based on the cognitive theory and their own research with language strategies. CALLA was designed to assist learners of limited English proficiency. The theoretical model on which CALLA is based suggests that language is a complex cognitive skill, developing through a series of stages, which requires extensive practice and feedback in order to operate at an autonomous level (O'Malley & Chamot, 1990). The authors of CALLA believe that language proficiency can best be described as procedural knowledge. Since procedural knowledge is defined

as knowing how, in other words, using tactics and actions in executing a learning task. learning strategies as means and actions can be considered part of procedural knowledge. and meant to improve language learning.

These models imply that learners play a significant role in how they acquire and process knowledge. They select appropriate information and then store it, connecting new information with their existing cognitive structures. In addition, learners take conscious decisions about the ways and means in approaching language tasks. In contrast to traditional theories where learning is defined in terms of imitation and habit formation, the information processing theory shows that learners actively participate in constructing their own learning.

Conscious Versus Unconscious Learning

One important theme in information processing theory is the distinction between conscious and unconscious learning. Krashen (1982) argues that language is developed in two distinct ways: learning and acquisition (p. 10). Learning refers to "having conscious knowledge about grammar of a target language." Acquisition refers to "developing ability in language by using it in natural, communicative situations" (Krashen & Terrell, 1983, p. 18).

In addition, Krashen (1982) holds that for language to be developed, there should be sufficient comprehensible input, which is defined by being a little beyond the learner's level of competence. For input to be processed, learner anxiety must be lowered. In addition, explicit instruction of grammar does not help produce speech: it only serves to self-monitor the correctness of the learner's oral or written production, and self-

monitoring occurs only when learners attend to the correctness of the form and have time to apply the rule.

In contrast to Krashen's Input Hypothesis, which maintains that true acquisition of a second language occurs without awareness, O'Malley and Chamot (1990) and others (Rubin, 1975; Bialystok, 1978; Naiman, 1978; Hosenfeld, Krichofer, Laciura, & Wilson, 1981; Wenden, 1983; Richards, 1992) argue that language learning involves many conscious decisions at both the cognitive and metacognitive levels, which parallel cognitive processing in learning other complex cognitive skills. Moreover, for input to become intake, learners have to pay attention (Gass, 1988; Schmidt, 1990; VanPatten, 1990; Van Lier, 1991). For Kumaravadivelu (1984), learning and communication strategies are among factors that help transfer input into intake. The move toward learning strategies started by identifying characteristics of successful language learners.

Characteristics of Successful Language Learners

Early research on learning strategies focused on investigating characteristics of successful language learners. In the now classic study, Carton (1969) considered language learning as problem-solving, where learners integrate the language learning process with previously acquired knowledge, experiences, and existing cognitive structures.

Competent language learners are characterized by several researchers as those who are aware of the learning process. For instance, Rubin (1975) noted seven strategies that characterize good language learners: (a) willing to guess meaning; (b) using gestures and circumlocution to get message across; (c) willing to tolerate mistakes; (d) attending to linguistic form through analyzing, categorizing and synthesizing the language; (e) seeking

opportunities to practice the language form; (f) monitoring performance; and (g) paying attention to meaning in the context of the speech act, such as turn taking in conversation and paralinguistic features (pp. 45-48). Of seven characteristics, three are associated with conscious learning: attending to linguistic form, monitoring one's own speech, and attending to the speech act (p. 2).

Omaggio (1978) provides still another set of characteristics for competent language learners. Among them, attending to form as well as meaning, classifying schema, pattern association and self-monitoring speech. Other characteristics include: actively participating in the learning process, viewing language as a tool for communication, thinking in the target language, and handling emotional issues in language learning (Oxford & Burry-Stock, 1995). The above characteristics represented a base for research conducted on learning strategies.

Learning Strategies: Definition

Learning strategies are behaviors and thoughts used by learners to assist them in acquisition, retrieval and use of information (Dansereau, 1985). This definition shows that learning strategies are goal-oriented, in other words, learners use learning strategies to accomplish a goal. In addition, learning strategies are mental processes as well as physical actions. Other definitions were proposed. For example, Bialystok (1978) defined learning strategies as "optional means for exploiting available information to improve competence in a second language" (p. 71). This definition is limited to the purpose of using learning strategies. Moreover, Rubin (1987) defined learning strategies in their relation to the language system. For Rubin, learning strategies are "strategies contribute to the development of language system which the learner has constructs and

affects learning directly" (p. 23). Chamot (1987), on the other hand, defines learning strategies as "techniques, approaches or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content area information" (p. 71). In addition, Oxford (1990) defines learning strategies in their relation to purpose. She defines them as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (p. 8).

Classifying Learning Strategies

After examining related literature, researchers developed three categories according to their purpose and relation: cognitive, metacognitive, and social/affective strategies.

Cognitive Strategies

Cognitive strategies are conscious mental processes used to store, organize, and recall information. This definition is based on the information processing view of learning (Derry & Murphy, 1986; Jonassen, 1988; Weinstein & Mayer, 1986). Four types of cognitive strategies are identified in the literature, they are:

Rehearsal strategies: Rehearsal strategies involve the notion of recycling through the material and usually involves repeating the material over and over. Weinstein and Mayer (1987) differentiate between two types of rehearsal strategies: basic and complex. This differentiation is task related. For example, repeating the names of items in order is considered a basic rehearsal strategy. Complex rehearsal strategies include copying and underlining important material. In learning a foreign language, learners repeat words to master pronunciation, then write them to match the sound with their symbols. In

addition, rehearsal strategies serve some cognitive goals: selection by helping the learner pay attention to the major points of the passage, and compensation of the limited capacity of information in working memory (DiVesta & Moreno, 1993).

Organizational strategies: Organizational strategies are helpful in structuring and restructuring the individual's knowledge base; that is, seeing how ideas correlate (Jonassen, 1988). These strategies in turn help learners select appropriate materials and make connections among new information for its transferal to working memory. Among organization strategies are chunking, outlining, cognitive mapping, and analysis of key ideas. These strategies enable learners to manage large amounts of information. In learning a foreign language, learners use organization strategies in reading comprehension, where main ideas and keywords identification facilitates comprehension.

Integration strategies: Integration strategies aid learners in making connections between new information and background knowledge. Jonassen (1988) states that "integration strategies require that learners access prior knowledge in order to integrate newly presented material with it. These strategies facilitate the building of personally unique but meaningful schemata of events, objects, and ideas" (Jonassen, 1988, p. 163). Examples of integration strategies are paraphrasing, generating questions, and summarizing. These strategies bridge the gap between new and already learned material. Making this connection is crucial in facilitating and maximizing learning. West, Farmer, and Wolff (1991) suggested that using advance organizers, metaphors, and analogies are helpful in this regard.

Elaboration strategies: "Elaboration strategies are those strategies that require learners to add to the material presented, that is, elaborate or expand on it" (Jonassen, 1988, p. 173).

They include paraphrasing, summarizing, and generating analogies (Weinstein & Mayer, 1986) and assist learners in storing new information in long-term memory by building connections between items to be learned.

Metacognitive Strategies

Metacognition refers to awareness and monitoring of one's cognitive state or condition. It also refers to the ability to understand, control, and manipulate independent cognitive processes (Ashcraft, 1989). Awareness refers to the person's ability to contemplate the learning process in terms of tasks and strategy variables (Flavell, 1987). Metacognition involves planning for learning, thinking about the learning process as it takes place, monitoring production or comprehension, and evaluating learning after an activity is completed (Brown, 1987).

For Gagn'e, Briggs, and Wager (1992), metacognition takes the role of executive control in the information processing system within the learner. Executive control activities command the use of cognitive strategies, which determine how information is encoded and later retrieved. One important strategy in this regard is comprehension monitoring. This strategy requires the learner to set learning goals for an activity, select an appropriate cognitive strategy for achieving that goal, evaluate the degree of its achievement, and if necessary, modify the strategy being employed (Weinstein & Mayer, 1986).

Baker and Brown (1984) distinguish between two types of metacognition: (a) knowledge of cognition, the learner's knowledge about his own cognitive resources and the compatibility between the person's learning styles and the learning situation, and (b) regulation of cognition which consists of self-regulatory mechanisms used by active

learners during their attempt to solve a problem. According to Zimmerman (1989), learners are considered self-regulated individuals to the extent they are metacognitively, motivationally, and behaviorally active participants in their own learning processes.

The literature review identifies three metacognitive strategies: planning; monitoring; and regulation:

1. Planning strategies: Planing strategies are those strategies that learners use to set goals, analyze a task, and activate relevant aspects of knowledge to assist in the organization and comprehension of the material (Pintrich & Ross, 1990). Goal setting is an important step that precedes other processes of metacognition and self-regulation. Self-regulation skills require that the learners' goals be realistic and challenging, but achievable (Schunk, 1990).

2. Monitoring strategies: Monitoring strategies include the skills that learners use to track how well they do on a task, which helps in directing their learning activities. Monitoring also assists in assessing the weight of the strategies used. Based on the information gathered in monitoring, learners may decide to change, modify, or continue a particular strategy. The results of monitoring are two-fold. First, use of a selected strategy can be continued, modified, or changed; second, monitoring can add knowledge to the long-term memory regarding how to use a strategy and the benefits gained from it (Hamilton & Ghatala, 1994).

3. Regulation strategies: Regulation strategies are assumed to improve performance by assisting learners in checking and correcting their behavior as they proceed (McKeachie, 1990); it is the result of setting goals, monitoring, and evaluating progress. "Regulation or self-regulation activities are continuos metacognitive

adjustments and fine-tuning by learners in response to, or in the absence of, feedback concerning errors" (Osman & Hannafin, 1992, p. 88). From these general learning strategies, language educators developed and tailored sets of strategies that are suitable for language learners

Language Learning Strategies

Language learning strategies (LLS) are thoughts, actions, and tactics that learners use to process, store, and retrieve new information. Learners use these actions and techniques intentionally to improve their progress in developing foreign language skill (Green & Oxford, 1995). Several definitions for language learning strategies were provided by researchers. Bialystok (1978) defined LLS as " optional means for explaining available information to improve competence in a second language" (p. 71). Rubin (1987) as "strategies which contribute to the development of the language system which the learner constructs and affects learning directly." (p.23). Chamot (1987) defines LLS as "techniques, approaches, or deliberate actions that students take in order to facilitate the learning and the recall of both linguistic and content area information." (p. 71). Tamada (1997) claims that before Chamot's research these was no clear definition. The preceding definitions include the following: (a) learning strategies as actions, behaviors, and thoughts; (b) learning strategies accelerate and improve language learning; and (c) that learners use strategies intentionally and purposefully. In addition, learning strategies have common features: contribute to the main goal, communicative competence, are problem oriented, expand the role of teachers, are often conscious, and can be taught (Oxford, 1990).

Classifying Language Learning Strategies

The field of language acquisition has identified two types of strategies, which are learning and communication. Strategies are ways of achieving a learning goal or of controlling and manipulating certain information. In addition, they are contextualized plans and may vary from time to time and from person to person. Learning strategies relate more to input: how to store, process, and retrieve information. Tarone (1983) noted that learning strategies are attempts to develop linguistic and sociolinguistic competence in the target language. In contrast, communication strategies differ from learning strategies, as they have to do with output, language use, i.e., how to express meaning in language, and how learners act on what they already know or presume to know. This study is concerned with learning strategies rather than communication strategies.

Several classifications of language learning strategies were provided. For example, O'Malley and Chamot (1990) identified three types of strategies: cognitive, metacognitive, and social/affective. Their classification is related to the level or type of processing involved. According to researchers in cognitive psychology, there are higher and lower levels of processing. Lower-level processing receives sparse attention, whereas high-level processing occurs when further elaboration is required to process new information into memory (Ashcraft, 1989, p. 208-209).

Cognitive Strategies

For O'Malley and Chamot (1990), cognitive strategies are directly involved in processing, and manipulating information. These strategies become necessary to improve learning. Metacognitive strategies on the other hand, are higher order skills that involve

monitoring, planning, and evaluation. Social/affective strategies are less important in this classification because they are not cognitively related.

Oxford (1990) proposed another classification for language learning strategies based on purpose and usage. In this classification, the learner is viewed as a whole individual who utilizes cognitive, emotional, and physical resources and is therefore more than a cognitive/metacognitve entity. Oxford's classification includes six groups of strategies, which are divided into direct and indirect. Direct strategies are those immediately involving the target language and thus require mental processing: memory, cognition, and compensation. The following are cognitive strategies and their subcategories:

1. Practicing by saying or doing something over and over; practicing with sounds and written systems, recognizing and using formulas, recognizing and practicing naturally; and formally practicing with sounds and writing systems.

2. Analyzing and reasoning deductively by using rules and applying them to new target language situations. This is a top-down strategy leading from general to specific.

3. Analyzing expressions through determining the meaning of a new expression by breaking it down into parts, using the meaning of various parts to understand the meaning of the whole expression.

4. Analyzing contrastively by comparing elements (sound, vocabulary, grammar) of the new language with the elements of the learner's own language to determine similarities and differences.

5. Translating by converting a target expression into the native language (at various levels, from words and phrases all the way up to the whole text), or converting

the native language, using one language as the basis for understanding or producing another.

6. Transferring by directly applying knowledge of words, concepts, or structures from one language to another in order to understand or produce an expression in the new language.

7. Creating structure for input and output: This process includes taking notes: writing down main ideas or specific points; summarizing: making a summary or abstract of a longer passage; and highlighting: using a variety of emphasis techniques such as underlining, starring, or color-coding to focus on important information in a passage (pp. 43-47).

Metacognitive Strategies

Metacognition means beyond cognition and involves understanding knowledge and monitoring the individual's own learning. Metacognition refers to awareness and monitoring of one's cognitive state or condition. It also refers to the ability to understand, control, and manipulate independent cognitive processes (Ashcraft, 1989). Awareness refers to the person's ability to contemplate the learning process in terms of tasks and strategy variables (Flavell, 1987). Metacognition involves planning for learning, thinking about the learning process as it takes place, monitoring production or comprehension, and evaluating learning after an activity is completed (Brown, 1987). Metacognitive strategies in Oxford's classification include:

1. Centering learning: Through overviewing and linking with already known material, paying attention, and delaying speech production to focus on listening.

2. Arranging and planning learning: Through finding out about language learning, organizing, setting goals and objectives, and identifying the purpose of the language task.

3. Evaluating learning: Through self-monitoring and self-evaluating.

In summary, language learning strategies are not completely different from those applied in general learning strategies. However, they do differ in their focus on language production and perception.

Research on Language Learning Strategies

Methods and Instruments. Researchers in learning strategies use different methods: diary (Rubin, 1981; River, 1983), think-aloud (Cohen, 1987b; 1990), interviews (Naiman, Frohlich & Todesco, 1975; Cohen & Rubin, 1976), questionnaires (Bialystok, 1978; Hasbun, 1988; Nyikos & Oxford, 1989), and observations (O'Malley & Chamot, 1990). Research on learning strategies has included many languages, notably English, French (Black, 1993), Spanish (Bacon, 1992; O'Malley & Chamot, 1987; Green & Oxford, 1995), Russian (O'Malley & Chamot, 1990). Some research was conducted on different languages in the same setting as Nyikos and Oxford (1989) as demonstrated with students learning French, Spanish, German, Russian, and Italian at the Foreign Service Institute.

Research on Language Learning: A Shift in Focus

Studies on language learning focused on two issues: the role of language components such as syntax, phonology, morphology, and semantics; and the role of methods in improving language learning (Skehan, 1991). In today's new era of research, studies focus on a wide range of cognitive, social, and affective factors.

As demonstrated over the past twenty years, researchers have identified some factors believed to greatly influence learning. Factors identified include motivation, aptitude, learning styles and strategies. For example, research on learning styles identified individual differences for learning, in general, and for using learning strategies, in particular (Ehrman & Oxford, 1989; Oxford, 1993; Green & Oxford, 1995). These findings suggest that research on the relationship between learning styles and language learning must consider language materials, learning activities and tasks. Research on aptitude has shown that people vary in their language aptitude and that variation affects language achievement considerably (Skehan, 1989).

Those factors, and others, influence the choice of language learning strategies. Since the proposed study will investigate the role of gender and proficiency level. This part of literature will focus on studies on gender and level of proficiency. In addition to gender and level of proficiency a review of some broad studies is presented below.

Broad Studies

Several studies were conducted by different groups of researchers. These groups have conducted these studies after identifying factors play important roles in learning foreign languages. For example, the studies by O'Malley and Oxford and their colleagues cover a wide range of characteristics, such as learning styles, proficiency level, aptitude, and gender. O'Malley and Chamot (1985) began investigating learning strategies at a time when researchers had not reached a consensus regarding the definition and classification of learning strategies. The first study in the team's research project concerned beginning and intermediate ESL students. The purposes of the study were to a) identify learning strategies used by high school students on language learning tasks,

typical in ESL classrooms: b) to determine whether learning strategies could be defined and organized within existing frameworks of strategy classifications; and c) to determine whether strategies varied depending on the task or student's level of proficiency in English (O'Malley & Chamot, 1990, p. 115).

Three instruments were used in this study: student interview guide, teacher interview guide, and observation. Because teacher interviews and observations did not yield productive data, the team focused on self-report data. They asked students in-groups of three to report any "tricks" or "special things they did" to study seven classroom tasks: pronunciation, oral drills, grammar exercises, vocabulary; and three other tasks about situations outside the classroom.

From the self-report data, twenty-six strategies were identified, and then classified into three groups. Metacognitive strategies included the use of advanced organizers, direct attention, selective attention, self-management, advance preparation, self-monitoring, delayed production, self-evaluation, and self-reinforcement. Cognitive strategies included repetition, researching, directed physical response, translation, grouping, note taking, deduction, recombination, imagery, auditory representation, keywords, contextualization, elaboration, transfer, interference, and clarification. One social strategy, cooperation, was identified.

Oxford and associates (Ehrman & Oxford, 1990; Nyikos & Oxford, 1993; Ehrman & Oxford, 1995) conducted a group of studies on students of the Foreign Service Institute. Subsamples were drawn from the larger sample of 1200 students. The studies were significant because they investigated all conceivable variables that affect choice of

learning strategy, i.e., learning styles, gender, proficiency, aptitude, teacher perception, personality type, ego boundaries, motivation, and anxiety.

In their study, Ehrman and Oxford (1990) studied a 20-member subsample of the students from the Foreign Service Institute to examine the relationship between psychological types, i.e., learning styles and strategies. Participants were male and female learners and college graduates and some of them held advanced degrees. Since this study was qualitative in nature, the sample was limited to 20. However, the authors cautioned that the findings of the study are not to be generalized beyond its setting. The study instruments included two scales, the Myers-Briggs Type Indicator (MBTI) for the psychological type, which measures eight psychological types, such as extroverts, introverts, thinkers, feelers, judgers, perceivers, intuitive types, and sensory types. The second was the Strategy Inventory for Language Learning (SILL). Interviews were also used.

The results of the study demonstrated that certain psychological types correlate with strategy use. For example, extroverts use social strategies in a constant and easy manner, but introverts either reject social strategies or rarely utilize them. Sensory students showed a high usage rate of memory strategies.

Green and Oxford (1995) studied variation patterns in overall strategy use in SILL and individual item level through students in three different course levels at the University of Puerto Rico. What is important is that Green and Oxford found that more proficient learners used more cognitive, metacognitive, compensation, and social strategies than less proficient students. It is worthwhile to note that in the same study, gender differences were reported.

Gender Differences

Studies on learning strategies showed that learners use them differently. A discussion of gender related differences is in order. Differences between men and women are an issue of debate among researchers of many disciplines, notably medicine, sociology, psychology, and anthropology (Halpern, 1992). Researchers in these disciplines have studied perceived differences. The differences exist, and they are supported by empirical evidence from several studies. One area of difference between genders is language ability. For example, in studies of native language development and use, girls perform better than boys in verbal tasks at most ages and score higher in tests of verbal ability and reading. Girls also spoke their first words before boys, and spoke longer sentences and more complex discourse earlier than boys (Macobby & Jaklin, 1974; Cahn, 1988; Slavin, 1988; Larsen-Freeman & Long, 1991; Halpern, 1992).

As they mature, women rely heavily on negotiating meaning and clarifying their points more often than men, who tend to dominate conversations. Several studies have shown that women's speech is characterized by empathy, negotiation, uncertainty, careful grammar, and details (Lakoff, 1975; Fishman, 1978; Kramarae, 1981; Tannen, 1986, 1990). In contrast, men use more aggressive speech and expressions of power and domination thereby discouraging other speakers (Belenkly, Clinchy, Goldberger & Tarule, 1986; Tannen, 1986, 1990; Dodds, 1991). These findings show gender differences in language ability and speech and indicate that male and female learners approach languages differently.

Studies on gender differences.

Studies on the relationship between gender and use of learning strategies are recent and focus primarily on the role of learning styles in selecting a learning strategy (Oxford. 1993). In an extensive review of more than 80 studies investigating the relationship between gender and learning strategies. Oxford. Nyikos. and Ehrman (1988) found that only 4 mentioned gender differences.

The first study was conducted by Politzer (1983), who found that female college students used social strategies for L2 learning significantly more often than their male peers did. These findings might be attributed to the fact that female learners tend to be more cooperative. negotiate meaning, and are more open to social activities than male learners. In the second study. Ehrman and Oxford (1988) found that females in an intensive adult learning setting. used more strategies in four categories: general study. negotiating meaning. self-management. and functional practice.

In the third study utilizing version 2.1 of SILL. Oxford and Nyikos (1989) found a strong relationship between gender differences and learning strategies. Female college students used learning strategies more than male students did in three categories: formal rule-related practice strategies. general study. and conversational input elicitation. The fourth study was by Nyikos (1990). who found that female learners of the German language used more strategies than male. More studies were conducted on gender differences in countries where English continues to be taught as a foreign language.

Watanabe (1987) studied Japanese students of English as a foreign language. In his study, three hundred and sixteen students were recruited from an urban Japanese university and another rural college for women. One of the objectives was to compare

the use of learning strategies between female students in two different settings: a female college and a coed college. For frequency use, Watanabe used a scale of low, medium, and high. Watanabe found that female university students were at a medium usage level in communication learning strategies, general study strategies, and memory strategies. In affective strategies they were at a high usage level. Participants from the all-female college were at a medium usage level for the various strategies. These findings suggest that the place of learning, whether a university or a college, is a factor in the use of specific learning strategies.

Another study in China of learners of English as a Second Language found that the students showed significant gender differences on the Strategy Inventory for Language Learning Sy (1994) found that female students of English use cognitive, compensation, metacognitive, and social strategies more than men. In a recent study, Green and Oxford (1995) studied Puerto Rican students learning English. Also using the SILL, three hundred and forty-seven university students participated. The purpose was to describe the patterns of variation in overall strategy use, strategy use by SILL categories and strategy use at the individual item level for male and female students at three different course levels. The results of this study by Green and Oxford demonstrate that there are significant differences between men and women in the frequency of use of language learning strategies. Although these results contradict early research on gender differences conducted by Chamot (1990) who found that male students use more strategies than female students do. Other recent studies show a positive relationship between gender and the usage frequency of learning strategies (Oxford, 1994).

The significance of these cross-cultural studies of gender differences is that they represent different populations and different settings. The findings suggest that differences in learning strategies between male and female learners are global phenomena. This globality might be attributable to the fact that regardless of cultural differences, men and women differ in their learning habits.

Studies of Language Proficiency

Several studies on the relationship between language proficiency and use of learning strategies have concluded that advanced learners use more strategies than beginning learners. For example, O'Malley (1985) studied the relationship between strategy use and level of English proficiency. The participants were 70 high school students learning English as a Second Language. Data were collected by using interviews and observations. Results showed that beginning learners used more cognitive strategies than intermediate students did. O'Malley believes that using learners' native language may have caused such results.

In another study, Green and Oxford (1995) studied the patterns of variations in overall strategy use, strategy use by SILL categories, and strategy use at the individual item level, by students in three different course levels (p. 267). Regarding the relationship between strategy use and level of proficiency, the researchers found that advanced learners use more strategies than beginning learners. In addition, the ANOVA results showed significant relationships to proficiency, gender, or both for each of the six SILL categories. Moreover, the researchers found that 22 items of the 50 SILL items varied significantly by course level. These results suggest that advanced learners use more strategies than beginners do.

Summary of Literature Review

The literature reviewed in this chapter was divided into three main areas: SLA theories, definition and classification of language learning strategies, and research in language learning strategies. The review puts special emphasis on the Information-Processing Theory. This emphasis is due to the fact that language learning strategies are action, behaviors, and thoughts used by language learners to process new information. Three models of human memory and cognition were reviewed for their relation to the manner in which knowledge is represented in memory. It is hypothesized that knowledge is represented in human memory in two distinct, but related ways: short-term and long-term memory.

Also presented in this review is a discussion of the types of knowledge. In the Information-Processing framework, knowledge is divided into two types: declarative and procedural, which are discussed in relation to SLA. Research in human knowledge shows that it is not enough for language learners to know language rules, i.e., declarative knowledge. For language learning to be effective, it is important for language learners to know how to put the rules into practice, i.e., procedural knowledge.

In discussing definitions and classifications of language learning strategies, the review pays special attention to the most updated definitions and classifications. Research in language learning strategies is also presented. Research review shows that it is important to consider a variety of social, biological, and psychological factors in conducting studies on language learning strategies. Among these factors are gender, learning styles, proficiency level, age, motivation, and aptitude. In addition, the review

shows that for research to yield better results, it is important to use more than one instrument at various settings with different populations.

In reviewing research studies in language learning strategies, findings suggest that strategy use is gender related. For example, it was found that women use more strategies than men do. Additionally, women demonstrated the ability to integrate new information into already existing cognitive structures more effectively than men.

Research on the relationship between learning strategies and achievement shows that there is a positive relationship between learning strategies and achievement. For example, many studies suggest that advanced learners are able to use more strategies more effectively.

Regarding instruments, the review shows that researchers incorporated questionnaires, observations, and interviews, i.e., asking students about the strategy they use and how frequently.

Chapter III

METHOD

Population

The population for this study consists of all Arabic language learners in an Arabic language institute in the Washington, DC area. This institute, Institute of Islamic and Arabic Sciences in America (IIASA) teaches Arabic at six different levels and is an affiliate of a Saudi university based in Riyadh, Saudi Arabia. Two hundred students enroll in the Arabic program each semester. At the time of data collection, 82 students were present. Male students represent 58% of the population.

Sample Selection

Due to difficulties in approaching students individually, intact classes were used. There are six levels of the program: levels one and two are considered beginning; three and four are considered intermediate; and five and six are considered advanced, (Haimid, 1997). The number of classes at each level varies from semester to semester. In addition, the classes are non-coed, male and female and consist of approximately 10 to 15 students.

The Setting

At the Institute of Islamic and Arabic Sciences in America (IIASA) there are two programs: Intensive and non-intensive. Students at the intensive program spend 25 hours a week in the morning from 9 a.m. to 1 p.m. for five days. At the non-intensive program students spend 6 hours a week. Students have the choice to enroll in evening or on weekends. Typically, they are American Muslim converts who graduated from high school and is preparing him/herself to enroll in the Islamic Studies program at IIASA.

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The population for this study consists of all Arabic language learners in an Arabic language institute in the Washington, DC area. This institute, Institute of Islamic and Arabic Sciences in America (IIASA) teaches Arabic at six different levels and is an affiliate of a Saudi university based in Riyadh, Saudi Arabia. Two hundred students enroll in the Arabic program each semester. At the time of data collection, 82 students were present. Male students represent 58% of the population.

Sample Selection

Due to difficulties in approaching students individually, intact classes were used. There are six levels of the program: levels one and two are considered beginning; three and four are considered intermediate; and five and six are considered advanced, (Haimid, 1997). The number of classes at each level varies from semester to semester. In addition, the classes are non-coed, male and female and consist of approximately 10 to 15 students.

The Setting

At the Institute of Islamic and Arabic Sciences in America (IIASA) there are two programs: Intensive and non-intensive. Students at the intensive program spend 25 hours a week in the morning from 9 a.m. to 1 p.m. for five days. At the non-intensive program students spend 6 hours a week. Students have the choice to enroll in evening or on weekends. Typically, they are American Muslim converts who graduated from high school and is preparing him/herself to enroll in the Islamic Studies program at IIASA.

Most learners spend two years at the program; others, however, spend one year in the United States and transfer to a Saudi University to get a degree in Islamic Studies. On the other hand, students at the non-intensive program are working people who find some time in their schedule to fulfill a religious obligation, that is, learning the language of their religion.

Arabic is introduced at IIASA in six levels. For the purpose of this study, level 1 and 2 are consolidated as beginning, 3 and 4 as Intermediate, and 5 and 6 as Advanced. This consolidation is meant to increase the number of participants at each level. Participants represent the three levels. Unfortunately, at the time of data collection, there was not one female student at the advanced level. Therefore, in analyzing the second and the third question, the researcher dropped all advanced male learners. To determine correspondence of the assigned class levels to the ACTFL proficiency levels, a writing test was given to a random sample that represents levels 1,2,3,4,5, and 6. The results show that learners at different levels of Arabic perform in accordance with ACTFL levels with 75%. The percentage is estimation and reached by comparing the test results taken by a random sample representing all levels to ACTFL Arabic Proficiency Guidelines.

Research Design

The study is an investigation of the cognitive and metacognitive strategies used by learners of Arabic as a foreign language. It aims to discover the relationship between the variables of gender, level of proficiency, and cognitive and metacognitive strategy use. This type of research is not experimental but is called causal-comparative research, which is defined as "a systematic empirical inquiry on which the scientist does not have direct control of independent variables because their manifestations have already occurred

or because they are inherently unmanipulable. Inferences about relations among variables will be made without direct intervention from concomitant variation of dependent and independent variables" (Kerlinger, 1973). In this type of research, no random assignment of subjects is possible (Best & Kahn, 1993).

Instrument

The main purpose of the intended study is to explore the effects of gender and proficiency level on strategy use, in particular, the cognitive and metacognitive strategies used by learners of Arabic as a foreign language. As an instrument for this study, the researcher used the Strategy Inventory for Language Learning (Oxford, 1989). SILL is a self-report instrument designed to assess English speakers' use of different learning strategies for other languages. The researcher used version 5.1, designed for English speakers learning other languages. The questionnaire is eighty items total, covering the four language skills: reading, writing, listening, and speaking. SILL reflects the learners' beliefs about strategy use in language learning and has been used with more than 8,000 subjects worldwide, proving to be valid and reliable with an internal consistency coefficient of .90 (Oxford & Burrry-Stock, 1995). For the above reasons the researcher finds it appropriate and possible to use the SILL.

The questionnaire covers five types of strategies: cognitive, metacognitive, compensation, memory, and social-affective. Since this study investigates two types of strategies: cognitive and metacognitive, the researcher has used only Part B of the questionnaire that deals with cognitive strategies and consists of 24 items; and Part D, which deals with metacognitive strategies consisting of 16 items. The SILL is a survey

for assessing students' use of learning strategies and consists of strategy descriptions to be answered on a scale of 1 to 5 according to the frequency of use by the respondent. The points on the scale are:

1. Never, or almost never true of me

2. Generally not true of me

3. Somewhat true of me

4. Generally true of me

5. Always or almost always true of me

Reliability was calculated by the researcher using Cronbach's coefficient alpha for Cognitive Strategies it was .8909; for Metacognitive Strategies it was .9402; for both categories, it was .9520. This is statistically high and significant. The coefficient is used to determine internal consistency of items of SILL. The following is a description of strategies under investigation.

Cognitive Strategies. In Oxford's 1990 classification, there are four main cognitive strategies: practicing, receiving and sending messages, analyzing and reasoning, and creating structure for input and output. The following list provides a brief definition for strategy to be investigated, based on the author's definition.

1. Practicing: repeating things over and over again. Examples are formally practicing with sounds and writing systems, recognizing and using formulas and patterns, recombining, and practicing naturally.

2. Receiving and Sending: skimming to determine the main ideas.

3. Analyzing and reasoning which include, analyzing contrastively, translating and transferring:

4. Creating Structure for Input: This strategy helps learners focus their attention on important things during reading. Examples of this category are summarizing, highlighting, and taking notes.

Metacognitive Strategies: Those strategies that relate to the learner's awareness, knowledge, and control of cognition. It is the effort learners engage in to plan, monitor, and evaluate. There are two sets of metacognitive strategies:

1. Centering learning: This strategy helps learners converge their attention and energies on certain language tasks; Examples are liking new material to their schema, paying attention, delaying speech production to focus on listening;

2. Planning for learning: This strategy helps learners organize and plan; aiming to maximize their learning outcome. Examples are learning consciously about the target language, setting goals and objectives, identifying the purpose of the learning task, planning for the learning task, and seeking practice opportunities.

Data Collection Procedures

After securing the clearance form for human subjects, the researcher visited the site and explained to the administration the purpose of the study. Permission was granted to meet with the teachers and brief them as well.

At the classes the researcher:

1. Briefed the subjects about the study, the instrument, and their rights as participants;
2. Read the consent form, which was attached to the questionnaire;
3. The subjects were asked to fill out the questionnaire, which took approximately 30-35 minutes; and

4. The questionnaire forms were collected and subjects were thanked for their participation.

Data Analysis

To test the research questions, a 2 x 2 analysis of variance was used to determine if there are differences among students in the variables of the study. This analysis was adapted because there were no advanced female learners. The independent variables were gender and level of proficiency, the dependent variables were cognitive and metacognitive strategy use. The data were analyzed separately for each dependent variable. To obtain scores for the cognitive strategy use, the mean score for each student for all the cognitive strategy items were computed, and then the overall mean of all students for the cognitive scales variable were computed. The same procedure was used for the metacognitive scales. The Statistical Package for Social Sciences (SPSS) Base 7.5 for Windows User's Guide was used to analyze the data.

Descriptive statistics included frequency of numbers and percentages. Mean and standard deviation were used to report demographic characteristics of participants and provide an answer for research question number one. Inferential statistics included the Two-Way Analysis of Variance (ANOVA) which was used to test the three hypotheses. The .05 level of significance was adopted for the study as criterion for testing hypotheses consistent with other studies in the literature.

Null Hypotheses

1. Learners of Arabic as a foreign language do not use learning strategies.

2. There are no differences between male and female students in using cognitive and metacognitive strategies;

3. There are no differences between students at different levels of proficiency in using cognitive and metacognitive strategies.

4. There is no interaction between language proficiency and gender in using cognitive and metacognitive strategies.

CHAPTER IV

Data Analysis and Presentation of Findings

In this chapter, the results of the statistical analyses are presented. First, descriptive statistics of the participants are given. Second, answers are provided to research questions formulated for the study. Finally, a summary is presented.

Descriptive Statistics for Demographic Characteristics

First, descriptive statistics on the participants' characteristics are presented. The number and percentage are presented by gender and level of proficiency. As Table 1 shows, of the 82 students who participated, 48 (58.5%) were men, and 34 (41.5%) were women. In terms of levels of proficiency, 59 (72.0%) studied at the beginning level, 13 (15.9%) at the intermediate level, and 10 (12.2) at the advanced level. The ages of the participants ranged from 19 to 55.

Table 1

Descriptive Data for Demographic Characteristics

	Levels of proficiency							
Gender	Beginning		Intermediate		Advanced		Total	
	n	%	n	%	n	%	n	%
Male	31	39.00	7	8.5	10	12.00	48	58.50
Female	28	36.7	6	7.46	0	0	34	41.50
Total	59	72.00	13	16.00	10	12.00	82	100.00

Data Analysis: Presentation of Findings

This section presents answers to research questions 1, 2, and 3. Research questions concern three issues: types of cognitive and metacognitive strategies used by learners of AFL, differences between male and female learners in their use of these strategies, and differences between students at various levels of proficiency in their use of cognitive and metacognitive strategies. To answer these research questions, data were analyzed using the Statistical Package for Social Sciences (SPSS). The presentation of findings for each question is divided into two sections: cognitive and metacognitive strategies.

Research Question # 1: What cognitive and metacognitive strategies do adult learners of Arabic as a Foreign Language (AFL) use?

This question attempts to identify the cognitive and metacognitive strategies used by adult learners of Arabic as a foreign language. As Table 2 shows, learners of Arabic as a foreign language use cognitive and metacognitive strategies in a moderate level (M = 3.2, SD = .65) and (M = 3.3, SD = .90) respectively.

Table 2

Mean and Standard Deviation for Overall Use of Cognitive and Metacognitive Strategies

Category	Mean	Standard deviation
Cognitive	3.2	0.65
Metacognitive	3.3	0 .90

Cognitive Strategies

Cognitive strategies are those techniques, behaviors, and thoughts that learners use intentionally with the purpose of organizing, storing, and eventually retrieving information in order to improve their language proficiency. According to the Strategy Inventory of Language learning (SILL), cognitive strategies are divided into subcategories. These subcategories are practicing, receiving and sending messages, analyzing and reasoning, and creating structure for input and output.

Cognitive strategy use is moderate overall, (M = 3.2, SD= 0.65) of a possible 5.00. However, six strategies were reported to be used more often than the average. For these six strategies, the means ranged between 4.0 and 3.5. The first strategy was "I take notes in class in the new language" with a mean of (M = 4.1, SD = 1.07). The second strategy was: "I practice the sounds or alphabet of the new language" (M = 3.9, SD = 0.96). The third strategy was "I look for similarities in the new language" (M= 3.7, SD = 1.4). The fourth strategy reported to be used at more than average frequency was "I look for patterns in the new language" the mean was (M = 3.7, SD = 1.1). The fifth strategy was "I use reference materials such as glossaries or dictionaries to help me use the new language"; the mean was (M = 3.6, SD =1.35). The sixth strategy was: the mean was (M = 3.6, SD =1.0) "I imitate the way native speakers talk." As adults, these learners are expected to use their world knowledge to find general patterns in the new language.

Table 3

Mean and Standard Deviation for Most Often Used Cognitive Strategies

Strategy	Mean	Standard deviation
I take notes in the new language.	4.1	1.07
I practice the sounds or alphabet of the new language.	3.9	0.96
I look for similarities in the new language.	3.7	1.4
I look for patterns in the new language.	3.7	1.1
I use reference materials such as glossaries or dictionaries to help me use the new language.	3.6	1.1
I imitate the way native speakers talk.	3.6	1.0

On the other hand, as Table 4 shows, four strategies were reported to be used less often than others are. For instance, the strategy "I write personal notes, messages, letters, or reports in the new language" with a mean of (M= 2.2, SD = 1.1) was the least used strategy, followed by "I make summaries of the new language" the mean for which was (M = 2.7, DS = 1.2). Implementation of both strategies requires learners to be skillful in writing in the new language. Thus, these strategies are expected to be used less frequent by the participants because writing as a skill is developed at higher learning levels, and the program at IIASA does not place great emphasis on writing at lower levels. As IIASA's manual shows, creative writing is introduced at level 6. Strategies related to the fact that Arabic is taught in a foreign environment where sufficient input is not available were reported to be used less often. These strategies were "I attend and participate in out-of- class events where the new language is spoken" and the strategy "I watch TV shows or movies or listen to the radio in the new language" was also reported to be used less than average. The mean and standard deviation for these strategies were (M = 2.7, SD = 1.3) and (M =2.7, SD = 1.3) respectively.

The shortage of input in a foreign environment is responsible for only moderate use of strategies that require rich cultural input. Therefore it is understood that learners do not have much chance to watch television or read material in the foreign language. Table 4 presents the mean and standard deviation for the least often used cognitive strategies. Table 4 is organized in ascending order, from the lowest mean to the highest mean.

Table 4

Mean and Standard Deviation for the Least Often Used Cognitive Strategies

Strategy	Mean	Standard deviation
I write personal notes, messages, letters, Or reports in the new language.	2.2	1.1
I make summaries of the new language.	2.7	1.2
I attend and participate in out-of-class activities where the new language is spoken.	2.7	1.3
I watch TV in the new language.	2.7	1.3

Metacognitive Strategies

Metacognitive strategies are actions and thoughts carried out by learners for the purpose of monitoring, evaluating, planning, and assessing their performance. Metacognitive strategies are divided into three subcategories: centering learning, arranging and planning, and evaluating learning. Descriptive statistics showed that metacognitive strategies were used slightly more often than cognitive strategies (M =3.3, SD = 0.90). A possible reason for this greater use is that adult learners are goal-oriented individuals. This means that for adults to achieve their goals, they plan for them, monitor their progress, and evaluate their learning process.

As Table 5 shows, participants used some strategies more often than others did. For instance, the strategy, "I learn from my mistakes" scored the highest, (M = 4.0, SD = 1.1). Learning from mistakes is not unusual for adults, and it is possible that these learners can diagnose their mistakes and overcome them. The second highest mean was recorded for the strategy "when someone is speaking the new language, I try to concentrate on what the person is saying and put unrelated topics out of my mind" (M = 3.9, SD = 1.1). The third more often used strategy was "I decide in advance to pay special attention to specific language aspects." The mean was (M = 3.7, SD = 1.2). The fourth strategy reported to be used more often was "I try to notice my language errors and find out the reasons for them" (M = 3.6, SD = 1.1). The last strategy reported to be used most often was "I evaluate the general progress I have made in learning the language," (M =3.6, SD =1.1). As mentioned above, adult learners are also characterized

as self-directed individuals. Self-directed individuals have the ability to assess and examine their progress whenever they are involved in a learning task.

Table 5

Mean and Standard Deviation for the Most Often Used Metacognitive Strategies

Strategy	Mean	Standard deviation
I learn from my mistakes in using the new language.	4.0	1.1
When someone is speaking the new language, I try to concentrate on what the person is saying.	3.9	1.1
I decide in advance to pay special attention to specific language aspects.	3.7	1.2
I try to notice my language errors and find out the reasons for them.	3.6	1.1
I evaluate the general progress I have made in learning the language.	3.6	1.1

Table 6 shows, the two strategies reported to be used less frequently. For strategy "I plan what I am going to accomplish in language learning each day or each week," the mean was ($\underline{M}$ = 2.6, $\underline{SD}$ = 1.3).

Table 6

Mean and Standard Deviation of Less Often Used Metacognitive Strategies

Strategy	Mean	Standard deviation
I plan what I am going to accomplish in language learning every day or each week.	2.6	1.3
I prepare for an upcoming language task (such as giving a talk in the new language) by considering the nature of task, what I have to know and my current language skills.	2.8	1.3

Summary of Findings for Question # 1

As Table 1 shows, there was moderate overall use of both cognitive and metacognitive strategies by adult learners of Arabic. The means and standard deviations were (M = 3.2, SD = 0.65) and (M = 3.3, SD = 0.90) for cognitive and metacognitive strategies, respectively. In addition, metacognitive strategies were used more than cognitive strategies.

Research Question # 2: Do male and female learners of AFL use similar or different cognitive and metacognitive strategies?

Cognitive Strategies

This question concerns the differences between men and women in their use of cognitive and metacognitive strategies. To answer this question, a 2x2 analysis of variance was conducted. Table 7 presents the mean differences between male and female learners at different levels of proficiency in using cognitive strategies.

Table 7

Mean and Standard Deviation of Results by Gender and Level of Proficiency on the Strategy Inventory of Language Learning

Level of Proficiency	Male (n = 38)		Female (n = 34)	
	M	SD	M	SD
Level I	3.2	0.63	3.1	0.72
Level II	3.3	0.51	3.1	0.51
Total	3.2	0.60	3.1	0.68

As Table 7 shows, male learners use cognitive more often than female learners on both levels (M = 3.2, SD = .063 and M = 3.3, SD = 0.51). Some previous studies have shown, however, that women use learning strategies more often than men (Politzer, 1983; Oxford & Ehrman, 1995. The results of ANOVA for cognitive strategies are presented in Table 8. In the use of cognitive strategies, no significant differences between male and female learners were found; however, ANOVA showed differences in use between male and female of three cognitive strategies.

Table 8

ANOVA for Cognitive Strategies

Source	Sum of Squares	df	Mean Square	F	P
Intercept	742.1	1	742.1	1729.6	.000
Gender	.347	1	.347	.809	.372
Level	3.57	1	3.57	.083	.774
Interaction	1.409	1	1.409	.033	.857
Error	29.1	68	.429		
Total	771.7	72			

p>.05

Strategies Used Significantly More Often by Men

Two strategies were found to be used significantly by men. Strategy 3 and strategy 8. Strategy 3 "I read a story or a dialogue several times until I can understand it," is related to a language skill (reading). As table 8 shows, $F = 4.4 = .039$, $p < .05$.

Table 9

ANOVA for Strategy 3

Source	Sum of Squares	df	Mean Square	F	P
Intercept	833.6	1	8336	485	.000
Gender	7.6	1	7.6	4.4	.039*
Prof_Level	3.02	1	3.02	1.7	.189
Interaction	5.99	1	5.99	3.49	.066
Error	116.6	68	1.7		
Total	967.0	72			

$p < .05$

Strategy 8 "I initiate conversations in the new language" was also found to be used significantly more frequently by men. As Table 10 shows, F (5.09)= .027; $p<$. 05. This result is expected because as learners advance in the learning process, they begin to realize the importance and the need for talking to native speakers.

Table 10

ANOVA for Strategy 8

Source	Sum of Squares	df	Mean Square	F	P
Intercept	747.5	1	747.5	612	.000
Gender	6.2	1	6.2	5.09	.027*
Prof_Level	.365	1	.365	.299	.586
Interaction	.915	1	.915	.750	.390
Error	82.9	68	1.2		
Total	838	72			

*p<.05

In addition to those significantly used strategies by men, there are some strategies that were used by men more often than women. The means for these strategies were not significant, however. Table 11 presents the cognitive strategies that were used by men more than women.

Table 11

Cognitive Strategies Used More Often by Men and Compared to Women

	Male		Female	
Strategy	M	SD	M	SD
Repeating reading	3.7	1.25	3.0	1.4
Looking for details	3.6	1.1	3.3	1.2
Making summaries	3.1	1.1	2.5	1.2
Looking for similarities	3.8	1.3	3.3	1.5

Metacognitive Strategies

Foreign language learners use metacognitive strategies to plan. monitor. and evaluate their progress. As Table 12 shows. analysis of variance showed that with an alpha level of .05. gender was not statistically significant. Results also show that male and female learners use metacogbnitive strategies in a similar fashion.

Table 12

ANOVA for Metacognitive Strategies

Source	Sum of Squares	df	Mean Square	F	P
Intercept	736	1	736	829	.000
Gender	.375	1	.375	.42	.518
Prof-Level	.774	1	.774	.872	.354
Interaction	.328	1	.328	.369	.545
Error	59.460	67	.887		
Total	797.1	71			

Table 13

Metacognitive Strategies Used by Both Male and Female Learners

Strategy	Male		Female	
	M	SD	M	SD
Paying attention	3.4	1.5	3.5	1.00
Reading books and articles	2.9	1.4	2.8	1.4
Studying consistently	3.2	1.2	2.9	1.2
Take notes	3.5	1.3	3.4	1.2
Plan my goals	3.5	1.3	3.3	1.4

Regarding interaction between gender and language proficiency, as Table 10 shows, there was no significant interaction between gender and language proficiency.

Summary of Findings for Question #2

Findings related to research question 2 show that no significant differences exist between men and women in the use of cognitive strategies. Regarding metacognitive strategies, results show that male and female learners use them similarly. These results differ from previous studies, which showed that women use strategies more often than men do. For example, Oxford, (1993) and Green and Oxford (1995) found that female Spanish speakers learning ESL used more strategies than male learners.

Research Question # 3 What is the relationship between levels of Arabic proficiency and the use of cognitive and metacognitive strategies?

This research question attempts to determine whether learners at different levels of proficiency use learning strategies differently. Results from one-way analysis of variance suggest that there was not significant effect of language proficiency level on strategy use. Below is a detailed presentation of the findings.

Cognitive Strategies

As Table 14 shows, intermediate learners use more strategies than beginners, means were ($\underline{M}$ = 3.2 and 3.1, SD = .52 and .67 respectively).

Table 14

Mean and Standard Deviation for Levels of Proficiency

Level	Mean	Standard deviation
Beginning	3.1	.67
Intermediate	3.2	.52
Total	3.2	.64

Analysis of variance for cognitive strategies showed that there were no significant differences between the two levels of proficiency (see Table 15).

Table 15

ANOVA for Cognitive Strategies

Source	Sum of Squares	df	Mean Square	F	P
Intercept	742	1	742	1729	.000
Gender	.347	1	.347	.809	.372
Prof-Level	3.5	1	3.5	.083	.774
Interaction	1.4	1	1.4	.033	.857
Error	29	68	.429		
Total	771	72			

$p>.05$

Regarding individual strategies as Tables 16 and 17 show, two strategies were found to be significantly used by intermediate learners. Strategy two states "I imitate the way native speakers talk". Strategy 17 reads "I take notes in class in the new language."

Table 16

ANOVA for Strategy 2

Source	Sum of Squares	df	Mean Square	F	P
Intercept	889	1	889	643	.000
Gender	1.24	1	1.24	.009	.925
Prof-Level	5.5	1	5.5	4.0	.049*
Interaction	2.4	1	2.4	1.7	.185
Error	93.9	68	1.3		

$p<.05$

Table 17

ANOVA for Strategy 17

Source	Sum of Squares	df	Mean Square	F	P
Intercept	1216.8	1	1216.8	1033	.000
Gender	.176	1	.176	.150	.700
Prof-Level	5.2	1	5.2	4.4	.039*
Interaction	3.6	1	3.6	3.0	.083
Error	80.0	68	1.17		
Total					

$p<.05$.

In addition to the above strategies. seven other strategies were used more often by intermediate learners as Table 18 shows.

Table 18

Strategies Used More Often by Intermediate learners

Strategy	M	SD
15- I seek specific details in what I hear or read	4.0	.81
21- I look for similarities and contrasts between the new language and my own.	4.0	1.1
24- I look for patterns in the new language.	4.0	.81
3- I read a story or dialogue several times until I can understand it.	3.8	1.2
14- I skim the reading passage first to get the main idea, than I go back and read it more carefully	3.7	1.4
7- I use familiar words in different combinations to make new sentences	3.6	1.0
23- I am cautious about transferring words or concepts directly from my language into the new language.	3.6	.76

Metacognitive Strategies

Findings revealed that learners at the intermediate level use more cognitive strategies than beginning learners (M = 3.4, SD = .75). Although there is a difference between the two levels of proficiency, ANOVA shows that this difference is not significant (see Table 20).

Table 19

Mean and Standard Deviation for Metacogntive Strategies by Level

Proficiency Level	Mean	SD
Beginning	3.1	.96
Intermediate	3.4	.75
Total	3.2	.93

Table 20

ANOVA for Metacognitive Strategies

Source	Sum of Squares	df	Mean Square	F	P
Intercept	736.1	1	736.1	829	.000
Gender	.375	1	.375	.42	.518
Porf-Level	.774	1	.774	.774	.872
Interaction	.328	1	.328	.369	.545
Error	59.4	67	.887		
Total	797.1	71			

p>.05

Metacognitive Strategies Used more Often by Intermediate Learners

As noted earlier, Intermediate learners used strategies more often than beginners did. When we examine some of those strategies used by intermediate learners (see Table 21) we will find that those more often used strategies have one theme; organizing. These findings suggest that as students ascend in their language learning, they become more aware of the need for using learning strategies.

Table 21

Metacognitive Strategies Used More Often by Intermediate Learners

Strategy	Mean	Standard deviation
When someone is speaking the new language, I try to concentrate on what the person is saying and put unrelated topics out of my mind	4.2	1.0
I learn from my mistakes in using the new language	4.1	1.1
I try to notice my language errors and find out the reasons for them	4.0	1.1
I take responsibility for finding opportunities to practice the new language	3.7	.75
I arrange my schedule to study and practice the new language consistently; not only when there is pressure of a test.	3.3	1.3

Summary of Findings for Question # 3

The third research question deals with differences between learners of AFL at various levels of proficiency. Results showed no significant differences between learners at various levels in using either cognitive or metacognitive strategies. Intermediate learners used certain cognitive strategies more than beginners did. The same findings were found regarding metacognitive strategies.

CHAPTER V

DISCUSSION AND CONCLUSION

This chapter summarizes the study, discusses the results enumerated in chapter IV, and describes the implication for classroom practice and implications for further research.

The Study: Purpose, Setting, and Instrument

The purpose of this study was to investigate the use of cognitive and metacognitive strategies by learners of AFL in terms of gender and language proficiency differences. The research questions were formulated to reflect the need to assess learners' abilities to use specific learning strategies.

Questions of concern were predicated on a lack of research studies in the field of teaching AFL in a foreign context. Assessing differences between men and women, as well as among groups at various levels of proficiency, were the main purposes of the study. In this study, it was hypothesized that learners of AFL use cognitive and metacognitive strategies, that there are differences between male and female learners in their use of these strategies, that learners at different levels of proficiency use strategies differently and that there is a relationship between gender and language proficiency on one hand and the use of cognitive strategies on the other hand.

The study was conducted at the Institute of Islamic and Arabic Sciences in America (IIASA), a language institute that teaches Arabic as a foreign language in the Washington, D.C. metropolitan area. IIASA is a Saudi institution established in 1990 for many purposes. One primary reason was to introduce the Arabic language and culture to the American people. Moreover, IIASA aims at helping Muslims in this

country develop proficiency in the Arabic language to be able to learn their religion in its authentic sources.

The Strategy Inventory for Language Learning (SILL) was used as instrument for collecting data. SILL is an 80-item questionnaire divided into six parts: cognitive strategies, metacognitive strategies, compensation strategies, memory strategies, and social and affective strategies. The rating system ranges from 1 to 5, with 1 representing "never or almost never true of me" and 5 "always or almost always true of me. In this study, two part, cognitive and metacognitive strategies, were used.

Results

In this section, a discussion of results is presented. It is divided according to dependent variable (strategy use) and independent variables (gender and language proficiency).

Research question #1 What cognitive and metacognitive strategies do adult learners of Arabic as a foreign language use?

A- Cognitive Strategies

The first interesting finding of the study was that the overall mean for using cognitive strategies by learners of AFL was moderate (M =3.2, SD = 0.65) of a possible 5. A previous study (Awiess, 1993) showed that learners of AFL use cognitive strategies in a moderate level. One possible explanation for this moderate-to-high usage level of cognitive strategies is that adult learners are aware of the benefits of using special techniques and to improve their language proficiency (Al-Kindy, 1995; Oxford, 1995).

Using specific cognitive strategies at high level is also reported in this study. A strategy such as "I take notes in the foreign language" was reported to be used frequently

more than other strategies (M = 4.1, SD =1.07). Taking notes is one of the strategies used by learners at various levels and various subjects of study at early stages. It is probable that learners' previous knowledge played a role in this strategy that were used less frequently are related to the environment and reasons of learning Arabic. Because in this study Arabic introduced in a foreign country, there was insufficient input to learners to use strategies related to speaking and participating in social events. The following two strategies "I attend and participate in out-of-class events where the new language is spoken" and "I watch TV shows or movies or listen to the radio in the new language" are examples of the less frequently used strategies. A probable interpretation for this is that watching television and attending social events were not available and / not accessible to learners. In addition, there was limited access to cultural materials. This result confirms previous studies conducted in foreign environments (Oxford; 1992a; Sy, 1993).

B-Metacognitive Strategies

Metacognitive strategies are those strategies used by learners to monitor, evaluate, and assess their progress in the foreign language. Descriptive statistics showed that metacognitive strategies were used more often than cognitive strategies (M = 3.3, SD = 0.90). A previous study (Smits, 1996) showed no differences in frequency of use of cognitive and metacognitive strategies.

Although use of metacognitive strategies requires knowledge by the learners about their abilities, and because metacognitive strategies relate to planning, monitoring, and evaluating, they were used more often than cognitive strategies. This type of activity is expected of self-directed adult learners.

Specific strategies were used more often than others were. The strategy "I learn from my mistakes" was reported to be used frequently (M = 4.0, SD = 1.1). Learning from mistakes is expected of learners with world knowledge, who are able to diagnose their mistakes and consequently correct them. Another strategy "When someone is speaking the new language, I try to concentrate on what the person is saying," was also reported to be frequently used (M = 3.9, SD = 1.1).

On the other hand, some strategies were used less frequently than others were. The strategy "I plan what I am going to accomplish in language learning each day or each week" was less frequently used with a relatively low mean of 2.1 (SD 1.3). Planning short-term goals is not an easy task. Part-time learners who have obligations other than learning a foreign language often do not have enough time to assess their progress on a daily or weekly basis. It is understood that learners enrolled in this type of program have long-term objectives and can assess their progress whenever time is available to them.

Summary of Overall use of Cognitive and Metacognitive Strategies

Learners of the Arabic language use both cognitive and metacognitive strategies at a moderate rate. These results are consistent with previous studies on learners of Arabic, English, Spanish, and German languages. However, certain specific strategies were used more often than others were. Use of the more frequently employed strategies can be attributed to the nature of learners who are mature and have world knowledge. Learners used metacognitive strategies more than cognitive strategies. These results are slightly different than previous studies conducted in the United States and abroad.

Research Question # 2: Do male and female learners of Arabic as a foreign language use similar or different cognitive and metacognitive strategies?

Gender and Cognitive Strategies

Another interesting result of this study was that no significant differences were found between men and women in their overall use of cognitive strategies. On the other hand, differences between men and women were found to exist in the usage of specific items. For instance, men read stories repeatedly until they understand them; they initiate dialogues and conversations; and they revise what they write in the new language. In addition, men have a greater chance to meet Arab men than do women, and consequently men, initiate dialogues and conversations. Men meet regularly at religious and social gatherings. These findings are consistent with previous studies on learning strategies and gender (Politzer, 1983; Ehrman & Oxford, 1988; Oxford & Nyikos, 1989; Oxford & Ehrman, 1995).

Gender and Metacognitive Strategies

No significant differences were found regarding differences between male and female learners in their use of metacognitive strategies. Results show that male and female learners use metacognitive strategies in a similar fashion. This might be attributed to the nature of adult learners who are aware of the need for planning and organizing their goals of learning foreign languages.

Summary

The findings of this study regarding the differences between genders in terms of learning strategy use suggest that men and women use strategies similarly. However, these results were not significant. Use of certain strategies in both the cognitive and metacognitive categories were found to be significant. Choosing to use learning strategies suggests that this issue is complex and that results cannot be attributed to

gender alone. Proficiency level, learning styles, motivation, and cultural difference, to name a few play significant roles in using learning strategies. Generally speaking, these findings are different from those of previous studies. In addition, differences between the two groups does not mean that one specific group is more successful in learning the language more than the other (Oxford, 1995).

Research Question # 3: What is the relationship between level of Arabic proficiency and the use of cognitive and metacognitive strategies?

The relationship between language proficiency and the use of learning strategies was a third issue of concern for this study. Research on this relationship has suggested that learners at different levels of proficiency approach learning strategies differently (Chamot, 1990; Green & Oxford, 1995).

In this study no significant differences were found between levels of language proficiency and the overall use of learning strategies. Learners of AFL at various levels of proficiency use learning strategies at moderate to considerable frequency. At the individual-item level, significant variation by proficiency level was usually positive, i.e., intermediate learners used more strategies. The following section presents a detailed discussion of results pertaining to the relationship between proficiency and both cognitive and metacognitive learning strategies.

Cognitive Strategies and Proficiency

Statistical analysis revealed differences among groups in the use of specific strategies, though the differences were not significant. Some strategies were found to be used more often by intermediate learners.

Differences in usage of certain strategies were found to be significant in favor of intermediate learners: Strategy 17 states "I imitate the way native speakers talk." Imitation is a skill in itself and requires courage. As learners develop rapport with the new language it becomes evident that they have broken the ice with the new language which results in a closer relation with the language and its culture. When a strategy such as "I think in the new language" is compared to the previous strategy "I try to understand what I have heard or read without translating it word-for-word in to my own language," we find that as learners ascend into higher levels of proficiency they differ in their usage of strategies require higher order thinking. Therefore, advanced learners scored higher in thinking in the new language than intermediates, which in turn scored higher than beginners. The means were 3.6, 3.1, and 2.6 respectively.

Meatcognitive Strategies and Language Proficiency

Findings show that no significant differences were found between learners at various levels of proficiency. Studies on the relationship between language proficiency and learning strategies have shown that advanced learners use more strategies than beginning and intermediate learners (O'Malley & Chamot, 1990; Oxford, 1989, 1990, 1993, 1995; Oxford & Green, 1995). This trend can be explained in the light of the fact that advanced learners become more knowledgeable about the way the new language operates, and their repertoire of new words and structures gives them the chance to maneuver better in the new language.

Another finding is related to using specific strategies more often by intermediate learners. Strategies like concentration, learning from mistakes, fixing errors, and

practicing the new language consistently help learners organize their learning tasks and execute them efficiently.

The question of measuring success based on the number of learning strategies learners use and the manner in which they use them is posed with insufficient clarity. The vagueness arises comes from the term "successful learners" and its opposite "unsuccessful learners." Students at beginning levels are expected to perform in the new language only within the objectives and limitations of the course level. Therefore, if beginners are asked to write personal letters and memos in the new language, it becomes evident that this is an unrealistic expectation. In ACTFL Guidelines for writing skill at the beginning level, writing is limited to writing individual letters of the alphabet and composing short sentences.

In addition, studies on performance in foreign and second languages have shown that success in learning languages is not restricted to using learning strategies, but also requires investigating factors related to the whole learning process (Green & Oxford, 1995). As stated above, factors like attitude, aptitude, self-efficacy, motivation, environment, and setting, contribute positively or negatively to the success or failure in the new language.

Implications

Implications for instruction

This study revealed several interesting implications for teaching AFL. First, teaching Arabic for a limited purpose might restrict the use of learning strategies to acquiring only the specified skill. For instance, when priority is given to reading, learners may be preoccupied with the impression that learning strategies must be used only with

that skill. In addition, it will hinder learners' ability to use other skills, because they will not get enough practice and training in all language skills. It is recommended that even in the case of teaching a language for a specific purpose, enough time and training should be given to all skills. This integrated approach will enable learners to be qualified to use that language in different situations. Results revealed beginning learners do not use strategies related to writing until later. Therefore, it is recommended that writing skill be given attention beyond alphabetical transcriptions at the early stages. For example, learners should be encouraged to use Arabic in real life situations such as writing simple sentences and combining them in short paragraphs, writing their phone numbers, short memos and invitations

Second, the administration should provide opportunities for in-service staff training so that teachers' and administrations' effort compliment each other. This goal can be carried out through attending workshops, conventions, and meetings where learning strategies are discussed.

Finally, the fifth implication relates to sufficient input. Learners of Arabic in a foreign environment should be provided with opportunities to be exposed to comprehensible input. This goal can be achieved by integrating into the lesson cultural material related to the Arab people. If possible, it would be beneficial for learners to be given the chance to visit an Arab country, whenever possible, and live there through study-abroad programs. Study-abroad programs have been successful in assisting learners improve not only their language proficiency, but also their understanding of Arabic culture. During their stay abroad, learners will be able to attend social events

where Arabic language is spoken, participate in discussions with native speakers, watch television, and read newspapers and magazines.

Suggestions for Further Research

As mentioned above, the research on AFL is limited to studies of the content of teaching materials and methods of teaching. This limited scope may be broadened to include research in fields related to the learning process, learners' characteristics, and teaching aids. This study was conducted using two categories of SILL, cognitive and metacognitive. Other categories such as memory, compensation, and social/affective were not included, and in future research, it might be interesting to see the results if all categories were included. Researchers can explore the nature of learning AFL as a central theme. In addition, learners' preferences and styles can be explored thoroughly and examined in a way that gives teachers options in dealing with differences among learners. Research might include questions related to the relationship between personality factors and learning, the role of motivation in language acquisition, and the role of autonomy in achievement. Moreover, research can address questions related to the role of teacher training. Studies on the role of teachers of foreign languages have been conducted on many languages, notably English, Spanish, and French; research on Arabic related to this theme is limited.

This study was limited to adult learners of Arabic at IIASA. It is crucial to replicate this study in other settings with other populations. Other populations that differ in terms of age and purpose of study might reveal different results, which will help AFL teachers understand the nature of their students and thus to develop more effective materials and methods. It is also recommended to use more than one instrument and

method to collect data, such as think-aloud, and interviews, which might reveal different findings.

Suggested Research Questions

1. What is the relationship between motivation and the use of learning strategies?

2. How learning Arabic in an Arabic environment would be different from learning Arabic in a non-Arabic context and who this difference would affect the use of learning strategies?

3. How differences in learning styles would affect the use of learning strategies?

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Appendix A

Mean and Standard Deviation for Cognitive Strategies

	1		2		3		4		5			
Strategy	N	%	N	%	N	%	N	%	N	%	M	SD
Practice	8	9.8	13	15.9	30	36.6	24	29.3	6	7.3	3.08	1.07
Imitation	2	2.4	9	11.0	25	30.5	25	30.5	19	23.2	3.6	1.04
Repeating	9	11.0	13	15.9	19	23.2	17	20.7	24	29.3	3.4	1.35
Rewriting	12	14.6	9	9.8	26	31.7	18	22.0	18	22.0	3.26	1.31
Practicing sounds	2	2.4	5	6.1	12	14.6	38	46.3	25	30.5	3.9	.96
Using idioms	14	17.1	19	23.2	18	22.0	21	25.6	9	11.0	2.9	1.28
Using familiar words	1	1.2	12	14.6	20	24.4	31	37.8	18	22.0	3.6	1.02
Initiating speaking	7	8.5	13	15.9	28	34.1	22	26.8	12	14.6	3.23	1.14
Watching T.V	20	20.4	18	22.0	22	26.8	12	14.6	10	12.2	2.7	1.32
Thinking in L2	18	22.0	17	20.7	19	23.2	16	19.5	11	13.4	2.8	1.35
Participating in social events	19	23.2	20	24.4	18	22.0	16	19.5	9	11.0	2.7	131
Reading in L2	15	18.3	8	9.8	20	24.4	24	29.0	15	18.3	3.1	1.35
Writing personal things in L2	27	32.9	24	29.3	17	20.7	10	12.2	4	4.9	2.2	1.1
Skimming	13	15.9	13	15.9	19	23.2	18	22.0	18	22.0	3.1	1.37
Seeking details	6	7.3	11	13.4	15	18.3	32	39.0	18	22.0	3.5	1.1
Using dictionaries	7	8.5	12	14.6	13	15.9	18	22.0	32	39.0	3.6	1.35
Taking notes	4	4.9	2	2.4	12	14.6	25	30.5	39	47.6	4.1	1.07

Making summaries	11	13.4	24	29.3	26	31.7	13	15.9	8	9.8	2.7	1.16
Applying rules	5	6.1	18	22.0	33	40.2	15	18.3	11	13.4	3.1	1.08
Dividing words	11	13.4	6	7.3	20	24.4	25	30.5	20	24.4	3.4	1.3
Looking for similarities and contrasts	12	14.6	5	6.1	8	9.8	25	30.5	32	39.0	3.7	1.4
Avoiding word-to word translation	15	18.3	8	9.8	17	20.7	22	26.8	19	23.2	3.2	1.4
Transferring from L1 to L2 with caution	7	8,5	10	12.2	25	30.5	26	31.7	14	17.1	3.3	1.1
Looking for patterns	5	6.1	9	11.0	12	14.6	32	39.0	24	29.3	3.7	1.1

Number and Percentages for the Use of Metacognitive Strategies

Strategy	1 N	%	2 N	%	3 N	%	4 N	%	5 N	%	M	SD
Previewing	16	19.5	12	14.6	16	19.5	22	26.8	14	17.1	3.07	1.4
Concentrating	3	3.7	6	7.3	19	23.2	24	29.3	28	34.1	3.9	1.1
Attending to special aspects of L2	6	7.3	19	12.2	16	19.5	24	29.3	24	29.3	3.7	1.2
Seizing opportunities in l2	17	20.7	14	17.1	16	19.5	17	2o.7	17	20.7	3.0	1.4
Studying not only for tests	8	9.8	18	22.0	19	23.0	23	28.0	13	15.9	3.1	1.2
Arranging comfortable environment	7	8.5	10	12.2	24	29.3	21	25.6	18	22.0	3.4	1.2
Recording important things	7	8.5	13	15.9	14	17.1	22	26.8	24	29.3	3.5	1.3
Setting long-term goals	11	13.4	4	4.9	17	20.7	23	28.0	25	30.5	3.5	1.3
Setting short-term goals	21	25.6	15	18.3	25	30.5	10	12.2	9	11.0	2.6	1.3

Preparing for tasks	17	20.7	17	20.7	18	22.0	13	15.9	13	15.9	2.8	1.3
Identifying purpose of activities	8	9.8	9	11.0	31	37.8	19	23.2	13	15.9	3.2	1.1
Finding opportunities	5	6.1	11	13.4	17	20.7	30	36.6	17	20.7	3.5	1.1
Looking for L1 speakers to speak to	11	13.4	10	12.2	21	25.6	23	28.0	15	18.3	3.2	1.2
Monitoring errors	5	6.1	8	9.8	19	23.2	26	31.7	22	26.8	3.6	1.1
Learning from mistakes	5	6.1	3	3.7	15	18.3	29	35.4	27	32.9	4.0	1.1
Evaluating progress in L2	7	8.5	7	8.5	19	23.2	19	23.2	24	29.3	3.6	1.2

* 1 for the lowest score " never or almost never true of me" and 5 for the highest" always or almost always true of me".

Appendix B

STRATEGY INVENTORY FOR LANGUAGE LEARNING (SILL)

Version for English Speakers Learning a New Language

Version 5.1

Directions

THE STRATEGY INVENTORY FOR LANGUAGE LEARNING (SILL) is designed to gather information about how you, as a student of a foreign language or second language, go about learning that language. On the following pages, you will find statements related to learning a new language. Please read each statement. On the separate sheet, mark response 91,2,3,4, or 5) that tells how true the statement is in terms of what you actually do when you are learning the new language.

1. Never or almost never true of me
2. Generally not true of me
3. Somewhat true of me
4. Generally true of me
5. Always or almost always true of me

Never or almost never true of me means that the statement is very rarely true of you; that is, you do the behavior which is described in the statement on in very rare instances.

Generally not true of me means that the statement is usually not true of you; that is, you do the behavior which is described in the statement less than half the time, but more than in very rare instances.

Some what true of me means that the statement is true of you about half the time; that is, sometimes you do the behavior which is described in the statement, and sometimes you don't, and these instances tend to occur with about equal frequency.

Generally true of me means that the statement is usually true of you, that is you do the behavior which is described in the statement more than half the time.

Almost or almost always true of me means that the statement is true of you in almost all circumstances; that is, you almost always do the behavior which is described in the statement.

Use the separate Worksheet for recording your answers and for scoring. Answer in terms of how well the statement describes you, not in terms of what you think you should do, or what other people do. Answer in reference to the language you are now learning (or the language you recently learned). There are no right or wrong responses to these statements. Work carefully but quickly. You will score the SILL yourself using the attached Worksheet. On the worksheet, write your code given to you by the researcher, the date, and the language learned.

Part B

1-I say or write new expressions repeatedly to practice them.

2- I imitate the way native speakers talk.

3- I read a story or dialogue several times until I can understand it.

4- I revise what I write in the new language to improve my writing.

5-I practice the sounds or alphabet of the new language.

6- I use idioms or other routines in the new language.

7- I use familiar words in different combinations to make new sentences.

8- I initiate conversations in the new language.

9- I watch TV shows or movies in the new language.

10- I try to think in the new language.

11- I attend and participate in out-of-class events where the new language is spoken.

12- I read for pleasure in the new language.

13- I write personal note, messages, letters, or reports in the new language.

14- I skim the reading passage first to get the main idea, then I go back and read it more carefully.

15- I seek specific details in what I hear or read.

16- I use reference materials such as glossaries and dictionaries to help me use the new language.

17- I take notes in class in the new language.

18- I make summaries of the new language materials.

19- I apply general rules to new situations when using the language.

20- I find the meaning of a word by dividing the word into parts which I understand.

21- I look for similarities and contrasts between the new language and my own.

22- I try to understand what I have heard or read without translating it word-for-word into my language.

23- I am cautious about transferring words or concepts directory from my language into the new language.

24-I look for patterns in the new language.

Part D

25- I preview the language lesson to get a general idea of what it is about, how it is organized, and how it relates to what I already know

26- When someone is speaking the new language, I try to concentrate on what the person is saying and put unrelated topics out of my mind.

27- I decide in advance to pay special attention to specific language aspects; for example, I focus the way native speakers pronounce certain sounds.

28- I try to find out all I can about how to be better language learner by reading books or articles, or by talking with others about how to learn.

29- I arrange my schedule to study and practice the new language consistently; not just when there is pressure of a test.

30-I arrange my physical environment to promote learning; for instance, I find a quiet, comfortable place to review.

31- I organize my language notebook to record important language information.

32-I plan my goals for language learning, for instance, hoe proficient I want to become or how I might want to use the language the long run.

33- I plan what I am going to accomplish in learning each day or each week.

34- I prepare for an upcoming language task (such as giving a talk in the new language) by considering the nature of the task, what I have to know, and my current language skills.

35- I clearly identify the purpose of the language activity; for instance, in listening task I might need to listen to the general idea for specific facts.

36- I take responsibility for finding opportunities to practice the new language

37- I actively look for people with whom I can speak the new language.

38- I try to notice my language errors and find out the reasons for them.

39-I learn from my mistakes in using the new language.

40- I evaluate the general progress I have made in learning the language.

Appendix C

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants

Title of Project: Cognitive and Metacognitive Strategies Used by Learners of Arabic as a Foreign Language

Investigator: Saleh Saleh

The Purpose of this Project

The purpose of the intended study is to investigate how learners think as they are learning Arabic as a Foreign language (AFL). This study also intends to provide teachers, curriculum designers and learners with new insight about how Arabic is learned in the US. Language educators believe the proper and frequent use of certain identified strategies will improve the learners' performance in AFL (Oxford, 1990).

Confidentiality / Anonymity

Students' names will not be placed on the questionnaire. A code will be assigned for each participant. The code will be available to the researcher only.

Approval of Research

Compensation

There will be no compensation of any form for participating in this study.

Freedom to Withdraw

Subjects are free to withdraw from the study at any time without penalty. This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic and State university, by the Department of Teaching and Learning, and the Institute of Islamic and

Arabic Sciences in America.

Subject's Responsibilities

I voluntarily agree to participate in this study. I have the responsibility of completing the questionnaire of the study.

Subject's permission

I have read and understand the Informed Consent and conditions of this project. I have all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project.

If I participate, I may withdraw at ant time without penalty. I agree to abide by the rules of this project.

_____ _____

Signature Date

Should I have any questions about this research or its conduct, I may contact:

Saleh Saleh
Investigator
8340 Glastonbury CT.
Annandale, VA 22003
E-mail: ssaleh@dc.infi.net

Dr. Judith L. Shrum
Faculty Advisor
Virginia Tech
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Dr. Tom Hurd
Research Division
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301 Burruss Hall
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Appendix D

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

Office of Sponsored Programs

301 Burruss Hall
Blacksburg, Virginia 24061-0249
(540) 231-5281 Fax: (540) 231-4384

DEC 16 1997

MEMORANDUM

TO: Saleh Saleh and Judith Shrum
Teaching and Learning

FROM: H. T. Hurd
Director

DATE: December 12, 1997

SUBJECT: IRB EXEMPTION APPROVAL- "Cognitive and Metacognitive Strategies Used by Learners of Arabic" - IRB #97-290

I have reviewed your request to the IRB for exemption for the above referenced project. I concur that the research falls within the exempt status.

Best wishes.

HTH/pli

cc: Jan Nespor

Appendix E

QUESTION #	Findings
Question #1 Cognitive and Metacognitive Strategies	Strategy use was above average. The means were3.2 and 3.3 respectively.
Question #2 Gender Differences	ANOVA shows no significance differences between male and female learners. Some strategies were used by men more than women.
Question #3 Level of Proficiency	No significance differences were reported among levels of proficiency. However, learners at the intermediate level used more strategies than beginners.

Appendix F

December 20, 1999-

Saleh M. Al-Nusairat.
Zayed University,
P.o.Box 19282.
Dubai
United Arab Emirates

McGraw-Hill Companies
Permission Department
Two Penn Plaza
9th Floor
New York, NY 10121-2298

Dear Sir/Madam

I am a graduate student at Virginia Polytechnic and State University. I wrote my dissertation about learning strategies and I had to use Figure # 1 on page 81 of Learning and Instruction written by Hamilton, R. and Ghatala, E. This book is published by your company. I request permission for using the mentioned figure in my dissertation. Thank you for your cooperation.

Cordially,

Saleh M. AL-Nusairat

Appendix G

Curriculum Vitae

SALEH M. SALEH
Zayed University
Dubai-UAE

EDUCATION

1998, Ed.D., Virginia Polytechnic and State University, Blacksburg,Virginia
Curriculum and Instruction
Dissertation: " Cognitive and Metacognitive Strategies Used by Learners of Arabic as a Foreign Language." Under the direction of Judith L. Shrum.

1980, M.A., State University of New York at Stony Brook, Stony Brook, New York.
TESOL.

1978, B.A., University of Jordan, Amman, Jordan
Arabic Language and Literature

EMPLOYMENT

1998-Present, Instructor, Arabic Language and Islamic Culture. Zayed University, Dubai, United Arab Emirates.

1996-1998, Director of Development, American Muslim Council, Washington, D.C.

1996-1998 Instructor, Arabic as a Foreign Language, School of Islamic and Social Sciences, Leesburg, VA.

1991-1996 Instructor, Arabic as a Foreign Language, Institute of Islamic and Arabic Sciences in America, Fairfax, VA.

1981-1991, Instructor, Arabic as a Foreign Language, King Saud University, Riyadh, Kingdom of Saudi Arabia.

1980-1981, Lecturer, Arabic Language and Literature, Yarmouk University, Irbid, Jordan.