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An Alternative Approach to Linguistic Theories of Language Acquisition: Focus on The Cognitive Theory

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Abstract

Although linguistics provides a useful perspective on L_2 learning, it must be remembered that linguistics is only one of the disciplines that SLA research can draw on. With this in mind, this study provides a thumbnail sketch of some currently prevalent theories which try to explain how foreign languages are learned. It, also, spells out some alternatives to the linguistics-based approach to foreign language acquisition research. More specifically, some limitations of linguistic theories in addressing the role of mental processes in L_2 acquisition are identified and recent theoretical developments in cognitive psychology that can be applied to L_2 acquisition are outlined. Moreover, this study reports the results of an empirical investigation carried out by the author on 200 Egyptian University students enrolled in the department of English, Faculty of education, Minufiya University. They were divided into two groups according to their academic status: 1) Beginners (N=100); and 2) Advanced learners (N=100). It attempts to answer three interrelated questions: 1) to what extent does the advanced students' performance in listening tasks differ from that of the beginning students before and after training? 2) how can two types of training (intensive listening vs. improving learners' linguistic skills) affect L_2 learners' listening comprehension skill?, and 3) what does students' performance, before and after the training, tell us about their abilities to transfer? The instruments used are (1) pre-test; (2) classroom instruction sessions; (3) post-test, and (4) interviews. The data analysis has a quantitative and a qualitative, interpretative part. Results are obtained and discussed, and pedagogical applications are suggested.

Keywords: L_2 Acquisition; Linguistic Approaches; Cognitive Perspectives; L_2 Listening and Training.

1. Introduction

Psychologists and educators have long been interested in understanding how people learn, for the concept of learning is central to many different human endeavors. As Hatch, Shiari, and Fantuzzi (1990: 697) noticed, "as we think about our experiences as teachers and researchers and examine our beliefs about the learning process, it becomes clear that we have no all-encompassing theory of language acquisition that matches what we have learned from experience. Rather, we find a great deal of research on small parts of the total picture without an integrated theory to guide our work. This is as true of a theory of teaching as it is a theory of second language acquisition". Specifically speaking, there is no theory that integrates all areas of language acquisition. Because each researcher must limit the scope of his or her research, the questions asked and answers sought are almost always about one separate subsystem of the total language picture (See Mangubhai, 2006; Firth & Wagner, 2007). Relatedly, Wode (1988, cited in Schulz, 1991) points out that language acquisition theories fall into five general categories: (1) Those attempting a behaviouristic explanation, emphasizing the role of conditioning; (2) those attempting an interactionist explanation, emphasizing communicative/social need, purpose, and setting; (3) those attempting a cognitive explanation, emphasizing logical, intellectual process; (4) those attempting a nativist or biological explanation, emphasizing inborn, genetic abilities, and (5) those emphasizing the learner and learning strategies (Sharwood-Smith, 2004).

Moreover, theories of how second languages are learned have been approached from a variety of perspectives: sociolinguistic, educational, neurolinguistic, psycholinguistic, and linguistic. McLaughlin (1987) discusses five of those theories: Interlanguage Theory, Linguistic Universal Theory, Acculturation/Pidginization Theory, Cognitive

theory, and Krashen's Monitor Model. Ellis (1988) adds several more: Accommodation Theory, Discourse Theory, the Variable Competence Model, and the Neurofunctional Theory. The dilemma, however, is that Because of this diversity, it is often difficult for researchers from different traditions to communicate with one another or to fully appreciate the significance of the questions being addressed (Gass, 1989: 1).

1. Statement of the Problem

First, the goals of linguistic-oriented second language acquisition research are not pedagogical; they do not directly impinge on questions of language pedagogy, language teaching methodology, or classroom behavioral studies (Lightbown & Spada, 2006). Second, linguistic theories have often assumed that language is learned separately from cognitive skills and operates according to properties, such as developmental language order, grammar, knowledge of language structures, social and contextual influences on language use, and the distinction between language acquisition and language learning (O'Malley, Chamot and Walker, 1987). Third, language and linguistic processes are often viewed as interacting with cognition but nevertheless maintaining a separate identity that justifies investigation independent from cognitive processes. Moreover, theory development in Second Language Acquisition (SLA) that addresses cognitive processes remains limited despite recent interest in the relationship between language and cognitive style, language and cognition, and more specifically, the theories is interest in the role of strategic processes in SLA (See Van Patten & Williams, 2008; Cohen, 2008; Conley, 2008).

2. Rationale

The rationale adopted in this study is that language can be accommodated in a broader framework of how people store and acquire knowledge in general rather than being seen as something unique and peculiar on its own. That is, linguistic theories have often assumed that language is represented and acquired by the human mind in ways that are different from any other knowledge. Instead, the cognitive approaches to L_2 acquisition see L_2 acquisition as a complex cognitive skill. So, rather than stressing innate, universal linguistic processes, affective factors, input, or interaction as causative factors for L_2 development, cognitive theory sees L_2 acquisition as a mental process, leading through structured practice of various component subskills to automatization and integration of linguistic patterns.

3. Theoretical Framework

3.1. SLA and Diverse Perspectives

Ritchie and Bhatia (1996) point out that the study of Second Language Acquisition (SLA) had its origins in attempts to solve practical problems. Until quite recently, research in this area was widely regarded as falling entirely within applied linguistics, and many still see the primary motivation for this research as that of contributing directly to the solution of the complex and socially important problems surrounding foreign and L_2 instruction. As Snow (1998) argues, five major groups of researchers have contributed to our understanding of L_2 acquisition: 1) foreign-language educators who are worried about their students' progress; 2) child-language researchers who noticed that L_2 acquisition might be similar in interesting ways to L_1 acquisition; 3) linguists who wanted to use L_1 acquisition to test notions about language universals; 4) psycholinguists who were interested in language processing issues, and 5) sociolinguists and anthropologists who are interested in how language is used in various social settings. The problem, however, is that

Disciplines tend to become fragmented into 'schools', whose members are loath to accept, and are even hostile to the views of other schools using different methods and reaching different conclusions. Each group becomes convinced that it has a comer on 'truth'. One philosophical position contends that truth can never be known directly and in its totality. Multiple ways of seeing result in multiple truths (McLaughlin, 1987:6).

Specifically speaking, although linguistics provides a useful perspective on L_2 learning and has led to stimulating ideas and research... "yet it must be remembered that linguistics is only one of the disciplines that SLA research

can draw on … multiple source of information are needed to build up a picture of the language knowledge in the mind". (Cook, 1993: 269-270).

3.2. Linguistics and SLA Research

The rationale, here, is that "relating second language acquisition to linguistics means looking at the nature of both linguistics and second language research" (Cook, 1993: 1). Linguistic approaches to second language research deal with minds that are acquiring, or have acquired, knowledge of more than one language. In this connection, Chomsky (1986) defined three basic questions for linguistics: (1) what constitutes knowledge of language? (2) how is knowledge of language acquired? and (3) how is knowledge of language put to use?. For second language research, the above- mentioned questions need to be rephrased to take in knowledge of more than one language. As Cook (1993) explains, a person who speaks two languages knows two grammars; two systems of language knowledge are present in the same mind. Accordingly, one goal of second language research is to describe grammars of more than one language simultaneously existing in the same person. Moreover, a person who knows two languages has been through the acquisition process twice. Therefore, second language research must explain the means by which the mind can acquire more than one grammar. It must, also, decide whether the ways of acquiring a second language differ from those for acquiring a first, or whether they are aspects of the same acquisition process. Finally, people who know two languages can decide how to use them according to where they are, what they are talking about, who they are talking to, and so on (See Eskildsen, 2008; Ellis, N., 2002, 2005).

3.3. Linguistic Theory and Second Language Acquisition

There are presently two major perspectives from which to view the relationship between theories of language and theories of second language acquisition. One perspective involves claims regarding the impact of a theory of second language learning. The other perspective involves claims regarding the use of second language data to test or develop a theory of language. The first perspective contends that an adequate model of second language acquisition is quite impossible without a coherent theory of language. The second perspective argues that linguistic theory must be tested against second language data to be validated. Thus, any theory of language would be false if it failed to account for second language data. The underlying assumption is that a comprehensive theory of language must account for all language systems that involve human processing mechanisms. And, second language data can and should be used as evidence for distinguishing between linguistic theories (See De Bot et al., 2007). As Gass (1989) points out, much work in second language acquisition has dealt with linguistic concepts in a more or less haphazard fashion, without a firm theoretical basis. One reason for this state of affairs comes from within the field itself. The initial impetus for studies of second language learning came from contrastive analysis and error analysis. During the 1970s it became apparent that the study of second language acquisition was a viable topic of study in and of itself. Its justification no longer came from the concerns of language pedagogy, as had been the case within the framework of contrastive analysis and error analysis. Instead, its justification came from the insights that it provided about the nature of the process of acquisition. Second language research has developed into an independent non-applied discipline, focusing on the sources of the learner's hypotheses about the target language, the paths the learner takes to reach ultimate proficiency, and the characterization of the knowledge underlying that ultimate proficiency (Gass, 1989).

3.4. SLA Research: Focus on Its Nature

As Gregg (1989) argues, we must have a clear idea of the domain of inquiry of second language acquisition before attempting to construct a theory of it. He claims that the domain of inquiry of L_2 acquisition is to characterize the linguistic competence of second language learners. Earlier work in the field of second language focused on acquisition from a pedagogical perspective, in the sense that the goals of research were ultimately to refine our knowledge about classroom practice. But currently, most scholars engaged in SLA research view the field as an autonomous discipline with its own set of questions and issues and its own research agenda and goals. Until the mid-1960s, organized concern for L_2 phenomena was dominated by attempts to adduce

implications for language teaching from the then-current behaviorist thinking in experimental psychology and American structuralist linguistics. As Ritchie and Bhatia (1996: 5) point out "The central task of the (descriptive) linguist at that time was to construct descriptions of natural languages where the description of a language was understood to consist of a set of inductive generalizations about the utterances in a corpus gathered from the natural speech of an adult native speaker (NS) of the language under investigation".

With regard to the study of SLA at this time, on the basis of the observation that many features of the learner's behavior in the L_2 resembled his or her L_1, it was proposed that the comparison of a description of the learner's L_1 with a description of the L_2 would allow accurate predictions of L_1 influence in L_2 behavior and, hence, provide important information for the design of language instruction. As a result of theoretical attacks on the behaviourist view of language acquisition as habit-formation; it was hypothesized that L_1 acquisition was the product of an 'acquisition device' by which means the child related a set of universal grammatical rules to the surface structure of the language he was learning. The counterpart of the 'acquisition device' in SLA was 'creative construction'. That is, SLA was seen as a series of evolving systems which comprised the interlanguage continuum.

Interlanguage theory both generated and fed off empirical research into SLA. This research initially took the form of Error Analysis. The context for the new interest in errors was the recognition that they provided information about the process of acquisition. Error Analysis provides two kinds of information about interlanguage. The first concerns the linguistic type of errors produced by L_2 learners. The second concerns the psycholinguistic type of errors produced by the L_2 learners (overgeneralization; incomplete application of rules; false concepts hypothesized). (See Loewen et al., 2009).

One of the most important effects of mentalist interpretations of SLA has been the reassessment of errors. Whereas in behaviourist accounts errors were treated as evidence of non-learning, in mentalist theory they serve as evidence of the learner's active contribution to acquisition. As Ellis (1986) points out, "the most significant contribution of Error Analysis... lies in its success in elevating the status of errors from undesirability to that of a guide to the inner workings of the language learning process. (Chan, 2010).

Both interlanguage theory and the empirical studies that supported it have had a major impact on our thinking about the nature of SLA. The switch from a behaviourist to a mentalist framework proved a source of a great insight into both L_1 acquisition and SLA. It has become generally accepted that the human language faculty is a potent force in language acquisition.

3.5. SLA Research in the 1970s and 1980s

Early work on the process of L_1 acquisition stimulated by Chomsky and his colleagues influenced research on SLA in two major respects. First, the empirical results of this work provided a basis for comparing the processes of L_1 and L_2 acquisition; second, it introduced the notion that the linguistic behavior of a language learner at a given stage of acquisition is not just a collection of ad-hoc differences from adult native behavior in the same language but, rather, is determined in part by a system of rules and principles analogous to the grammar of adult NSs of that language. The first kind of influence took two forms. First, the process of SLA of English was compared with that of L_1 English primarily with respect to negative and interrogative structures. Second, the L_1 order of acquisition of grammatical morphemes in English, which was found to be constant across subjects in Brown's work (1973), was compared with the L_2 order of acquisition of the same types of morphemes in the SLA of English. The second kind of influence that L_1 acquisition research of the 1960s had on the development of SLA research is to be found most clearly in three works. Corder (1967) proposed that properties of L_2 learners' language that deviate from those of adult NSs should be considered not simply as 'errors' but as evidence for the cognitive processes underlying the learner's behavior parallel to the position adopted in the investigation of child L_1 acquisition. Selinker (1972 hypothesized that the L_2 learner's linguistic behavior justifies the claim that it is determined in part by a language system, and interlanguage system (IL System), that is distinct from both the learner's L_1 and the adult native system of the L_2. Finally, Adjemian (1976) proposed that the IL system has a grammatical competence component, an interlanguage grammar (ILG).

One of the side issues considered in the grammatical morphemes studies was whether L_2 learning is the same as L_1 acquisition. In answering this question, we must seek answers for the following two questions: l) Is the order of acquisition similar in L_1 acquisition and SLA? and 2) Are the strategies used by L_1 and L_2 learners the same? Reviewing the literature on the first question shows that the evidence from the comparisons of the L_1 and L_2 acquisitional routes is mixed. That is, there is some evidence to suggest that SLA proceeds is more or less the same way as L_1 acquisition, but there is also evidence that points to differences. In this regard, Ellis (1986) maintains that

It is not clear whether these differences are the result of L_1 transfer or of other factors to do with the learner's more advanced cognitive development. Most likely they are the result of both. When it comes to examining the kind of strategies used in the two types of acquisition, the similarity is more evident.

3.6. SLA Research in the 1980s and After

Krashen's monitor model

During the late 1970s Stephen Krashen put forward an account of SLA first known as the Monitor Model after its main claim about the role of monitoring in language learning (Krashen, 1979). In the early 1980s this was expanded into a broader-based model, described in Krashen (1981; 1982). The aspect of the model that became most developed was termed the Input Hypothesis, the title of Krashen's last major theoretical book (Krashen, 1985). The question that concerns us, here, is the linguistic aspect of Krashen's views, and how linguistics contributes to our understanding of SLA.

Krashen's theory consists of five linked 'hypotheses': input; acquisition/learning; monitor; natural order; and affective filter. Krashen proposes a general theory of L_2 acquisition that attempts to answer the three questions: 1) What constitutes knowledge of languages? 2) How is knowledge of languages acquired?, and 3) How is knowledge of languages put to use? As mentioned before, these questions are related to the basic three questions for linguistics, defined by Chomsky (1986). First, Krashen suggests that knowledge of language in L_2 users takes two forms: acquired and learnt knowledge. In the Acquisition/learning Hypothesis Krashen claims that adult or adolescent language learners have two processes at their disposal to help them in developing language fluency. One is acquisition, the other, learning. Acquisition is subconscious and takes place through natural language interactions, similar to those available to children when they acquire their mother tongue. Learning, on the other hand, requires conscious thought and analysis and takes place predominantly in formal instruction. According to Krashen, only language that has been acquired is available for use in spontaneous communication. In this connection, Cook (1993) argues that 'in many ways Krashen's [views] are within the general agenda set by linguistics. The division into acquired and learnt knowledge reflects the division of the mind into modular faculties; the language faculty is separate from other faculties, such as the number faculty or the faculty of mathematics (Chomsky, 1980: 58). Linguists often assume that language itself is learnt only through the language faculty, without utilising other faculties or general learning abilities... Krashen makes the Chomskyan Language Acquisition Device (LAD) a core element in his model. The fact that acquisition relies on built-in abilities of the mind reflects on assumption of the Chomskyan theory already seen in Selinker's concept of 'latent language structure'.

To Krashen, the (LAD) 'Language Acquisition Device' is made up of the natural language learning abilities of the human mind, totally available in L_1 acquisition, available in L_2 acquisition according to the filter; this construct is called the "organizer" in Dulay et al. (1982). The function of the LAD is to turn language input into a grammar of the language. The Chomskyan LAD, however, works independently of the features of the input. Krashen is concerned with the properties of the input, rather than the processes of the mind. To Krashen. L_2 acquisition is driven by the language environment rather than by the mind and it is limited by the filter. The conditions for successful acquisition matter more to him than the processes of acquisition. Moreover, Ellis (1986) points out that, in storage, 'acquired' knowledge is located in the left hemisphere of the brain (in most users) in the language areas; it is available for automatic processing. 'Learnt' knowledge is meta-linguistic in nature. It is also stored in the left hemisphere, but not necessarily in the language areas; it is available only for controlled

processing. Thus, 'acquired' and 'learnt' knowledge are stored separately. In performance, 'acquired' knowledge serves as the major source for initiating both the comprehension and production of utterances. 'Learnt' knowledge is available for use only by the Monitor.

Second, according to the Input Hypothesis, humans acquire language in only one way-by understanding messages or by receiving 'comprehensible input' (Krashen, 1985: 2). To be useful to the learner, the input must be neither too difficult to understand nor too easy. This is conceptualized by Krashen in terms of the learner's current level, called I, and the level that the learner will get to next, called i+1. As Cook (1993) points out, "for the learner to progress rather than remain static, the input has always to be slightly beyond the level at which he or she is completely at home; the gap between the learner's i and the i+1 that he or she needs is bridged by information drawn from the situation and from the learner's previous experience. Moreover, comprehensible input relies on the actual language forms being incomprehensible, not the total message. Learners have to struggle to derive meaning for the parts they do not understand rather than understanding the sentence completely (White, 1989). Third, 'Learnt' knowledge comes into play through the 'Monitoring' of speech. Monitoring provides a conscious check on what the speaker is saying. Anything the learner wants to say comes from acquired knowledge; learnt knowledge can monitor this speech production before or after actual output. Monitoring takes place 'before we speak or write or after [self-correction] (Krashen, 1982:15). The 'Monitor Hypothesis' claims that consciously 'learnt' knowledge is only available for Monitoring rather than usable in other ways.

In addition, the extent to which a given learner uses Monitoring depends on several factors: tasks that focus on 'form' rather than meaning will encourage. Monitoring; the personality of learners varies between those who under-use. Monitoring, over-use Monitoring, or use Monitoring optimally. The question which imposes itself is 'why is not acquisition equally successful for all L_2 learners, even when they receive apparently identical comprehensible input? According to Krashen (1982: 66), 'comprehension is a necessary condition for language acquisition but it is not sufficient' something more than comprehensible input is needed. For acquisition to take place, the learner has to be able to absorb the appropriate parts of the input. There can be 'a mental block that prevents acquirers from fully utilizing the comprehensible input they receive for language acquisition' (Krashen, 1985: 3). This block is called "the affective filter." That is, the acquirer may be unmotivated, lacking in self-confidence, or anxious. If the filter is 'up', comprehensible input cannot get through; if it is 'down', they can make effective use of it. In this connection, Krashen (1985) argues that the reason why younger learners are better at L_2 acquisition over the long term is that 'the affective filter gains dramatically in strength at around puberty' (Krashen, 1985: 13). In Krashen's words, 'comprehensible input and the strength of the filter are the true causes of second language acquisition' (1982: 33).

In summary, despite the comprehensiveness of the Monitor Model, it poses serious theoretical problems regarding the validity of the 'acquisition-learning' distinction, the operation of Monitoring, and the explanation of variability in language-learner language. Also the input hypothesis does not account for the fact that acquisition can take place without two-way negotiation of meaning, nor does it recognize that output also plays an important role.

3.7. Linguistic Universals

The study of linguistic universals has contributed to explanations of SLA. The study of linguistic universals can help to overcome one of the major problems of the Contrastive Analysis hypothesis, namely that not all the linguistic differences between the native and target languages result in learning difficulty. Linguistic universals can be used to help predict which differences lead to difficulty and which ones do not. Thus, the study of linguistic universals has helped to revamp transfer theory (Ellis, 1986). Two rather different approaches to describing linguistic universals have been adopted. Chomsky (1965, 1980, 1981) seeks to identify linguistic universals by the in-depth study of a single language. He argues that only in this way is it possible to discover the highly abstract principles of grammar that constrain the form of any specific grammar. He refers to these principles as universal Grammar. In contrast, Greenberg (1966) and others (for example, Comrie, 1981) have set

about identifying universals by examining a wide range of language from different language families in order to discover what features they have in common. The universals established in this way are referred to as typological universals. Cook (1985) in a lucid explication of the Chomskyan view of Universal Grammar writes: The language properties inherent in the human mind make up 'Universal Grammar', which consists not of particular rules or of a particular language, but a set of general principles that apply to all languages.

Chomsky's explanations for the innateness of Universal Grammar is that without a set of innate principles it would not be possible for a child to learn the grammar of his mother tongue. This is because the data available from the input are insufficient to enable the child to discover certain rules. Universal Grammar is composed of different kinds of universals. Chomsky (1965) identifies two types: substantive and formal; the former consist of fixed features such as the distinctive phonetic features of which sounds are made, or syntactic categories such as noun, verb, subject and object. Formal universals are more abstract. They are statements about what grammatical rules are possible. Much of Chomskyan linguistics is taken up with the search for formal universals. The rules that the child discovers with the aid of Universal Grammar form the core grammar of his language. However, not all rules are core rules. Every language also contains elements that are not constrained by Universal Grammar. These comprise the 'periphery'. The child's knowledge of his mother tongue is made up of rules determined by Universal Grammar (the core) and those that have to be learnt without the help of Universal Grammar (the periphery).

Related to the concepts of core and periphery is Chomsky's theory of markedness. Core rules are unmarked; that is, they accord with the general tendencies of language. Periphery rules are marked; that is, they are exceptional in some way.

3.8. Linguistic Universals and L_1 Acquisition

First, Chomsky's primary justification for Universal Grammar is that it provides the only way of accounting for how children are able to learn their mother tongue. As Ellis (1986) explains, Universal Grammar, then, is the solution to what is called 'the logical problem of language acquisition'. The child needs to be constrained from making incorrect hypotheses. These constraints are not provided by the input data, so they must be part of the child's biologically determined endowment. Without Universal Grammar it would not be possible for a child to acquire a language successfully. White (1981) argues that a less marked grammar is easier to acquire than a marked one, because it requires less elaborate triggering experience. In other words, the child finds it easier to acquire the unmarked rules comprising the core grammar of his mother tongue than the marked rules that form the periphery. This is because the unmarked rule is considered to be immediately available to the child, whereas more marked rules require varying amounts of positive evidence from the input. In this regard, Cook (1985) maintains that: The child prefers to learn unmarked rules that conform to Universal Grammar rather than marked rules that do not square with it... Core Grammar and peripheral Grammar are weighted differently in the Child's mind (15).

3.9. Linguistic Universals and L_2

The role of linguistic Universals in SLA is more complicated than in L_1 acquisition. This is because SLA involves two languages: the target language and the learner's native language. Thus, the L_2 learner brings two types of linguistic knowledge to the task of SLA: his knowledge of linguistic universals, and the specific grammar of his L_1. Furthermore, he must presumably 'know' which rules in his L_1 belong to the core and which to the periphery. The following reflect widely held views: 1) learners transfer unmarked L_1 forms when the corresponding L_2 forms are more marked; 2) the effect of the L_1 will be observed more strongly where peripheral rules in the L_2 are concerned; 3) marked forms are not transferred into interlanguage, particularly when the L_1 possesses both marked and unmarked constructions; 4) marked forms may be transferred in the early stages of SLA, and 5) an L_1 pattern that corresponds to an interlanguage can accelerate or delay SLA depending on whether the correspondence is with an early- or late occurring developmental pattern (Ellis, 1986).

Universal Grammar theory does not concern itself with second language acquisition. The application of the theory to this domain has come about through recent work of a number of second-language researchers. In other words, Chomskyan theory has been concerned almost exclusively with the acquisition by the child of a first language. As McLaughlin (1987) maintains, "in his early writings Chomsky seemed to believe that second-language learning used other faculties of the mind than did first-language learning and so fell outside the domain of universal Grammar theory". Most second-language researchers who adopt the Universal Grammar perspective assume that the principles and parameters of Universal Grammar are still accessible to the adult language learner. They have used the concept of markedness to examine various acquisition problems.

The notion of markedness dates back to the Prague school o F linguistics. Originally, it was used to refer to two members of phonological opposition, one of which contained a feature lacking in the other. The phoneme carrying the feature was called marked; the other unmarked. The idea was used by Chomsky and Halle (1968) in their work on phonology. Mazurkewich (1984a, 1984b) has argued that Chomskyan Universal Grammar theory and the associated theory of markedness can serve as powerful predictors of the acquisition of dative structures by L_2 learners. She reported (1984a) that L_2 learner s were more likely to judge as correct sentences with the unmarked dative prepositional phrase complement (Give the book to Mary) than the marked double noun phrase construction (Give Mary the book). In another study, Mazurkewich (1984b) found that unmarked passivized direct objects (A football was thrown to Phillip) were learned before marked passivized indirect objects (Phillip was thrown a football). These findings were seen as evidence for the claim that the determining factor in the acquisition of interlanguage syntax is markedness as defined within Universal Grammar theory.

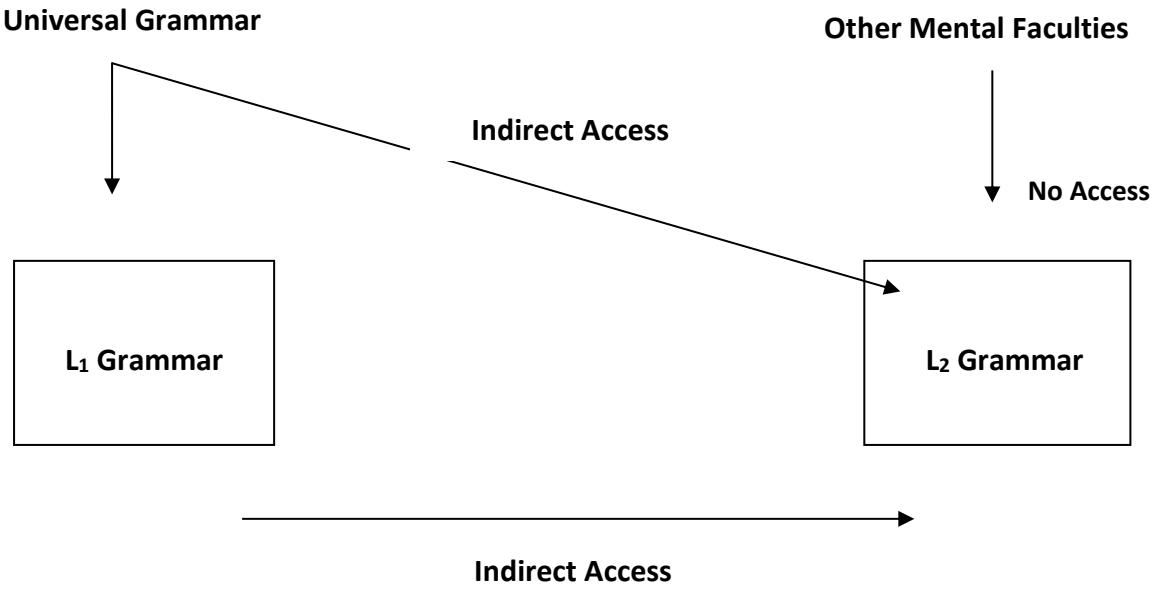
The bulk of the evidence to date suggests that language acquisition proceeds by mastering the easier unmarked properties before the more difficult marked ones. There seem to be exceptions, however, in the early stages of acquisition and where both first- language and target-language constructions are marked. The model of language acquisition most associated with SLA research in recent years has been the Universal Grammar (UG) model developed by Chomsky. As Cook (1993) argues, "this association between linguistics and SLA research reveals some of the potential and some of the dangers involved in the adoption of a complex and specialized learning model" (p. 200).

3.10. The Universal Grammar Model of Language Acquisition

The Language Acquisition Device (LAD) model in Chomsky (1964) is essentially as follows:

Acquisition is the process through which language data goes into the LAD 'black box' and a grammar comes out; the LAD evaluates alternative grammars to see which best fits the incoming data. In this connection, Cook (1993) maintains that The UG theory fleshes out this model by establishing the crucial features of the input, the contents of the black box, and the properties of the resultant grammar. The major change is a shift to describing Grammars in terms of principles and parameters...The principles are unchanging regardless of the actual language involved. These principles form part of the language faculty of the mind.

UG allows for variation between languages through parameters; languages can only vary within the pre-set limits for a particular parameter. The parameter itself is universal but the values it may take vary from one language to another. A major controversy surrounds the issue of whether all the principles and parameters are present in the mind to start with, or whether they come into being over time. In other words, "are the principles and parameters like the heart, which is structurally complete at birth, or like the teeth, which grow and are replaced over many years?" (Cook 1993: 203). The question that most L_2 researchers often consider is whether UG is actually involved in L_2 learning. This has been posed as a choice between three possibilities (Cook, 1985) set out in the following figure:



In the no-access position, L_2 learners acquire the L_2 grammar without any reference to UG, that is, the grammar is learnt through other faculties of the human mind and, probably, in the same way as any other aspect of knowledge-cookery, physics or whatever. In a direct access position, L_2 learners learn in exactly the same way as L_1 learners. In an indirect-access position, L_2 learners have access to UG through what they know of the L_1, but they start with the L_1 parameter settings rather than as part of the synchronic state of the mind.

4. Cognitive Framework

4.1. The influence of cognitive psychology

Cognitive psychology is concerned with various mental activities (such as perception, thinking, knowledge representation, and memory) related to human information processing and problem solving. The emphasis is no longer strictly on behaviour, but on the mental processes and knowledge structures that can be infested from behavioral indices and that are responsible for various types of human behaviour. Cognitive psychology has influenced learning theory and research in several significant ways, including (a) the view of learning as an active, constructive process; (b) the presence of higher - level processes in learning; (c) the cumulative nature of learning and the corresponding role played by prior knowledge; (d) concern for the way knowledge is represented and organized in memory; and (e) concern for analyzing learning tasks and performance in terms of the cognitive processes that are involved (Shuell, 1986: 415).

A. Learning as an Active Process

Cognitive approaches to learning stress that learning is an active, constructive, and goal - oriented process that is dependent upon the mental activities of the learning. They explicitly acknowledge the following: (a) the role of metacognitive processes such as planning and setting goals and subgoals; (b) the attempt by learners to organize the material they are learning, even when no obvious bases of organization are present in the materials being learned; (c) The generation or construction of appropriate responses and the use of various learning strategies (Weinstein and Mayer, 1986).

B. Higher- level processes in learning

Most cognitive conceptions of learning acknowledge the hierarchical nature of the psychological processes responsible for learning. Miller, Galanter, and Pribram's (1960) book, Plans and the Structure of Behavior, proved very influential in popularizing the notion that behaviour is hierarchically organized. Since the 1970s, the higher

- level (superordinate, executive) processes of learners have typically been referred to as metacognition (Brown et al., 1983; Flavell, 1979). For details, see Tomlin & Villa, 1994; Schmidt, 1992; Robinson, 2001; Segalowitz, 2011; Gass & Mackey, 2011). Generally, two types of metacognitive activities are involved in learning. The first involves regulation and orchestration of the various activities that must be carried out in order for learning to be successful (planning, predicting what information is likely to be encountered, guessing, monitoring the learning process). That is, since learning is goal oriented, the learner must somehow organize his or her resources and activities in order to achieve the goal. The second is concerned with what one does and does not know about the material being learned and the processes involved in learning it. Flavell and Wellman (1977) suggest classes of metacognitive knowledge: 1) tasks-knowledge about the way in which the nature of the task influences performance on the task; 2) self-knowledge about one's own skills, strengths, and weaknesses; 3) strategies-knowledge regarding the differential value of alternative strategies for enhancing performances; and 4) interactions-knowledge of ways in which the preceding types of knowledge interact with one another to influence the outcome of some cognitive performance (Tyler, 2011; Robinson & Ellis, N., 2011).

C. The Role of Prior Knowledge

Cognitive conceptions of learning place considerable importance on the role played by prior knowledge in the acquisition of new knowledge. Learning, then is cumulative i n nature; nothing has meaning or is learned in isolation. In the early 1970, several studies (Bransford and Johnson, 1972; Dooling and Lachman, 1971) demonstrated that what the learner already knows and the extent to which this knowledge is activated at the time of learning has important implications for what will be acquired and for whether or not the material being studied will make any sense to the learner. Realizations such as these led to the development of schema theory (Anderson, R. 1984), which stresses that the organized, structured, and abstract bodies of information (known as schemata) that a learner brings to bear in learning new material determine how the task is interpreted and what the learner will understand and acquire from studying the task.

D. The question of what is learned

One major difference between behavioral and cognitive conceptions of learning concerns the nature of what an individual learns. Behavioral approaches typically suggest either that the learner acquires associations or 'Bonds' between a stimulus and a response, or that the issue of what an individual might acquire internally is totally irrelevant for understanding the factors responsible for learning. Cognitive psychologists, on the other hand, are primarily concerned with meaning, rather than with behavior per se; that is a concern for the manner in which an individual extracts meaning from some experience. The emphasis is on understanding, not merely on learning how to perform a task, and on the acquisition of knowledge rather than on the acquisition of behavior. In this regard, Stevenson (1983) argues that if knowledge is what an individual learns, then behavior is the result of learning. Generally, this knowledge is best represented by complex knowledge structures rather than by simple associations. Most discussions of knowledge structures by cognitive psychologists go beyond the associative networks and habit- family hierarchies sometimes discussed by associationists. For example, a distinction is frequently made in cognitive psychology between propositional (or declarative) and procedural knowledge.

E. Cognitive process analysis

One important consequence of the cognitive influence on learning has been an interest in analyzing performance and cognitive abilities in terms of the cognitive processes involved in performing a cognitive task, including performance on tests of mental ability such as intelligence, inductive reasoning, and deductive reasoning. Such analyses can help us to better understand both the cognitive processes involved in learning and the instructional techniques most likely to facilitate that learning.

4.2. Cognitive theories of learning

Most cognitive conceptions of learning reflect an overriding concern for the more complex forms of learning, that is, the types of learning frequently characterized as 'meaningful ' or where one 'learns for understanding'. For the most parts, cognitive psychologists have been interested in the latter approach. As Norman (1978: 39) put it: I do not care about simple learning that only takes 30 minutes. I want to understand real learning, the kind we all do during the course of our lives... I want to understand the learning of complex topics.... (those) with such a rich set of conceptual structures that it requires learning periods measured in weeks or even years.

It should be kept in mind; however, that one problem with meaningful learning is that it is difficult to define. In this connection, Markman (1981: 63) maintained that "it makes little sense to most people, for example, to say that one understands his or her phone number. We can learn, know, or remember a phone number, but not understand one". And, only information that is structured organized can be thought of as being meaningful and can serve as an object of understanding (Moravesik, 1979). Various attempts have been made over the years to articulate the role of learning from a cognitive or human information-processing perspective. The following discussion will focus on those theories that have most influenced current thinking and research on cognitive learning.

4.2.1 Early conceptions

During the late 1950s and early 1960s, several writers began to formulate cognitive theories of learning. For example, Bruner (1957, 1961) talked about learning in terms of 'discovery' and 'going beyond the information given'. According to Bruner (1957: 51), learning occurs when an 'organism... code[s] something in a generic manner so as to maximize the transferability of the learning to new situations'.

The first systematic model of cognitive learning was Ausubel's (1962, 1963) theory of meaningful verbal learning. Another early theory of cognitive learning was Wittrock's (1974) model of generative learning. According to this model, people learn meaningful material by generating or constructing relationships among new information and knowledge already stored in long-term memory. These verbal and imaginal elaborations occur as the learner seeks to discover the underlying rule or relationship "by drawing inferences (about the rule], applying it, testing it, and relating it to other rules and to experience" (Wittrock, 1978: 26). It appears that the primary mechanisms of learning, according to the generative model, consist of the learner making inferences about potential relationships and then actively seeking feedback on the adequacy of these relationships. Bransford and Franks (1976) suggested that understanding or comprehension involves the acquisition of novel information that is difficult if not impossible for the traditional, 'memory metaphor' model of learning to explain. They suggest that learning that involves understanding occurs via a process of decontextualization. That is, knowledge is initially acquired in a specific context, in order for understanding to occur, this knowledge must become more abstract so that it can be related to a variety of different situations. Bransford and Franks suggest that concepts and knowledge become abstract by virtue of being used to clarify a number of situations, and thus stress the importance of the learning encountering relevant examples.

4.2.2. Rumelhart and Norman

The first comprehensive theory of cognitive learning was Rurnelhart and Norman's (1978: 50) attempt to account for the process of learning within a schema-based theory of long-term memory, although they emphasized that learning is not a unitary process. No single mental activity corresponding to learning exists. And no single theoretical description will account for the multitude of ways by which learning might occur". Rumelhart and Norman suggest three qualitatively different kinds of learning: a) accretion, or the encoding of new information in terms of existing schemata; b) restructuring or schema creation, or the process whereby new schemata are created; and c) tuning or schema evolution, or the slow modification and refinement of a schema as a result of using it in different situations.

Most models of memory involve learning by accretion. New information is interpreted in terms of preexisting schemata, and this process occurs most readily when the material being learned is consistent with schemata already available in memory. The new information is added to knowledge already in memory without any changes being made in the way that knowledge is organized. Accretion involves the acquisition of factual information that some people might refer to as memorization. Resnick (1984) refers to this type of learning as schema instantiation and suggests that it is similar to the Piagetian concept of assimilation.

Tuning and restructuring are similar to the Piagetian concept of accommodation (Resnick, 1984). Restructuring may occur without any formal addition of new knowledge; that is, the learner may already have all of the necessary information and the only thing that occurs is recognition of existing knowledge. Rumelhart and Norman (1978) suggest two basic ways for restructuring to occur: (a) schema induction, which is a form of learning by contiguity in which certain spatial or temporal co-occurrence of schemata results in the formation of a new schema, and b) patterned generation, in which a new schema is patterned on an old schema. Tuning involves the slow and gradual refinement of existing schemata; a process that lasts a lifetime. Norman (1978: 42) suggests that tuning is "..... best accomplished by practice at the task or in using the concepts of the topic matter. Tests of tuning should be measures of speed and smoothness, [including] performance under stress or pressure". With tuning there is low interference from related topics, and transfer to related topics is high with regard to general knowledge and very low with regard to specific (tuned) knowledge. Four recent cognitive models, that had been proposed in the second language acquisition (SLA) literature, will be discussed next. The first model was proposed by McLaughlin (1987) who applied Schiffrin and Schneider's (1977) notions of controlled and automatic processes to second language acquisition. Within this framework, second-language learning is viewed as the acquisition of a complex cognitive skill. To learn a second language is to learn a skill, because various aspects of the task must be practised and integrated into fluent performance. This requires the automatization of component sub-skills.

Learning is a cognitive process, because it is thought to involve internal representations that regulate and guide performance. In the case of language acquisition, these representations are based on the language system and include procedures for selecting appropriate vocabulary, grammatical rules, and pragmatic conventions governing language use. As performance improves, there is constant restructuring as learners simplify, unify, and gain increasing control over their internal representations (Karmiloff-Smith 1986). According to McLaughlin (1987), the acquisition of the skills involved in any communication task requires the assessment and coordination of information from a multitude of perceptual, cognitive, and social domains. Because humans are limited-capacity processors, such a task requires the integration of a number of different skills, each of which has been practiced and made routine. Several researchers have conceived of the differences in the processing capacity necessary for various mental operations in a dichotomous way: either a task requires a relatively large amount of processing capacity, or it proceeds automatically and demands little processing energy. Furthermore, a task that once taxed processing capacity may become, through practice, so automatic that it demands relatively little processing energy. In this connection, Cook (1993: 253) points out that "this model sees human beings as processors of information limited both by how much attention they can give to a task and by how well they can process the information. Different tasks require different amounts of attention and capacity". Following Shiffrin and Schnieder (1977) McLaughlin distinguishes 'automatic' processes from 'controlled' processes. An automatic process is quick and requires little attention; it has been built up by practice and it needs little capacity to perform. A controlled process is slow because it is temporary and under the control of attention; it is therefore limited in capacity. In this sense, learning starts with a controlled process, in which the learner makes a one-off attempt to handle new information by giving it maximum attention; this is gradually transformed into an automatic process as the learner gets more used to handling the process. As McLaughlin et al. (1983: 141) argue "controlled processing can be said to lay down the stepping stones for automatic processing as the learner moves to more and more difficult levels".

In their discussion of human information processing, Shiffrin and Schneider (1977) conceived of memory as a large collection of modes that become 'complexly inter-associated' through learning. Each node is a grouping or set of informational elements. Most of the nodes are inactive and passive and, when in this state, the

interconnected system of nodes is called long-term store. When, because of some kind of external stimulus, a small number of these modes are activated, the activated nodes constitute short-term store. There are two ways in which these nodes become activated. Shiffrin and Schneider called these the automatic and the controlled modes of information processing. Automatic processing involves the activation of certain nodes in memory every time the appropriate inputs are present. This activation is a learned response that has been built up through the consistent mapping of the same input to the same pattern of activation over many trials. Since an automatic process utilizes a relatively permanent set of associative connections in long- term storage, most automatic processes require an appreciable amount of training to develop fully. Once learned, an automatic process occurs rapidly and is difficult to suppress or alter.

The second mode of information processing, controlled processing is not a learned response, but a temporary activation of nodes in a sequence. This activation is under attentional control of the subject and, since attention is required, only one such 'sequence can normally be controlled at a time without interference. Controlled processes are thus tightly capacity-limited, and require more time for their activation. But controlled processes have the advantage of being relatively easy to set up, alter, and apply to novel situations. In this conceptualization, complex tasks are characterized by a hierarchical structure. That is, such tasks consist of sub-tasks and their components. The execution of one part of the task requires the completion of various smaller components. In this regard, McLaughlin (1987: 136) claims that in order to function effectively humans develop ways of organizing information. Some tasks require more attention; others that have been well practiced require less: Because human learners are limited in their information-processing abilities, only so much attention can be given at one time to the various components of complex tasks. When a component of the task becomes automatized, attention can be devoted to other components of the task and a previously difficult or impossible task becomes possible (IVId: 136).

The second model is called the 'Experiential Approach', proposed by Hatch and Hawkins (1985). This approach contains a cognitive component, which is based on ideas about scripts proposed by Schank and Abelson (1977) and ideas about language production proposed in Kempen and Hoenkamp's (1989) Incremental Procedural Grammar (IPG). "Hatch and Hawkins present a model of internal, integrated mental systems consisting of a conceptualizer, a formulator, and an articulator" (Schuman, 1990: 668). The conceptualizer contains scripts, which are knowledge structure built up through experience with sequences of events. The events (such as going to the grocery store, registering at a university, ordering a meal in a restaurant) become routinized and their mental representations allow the speaker to operate with facility when situations involving them are encountered. The scripts contained in the conceptualizer have language attached in the form of memorized routines or formulas, such as 'can I help you', 'Are you kidding?'; 'No way', 'I see', 'I don't know'. The conceptualizer retrieves, activates and sorts scripts; as the process continues, it sends fragments of the scripts (and attendant pieces of language) to the formulator, which puts the fragments together, selects lexicon and provides this material with pragmatic and syntactic organization. The conceptual fragments that are sent to the formulator are handled piecemeal, with separate systems providing parallel processing of units such as noun phrases, prepositional phrases, verb phrases. These formulated structures are then passed on to the articulator where they are queued in the order received and is supplied with appropriate morphophonemic markers and phonological form.

The third model is Bialystokand Ryan's knowledge and control dimensions. Bialystok and Ryan (1985) have proposed a model of language processing consisting of two dimensions: knowledge and control. The knowledge dimension refers to the degree to which the mental representations of the learner's language knowledge are analyzed. The assumption is that the learner's knowledge is structured with rules of grammar, semantics, phonology, and discourse, and that the learner has varying degrees of awareness of that structure. This awareness is not necessarily conscious in the sense that the learner can articulate the rules although, at the highest levels on the analysis dimension, this may be possible. The dimension of analyzed knowledge is simply the learner's awareness of the elements (lexicon morphology, syntax, pragmatic) that comprise the mental representations of language knowledge. Non-analyzed knowledge, in its extreme, consists of memorized patterns and routines, the elements of which are not part of the learner's awareness. The analysis dimension,

however, is not dichotomous; rather, it constitutes a continuum consisting of degrees of analysis of language information.

The control dimension refers to the degree of automaticity in the selection and coordination of language information. Automaticity constitutes the fluency with which learners can retrieve the language information contained in their knowledge structures. Higher levels of automaticity enable learners to display more skilled performance. The automaticity dimension constitutes a continuum extending from low control to high control. Finally, the analysis and control dimensions are independent of each other, and it is possible for a learner to have a high degree of analyzed knowledge with low control and vice versa.

Bialystok and Ryan (1985) proposed that two dimensions of cognitive skill underlie linguistic knowledge: analyzed knowledge and cognitive control. The two dimensions can be portrayed pictorially as four quadrants representing different levels on the knowledge or control dimensions (Figure 1).

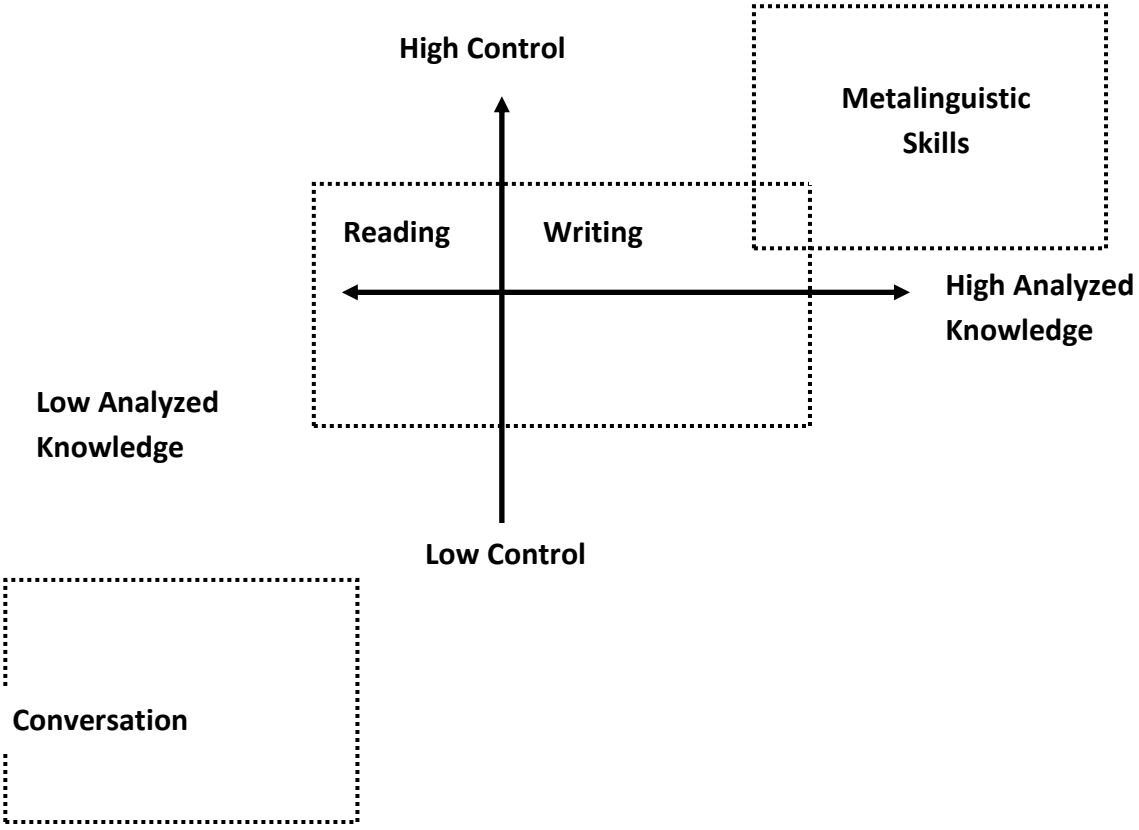


Figure (1): A cognitive framework underlying the development of language abilities (Bialystok and Ryan (1985: 232)).

According to the above figure, a high level of both knowledge and control procedure is necessary in the solution of metalinguistic problems, that is, metalinguistic problems entail high levels of analyzed knowledge and high levels of control. In contrast, ordinary conversational interactions may require very little analyzed knowledge and few control mechanisms. Falling between these two extremes are ordinary reading and writing tasks, which require moderate amounts of analyzed knowledge and control procedures. The knowledge dimension has parallels with declarative knowledge and the control dimension has parallels with procedural knowledge, as Bialystok and Ryan note. It may be safe to mention that their use of these terms differs from Anderson's (1979, 1982) use in three ways. First, Bialystok and Ryan do not allow that procedural knowledge is represented internally any differently from declarative knowledge, even though procedural knowledge is often executed automatically. Second, Bialystok and Ryan claim to have a unique identification with a developmental orientation, which they indicate does not characterize Anderson's work. This developmental orientation is

manifested in changes in the knowledge dimension resulting from analysis of the information stored and changes in the control dimension resulting from 'the expansion of procedures and the fluency of experience' (1985: 246). The third difference between Bialystok and Ryan's views and those of Anderson is that conscious awareness of processing is not an essential part of their system, whereas Anderson indicates that awareness is evident at the cognitive stage of learning, but learning strategy research (O'Malley et al. 1985 a, b) indicates that students of English as a second language consciously and actively transfer information from their first language for use in the L_2.

A major alternative to linguistic theories of acquisition is that of John Anderson, who insists that the adult human mind is a unitary constriction. The fullest statement of Anderson of Anderson's model is presented in the ACT* model. ACT stands for Adaptive control of thought. The core concept in the model is the production system, made up of production rules, sometimes known simply as productions. A production rule consists of an If, then statement in the form IF X is true then do Y, such as "If the goal is to generate a plural of a Noun, and the Noun ends in a hard consonant. Then generate the Noun + S".

In this connection, Cook (1993: 247) argues that "rather than a description of static linguistic knowledge, this reflects a dynamic view of language as production. Furthermore, production rules are not specifically linguistic but true of all aspects of the mind".

4.2.3. John Anderson's ACT

Most cognitive psychologists distinguish between declarative and procedural knowledge. Declarative knowledge is our knowledge about things and is usually thought to be represented in memory as an interrelated network of facts that exist as proposition. Procedural knowledge is our knowledge of how to perform various skills. John Anderson (1982, 1983) has developed a computer program called ACT (or ACT*, as the current version is called) that is capable of learning procedural knowledge. In contrast to Rumelhart and Norman's (1978) belief that there are many forms of learning, ACT is based on the presumption that a single set of learning processes is "... involved in the full range of skill acquisition, from language acquisition to problem solving to schema abstraction" (Anderson, 1983: 255).

The distinction between declarative and procedural knowledge is a fundamental part of the ACT theory. Declarative knowledge is represented in ACT as a network of propositions, and procedural knowledge is represented as a system of productions (i.e., statements of the circumstances under which a certain action should be carried out and the details of what should be done when that action is appropriate). The theory is concerned with the acquisition of both declarative and procedural knowledge, as well as the transition between the two, although the emphasis is more on the latter than the former. According to ACT, knowledge in a new domain always begins as declarative knowledge; procedural knowledge is learned by making inferences from facts available in the declarative knowledge system. Anderson (1982, 1983) suggests that three stages are involved in learning procedural knowledge: the declarative stage, the knowledge compilation stage, and the procedural stage.

When learning anything new, the mind moves from declarative to procedural knowledge in three stages (Cook, 1993: 248):

1. The declarative stage (sometimes called the "cognitive" stage. New information is perceived as declarative "facts". When the mind starts to learn a new production rule, it has no pre-set procedures, so it relies on declarative knowledge.

2. The knowledge compilation stage (sometimes called the 'associative' stage). As it is cumbersome to use declarative knowledge in this way, the mind tries to 'compile' the information into more specific procedures. One form of knowledge compilation is through 'composition' in which several productions are collapsed into one. Another process of compilation is 'proceduralisation' which 'takes a general rule and makes it specific to a particular circumstance of application' (Mac Whinney and Anderson, 1986: 21).

1. The Nature of the Listening Comprehension

Listening, as described by Wipf (1984), is an invisible mental process, making it difficult to describe. In its broadest sense, listening is a process of receiving what the speaker actually says (receptive orientation); constructing and representing meaning (constructive orientation), negotiating meaning with the speaker and responding (Collaborate orientation); and, creating meaning through involvement, imagination and empathy (transformative orientation). In this sense, listening is a complex, active process of interpretation in which listeners match what they hear with what they already know (Vandergrift, 2008; Vandergrift & Tafughodtari, 2010). Recently, listening has been described as an interactive and interpretive process where listeners use both linguistic knowledge and prior knowledge in understanding messages. As Vandergrift (2008) points out, the degree to which listeners use the one process or the other depends on their knowledge of the language, familiarity with the topic or the purpose for listening. Research from cognitive psychology has shown that listening comprehension is more than extracting meaning from incoming speech. As Byrners (1984) points out, it is a process of matching speech with what listeners already know about the topic and, therefore, when listeners know the context of a text or an utterance, the process is facilitated considerably because listeners can activate prior knowledge and make the appropriate inferences essential to comprehending the message. O'Malley & Chamot (1990:133) provided a practical definition of listening comprehension. "Listening comprehension is an active and conscious process in which the listener constructs meaning by using cues from contextual information and from existing knowledge, while relying upon multiple strategic resources to fulfill the task requirements".

2. Listening Comprehension and L_2 Teaching Theory/Learning

Modern-day concern of listening comprehension in language studies appeared first in the mid-1960s (Morley, 1990). Around the time of 1970s and 1980s, listening comprehension became significant in language learning. Some teaching methods, "Total Physical Response" and "Natural Approach" put more emphasis on students' comprehension process in one-way or two-way communication (See Chih-Yu, 2005). As Moody (1984) points out, research has demonstrated that adults spend 40-50% of communication time listening; however, the importance of listening in language learning has only been recognized relatively recently (Oxford, 1993). As Feyten (1991) explains, listening has emerged as an important component in the process of L_2 acquisition. Krashen's emphasis on the role of comprehensible input was partly responsible for the importance given to listening comprehension. The importance of comprehensible input as a necessary factor in L_2 learning is documented in the SLA literature. Krashen (1982) urged that the most effective way to teach a second language is to give learners large amounts of comprehensible input in an environment of low anxiety.

Second language acquisition researchers seem to agree that as input is converted into intake, learners make use of listening for two purposes; comprehension and acquisition. It must be worth-mentioning, however, that not all input becomes intake; that is, not everything that is understood at the message level necessarily contributes to the learners' language development. Although it is plausible that comprehension is prerequisite to acquisition, research has shown that we do not learn anything from the input we hear and understand unless we notice something about it (Schmidt, 1990). In addition, Schmidt and Frota (1986) found that there was a close connection between noticing features of the input, and their later emergence in speech. Listening is an important language skill to develop in terms of L_2 acquisition (Kurita; 2012; Vandergrift, 2007). As Swain (1995) points out, second language acquisition studies have demonstrated that comprehensible input is critical for language acquisition as well as comprehensible output: "a key difference between more successful and less successful acquires relates in large part to their ability to use listening as a means of acquisition" (Rost, 2001: 94). Accordingly, acquiring good listening skills in second language has been one of the main concerns of language teaching (See Kemp, 2010; Sadighi & Sare, 2006).

The concept of "comprehensible input" brings to the surface an important issue that has to do with defining listening as a "highly complex problem solving activity" (Byrnes, 1984:9). In this regard, it has been hypothesized that background knowledge and schemata plays a significant role in the comprehension of this highly complex problem-solving activity. During listening, the listeners are engaged in the process of constructing meaning

from the text they listened to base on their expectations, inferences, intentions, prior knowledge. That is, listeners combine their previous experiences and pre-existing knowledge with the text they hear. This means that listening comprehension is the results of the interaction between 'bottom-up' and "top-down" processing. Listeners process a listening text through bottom-up process in which they decide what they hear; that is, they construct a message from sounds, words, and phrases. In addition to their linguistic knowledge, listeners also make inferences about what the speaker intended through top-down processing (See Zeng, 2007; Zhang, 2006).

According to Rubin (1994:199), there are, at least five factors that researchers believe affect listening comprehension:1) text characteristics (variation in a listening passage/text or associated visual support); 2) interlocutor characteristics (variation in the speaker's personal characteristics); 3) task characteristic (variation in the purpose for listening and associated responses); 4) listener characteristics (variation in the listener's personal characteristics) and 5) process characteristics (variation in the listener's cognitive activities and in the nature of the interaction between speaker and listener). There remains a great deal that is not known about what makes listening materials difficult for L_2 learners.

One of the factors that may determine the difficulty of the listening passage is passage length; that is the amount of information presented in the passage is often a factor of concern (See Alderson et al., 2006; Rost, 2006). First, L_2 listeners often fixate on information they have failed to comprehend, investing additional effort in trying to understand what they missed (Goh, 2000). Second, if listeners avoid fixating, they may be unable to comprehend later information. This means that the more information (see Carell et al., 2002; Kostin, 2004; Moyer, 2006).

As Bloomfield et al. (2010) argue, greater amounts of information may put a strain working memory, especially that working memory plays a critical role in listening. In summary, the preceding discussion shows that there are numerous difficulties to be encountered in listening comprehension, such as unknown vocabulary, unfamiliar topics, fast speech rates, and unfamiliar accents (for fuller discussion on these factors (see Buck 2001; Chang & Read, 2008).

3. Listening Comprehension and Linguistic Research

Linguistic research has investigated knowledge that contributes to listening comprehension. The focus, first, has been on how much lexical knowledge contributes to comprehension. As reported in Kurita (2012:35), Stahr (2009) found that vocabulary size and depth of vocabulary knowledge are both significantly correlated with listening comprehension and asserts that vocabulary size is the basic component of vocabulary knowledge in listening comprehension and that depth of vocabulary knowledge does not play a separate role. In addition, linguistic investigation of the listening comprehension skill has, also, focused on the role of acoustic input such as phonological modification and prosody in improving L_2 learners' word perception. Field (2008) for example examined how the phonology of L_1 constraints the perception of L_2 at the phonemes level. Also, Altenberg (2005) found that L_2 learners are significantly worse than native speakers at using acoustic phonetic cues, and that some types of stimuli are easier for learners to identify than others.

Although there is a range of research arguing that there may be a strong relation between grammar and reading (Grabe, 2004), the importance of grammar knowledge for listening has been less explored. It must be emphasized, here, that; the knowledge of the structure of English allows us to grasp the meaning of sentence in the comprehension process" (Anderson, 2009:242). However, Mecartty (2000) who states that grammatical knowledge does not contribute significantly to either listening or reading comprehension, but vocabulary knowledge plays the important role in L_2 listening comprehension ability. This may be due to the fact that some learners, particularly early stage learners, have difficulty in attending to both form and content in listening. In conclusion, recent linguistic research makes it clear that 'vocabulary knowledge is an important predictor for listening comprehension and, listeners are likely to pay attention to content words, stress and intention rather than function words and grammar in bottom-up processing' (Kurita, 2012:36)

4. Listening Comprehension and Cognitive Research

In cognitive psychology, Anderson (2009) breaks down the language comprehension process into three stages. The first stage (perception) involves the perceptual process that encodes the spoken message. In the second stage (parsing), the words in the message are transformed into a mental representation of the combined meanings of the words. In the third stage (utilization), listeners use the mental representation of the sentences' meaning. These three stages are, by necessity, partly ordered in time and, partly, overlap; that is, listeners can make inferences from the first part of a sentence while they perceive a latter part. Moreover, Kurita (2012) maintained that the research focusing on the differences between more-skilled and less skilled L_2 learners has provided ample evidence of the importance of the metacognitive strategies to L_2 listening success. Research has shown that skilled listeners reported using about twice as many metacognitive strategies as their less-skilled counterparts (See Vandergrift, 2003, 2007; Goh, 2008; Field, 1998; Chang & Read, 2008).

5. Listening Comprehension and Affective/Psychological Factors

Many researchers have revealed that affective variables play a large role in the learners' performance. Elkhafaifi (2005) found that foreign language learning anxiety and listening anxiety are separate but both correlated negatively with achievement. That is, the listening process in easily disrupted by anxiety and separately, listening tasks themselves may cause listening anxiety. Chang (2008) and Chang & Read (2008) reported that their participants gave four main reasons for their anxiety before they took the listening tests, firstly, most people reported listening only once, secondly, concern about the mark they would obtain, third, worrying that the test would be very difficult, and, fourth, lack of confidence. Moreover, researchers paid a great amount of attention to motivation as an important affective variable. As Vandergrift (2007:196) points out "motivation and metacognition appear to be elements that are part of clusters of variables contributing to variance in L_2 listening" (See Kemp, 2010, for more discussion on motivation and its role in L_2 listening comprehension).

6. Empirical Investigation on L_2 Listening Comprehension Skill: Linguistic and Cognitive Perspectives

6.1. Statement of the Problem

In a foreign language environment, students typically learn English through formal classroom instruction and have limited exposure to the language outside formal study. In such circumstances, their ability to comprehend spoken English may be limited (Chang, 2008; Kim, 2006; Huang, 2005). To add to this problem, listening in a test situation usually requires precise comprehension and precludes opportunities to clarify or negotiate with the speaker (Buck, 2001). L_2 learners often regard listening as the most difficult language skill to learn (Hasan, 2000; Graham, 2003). One of the reasons might be that learners are not taught how to learn listening effectively (Vandergrift, 2007). Another reason might be that the listener can not refer back to the text in contrast to a reader who usually has the opportunity to refer back to clarify understanding (Stahr, 2009). Consequently, listening becomes a cause of anxiety for L_2 learners (See Elkhafaifi, 2005; Noro, 2006). Adding to the fact that learners recognize listening as the most difficult skill to learn, it is noticeable that L_2 listening remains the least researched of all four language skills (Kurita, 2012; Vandergrift, 2007). Accordingly, to investigate the listening comprehension process can provide useful insights into teaching listening. In addition, to know why students may find the listening comprehension task difficult may also provide us with opportunities to alter our teaching techniques. It is commonly believed that learners who learn to control their listening process can enhance their comprehension.

Despite its importance in the development of second language proficiency, there is little research on listening comprehension in a second language (Bloomfield et al., 2010). Unfortunately, most second language comprehension research has focused on reading rather than listening because the process of reading is more easily observed and manipulated (Osada, 2004). Moreover, research findings from reading comprehension research often fail to map fully onto the process involved in listening comprehension (Schmidt-Rinehart, 1994). In addition, as Shohamy & Inbar (1991), Crystal (2003) and Ito (2001) point out, many factors relevant for listening comprehension have no analogue in reading comprehension. Speech may contain irregular pauses,

false starts and intonation patterns that can affect comprehension. The pronunciation of words may also differ greatly from the way they appear in print and may be affected by the words with which they are presented. Developing listening comprehension ability would enable the learners to succeed in L_2 acquisition in terms of increasing comprehensible input.

6.2. The Present Study

6.2.1. The Subjects

The first group (Beginners) consisted of 100 first year students in the department of English, at the Faculty of Education, Minufiya University, Egypt. The second group (Advanced) consisted of 100 fourth year students in the same department. Each group will be divided into two sub-groups: one group will be given visual training and the other group will be given auditory training.

6.2.2. Hypotheses

It was hypothesized that advanced students' performance before and after training would be better than that of the beginning subjects. This may seem natural because of the seemingly advanced linguistic abilities of advanced students in comparison to those of the beginning students. In addition, it was hypothesized that intensive listening (auditory training) would be more beneficial than visual training for both beginners and advanced students (See Byrners, 1984). Finally, it was hypothesized that advanced students would be able to transfer their learned knowledge, which they had obtained throughout the training sessions, to the actual task of listening. This ability of transfer may explain why advanced students would be better performers than the beginners, regardless of their linguistic level.

6.2.3. Instruments

The instruments of this study consisted of four tasks:1) pre-test; 2) classroom instruction sessions; 3) post-test, and 4) interviews. The pre-test was made of 30 questions of part (A) from a TOEFL test; listening comprehension section. Each Correct answer was worth one point. Having accomplished the above task, the subjects were asked to truthfully report on their performance. Specifically, they were asked to pinpoint the problems they faced while working on the pre-test, and the strategies they used to overcome these problems. The subjects were asked to come the next day following the pre-test to attend a group discussion on the test they had taken the other day. Each group (either "Beginners or Advanced") was distributed into two sub-groups; one group attended a visual training and the other sub-group attended an auditory training. Each student in the auditory groups was given intensive exposure to the listening material of the pre-test. This session took place in the language lab, in which the auditory group had a chance to listen repeatedly to the listening material. The auditory training continued as long as students want. In the end of the session, students were asked if they want to listen more; and their answer was simply "we are ready for the test". However, to be sure that the students had enough auditory training, they were asked to come the following day for further training. No discussion or explanation of the listening material was provided; the focus was mainly on just listening. Each student in the visual training groups had a copy of the sentences and conversations of the pre-test. Together we discussed them, and the purpose was to get them familiar with the vocabulary, grammatical structures, and to answer any question related to the linguistic aspects of these sentences and conversations. No student was allowed to take the papers home. In the post-test session, the subjects in both groups were asked to work on the test used before. To be sure that their performance reflects their listening ability, the order of the sentences and conversations was changed before the post-test began. Also, the post-test was given one week after the training sessions to reduce any reliance on memorization. Finally, each student in both groups was interviewed to explain his /her performance in the post-test. I interviewed the students individually. Conducting the interview with each subject took about one hour and half. During the interview, students were asked to explain why certain answer was made. No feedback on the correctness of their responses was given before the end of the interview. Students' explanations were tap-recorded and transcribed.

6.2.4. Data Analysis

The data analysis had a quantitative and a qualitative, interpretative part. The quantitative part consisted of a descriptive statistical comparison of the number of correct responses in the pre-and post-tests. The T-test was applied to determine the significance of differences among means. The qualitative part was an analysis of each student's performance in the pre-and post-tests. The analysis was inductive, based on the individual's explanations, and aimed at accounting for the differences between the tasks.

7. Results/Discussion

The first question that this study attempts to answer is "to what extent does the advanced students' performance in listening comprehension skill differ from that of the beginning students before and after training?". Based on the results of the experiment reported in the present study, the following conclusions can be made:

1) Sub-group (1) of the beginning subjects (N=50) scored a total of 408 out of 1500 points in the pre-test, with a means of 8.16, and standard deviation of 3.18. After receiving visual training, they scored a total of 728 points in the post-test, with a means of 14.56, and standard deviation of 4.74.

2) Sub-group (2) of the beginning subjects (N=50) scored a total of 387 out of 1500 points in the pre-test, with a means of 7.74, and standard deviation of 3.20. After receiving auditory training, they scored a total of 526, with a means of 10.52, and standard deviation of 4.51.

3) Sub-group (1) of the advanced subjects (N=50) scored a total of 411 points out of 1500 in the pre-test, with a means of 8.22, and standard deviation of 3.44. After receiving visual training, they scored a total of 659 in the post-test, with a means of 13.18, and standard deviation of 4.59.

4) Sub-group (2) of the advanced subjects scored a total of 481 points out of 1500 in the pre-test, with a means of 9.62 and standard deviation of 3.72. After receiving auditory training, they scored a total of 695 points in the post-test, with a means of 13.90, and standard deviation of 5.82 (see Table 1).

5) Both sub-groups of the beginning subjects (N=100) scored a total of 795 points out of 3000 in the pre-test, with a means of 7.95, and standard deviation of 3.20. After receiving two types of training (visual and auditory), they scored a total of 1254 points, with a means of 12.54, and standard deviation of 5.05.

6) Both sub-groups of the advanced subjects (N=100) scored a total of 892 points out of 3000 in the pre-test, with a means of 8.92 and standard deviation of 3.65. After receiving both types of training (visual and auditory), they scored a total of 1354 points in the post-test, with a means of 13.54, and standard deviation of 5.25 (see Table 2).

7) Comparing the performance of sub-group (1) of the beginning subjects in the pre-test to the performance of sub-group (2) of the beginning subjects in the pre-test shows that there is no significant statistical difference between the two. The T value is 0.65 which is not statistically significant.

8) Comparing the performance of sub-group (1) of the beginning subjects in the pre-test to their performance in the post-test was in favour of the post-test. The T value is 7.85, which is statistically significant at 0.01. Also, comparing the performance of sub-group (2) of the beginning subjects in the pre-test to their performance in the post-test (auditory training) shows that the training effect is statistically significant. The T value is 3.52, which is statistically significant at 0.01.

9) Comparing the performance of all Beginners (N=100) in the pre-test to that of all Advanced (N=100) in the pre-test was in favour of the Advanced subjects. The T value is 1.99, which is statistically significant at 0.05.

10) Comparing the performance of sub-group (1) of the Beginning subjects in the pre-test to that of sub-group (1) of the advanced subjects in the pre-test shows no significant statistical difference between the two. The T value is 0.09, which is not statistically significant. In addition, comparing the performance of sub-group (2) of the Beginning subjects in the pre-test to the performance of sub-group (2) of the Advanced subjects in the pre-test shows statistically significant difference between them in favour of the Advanced sub-group. The T value is 2.68 which is statistically significant at 0.01.

11) Comparing the performance of sub-group (1) of the Advanced subjects in the pre-test to that of sub-group (2) of the Advanced subjects in the pre-test shows no significant statistical difference between the two. The T value is 1.93 which is not significant statistically (see Table 3).

12) Table (4) shows that comparing the performance of the beginning subjects (N=100) in the pre-test to their performance in the post-test was in favor of the post-test. The T value is 7.64, which is statistically significant at 0.01. Similarity, comparing the performance of the advanced subjects (N=100) in the pre-test to their performance in the post-test was in favour of the post-test. The T value is 7.19, which is statistically significant at 0.01.

13) Comparing the performance of sub-group 1) of the advanced subjects (N=50) in the pre-test to their performance in the post-test was in favour of the post-test. The T value is 6.05, which is statistically significant at 0.01. The same can be said regarding sub-group 2) of the advanced subjects. The T value is 4.34, which is statistically significant at 0.01.

14) More importantly, comparing the performance of sub-group (1) of the beginning subjects in the post-test (after receiving visual training) to the performance of sub-group (2) of the beginning subjects in the post-test (after receiving auditory training) was in favour of the visual training. the T value is 4.32 which is statistically significant at 0.01 However, this is not the case with the advanced subjects. That is, comparing the performance of sub-group (1) of the advanced subjects in the post-test (after receiving visual training) to the performance of sub-group (2) of the advanced subjects in the post-test (after receiving auditory training) shows that the effect of either training has no significant statistical value. The T value is 0.68 which is not statistically significant (see Table 4).

The second question that the present study seeks to answer is "how can two types of training (intensive listening vs. improving learners' linguistic skills) affect L_2 learners' listening comprehension skill?". Based on the results obtained, the following conclusions can be made:

1. The beginning subjects (N=100) scored a total of 795 points out of 3000 in the pre-test, with a means of 7.95, and standard deviation of 3.20. After receiving the two types of training (visual and auditory), they scored a total of 1254 points, with a means of 12.54, and standard deviation of 5.05. Similarly, the advanced subjects (N=100) scored a total of 892 points out of 3000 in the pre-test, with a means of 8.92 and standard deviation of 3.65. After receiving both types of training (visual and auditory), they scored a total of 1354 points in the post test, with a means of 13.54, and standard deviation of 5.25.

2. Comparing the performance of sub-group (1) of the beginning subjects in the post-test (after receiving visual training) to the performance of sub-group (2) of the beginning subjects in the post test (after receiving auditory training) was in favour of the visual training. The T value is 4.32 which is statistically significant at 0.01. However, this is not the case with the advanced subjects. That is, comparing the performance of sub-group (1) of the advanced subjects in the post-test (after receiving visual training) to the performance of sub-group (2) of the advanced subjects in the post-test (after receiving auditory training) shows that the effect of either training has no significant statistical value. The T value is 0.68 which is not statistically significant. Tables (5) and (6), and Figure (6) below, may clarify this point.

3. Tables (5) and (6), and Figure (1) show that the training that the beginning subjects received affected positively their performance in the post-tests. Table (6) shows that there is significant relationship between

the training that beginning subjects received and their performance in the post-test. The F values that signify this result are 15.42 and 65.31, respectively. There is also a statistically significant effect of interaction of the training offered and the test type. The F value that signifies this result is 10.16. All F values are statistically significant at 0.01.

Moreover, Figure (1) clearly shows that the visual training is more effective than auditory training for the beginning subjects. Due to the visual training, sub-group (1) of the beginning subjects scored higher in the post-test (the means for their scores were 8.16 in the pre-test, and 14.56 in the post-test). Although the auditory training resulted in improving the performance of sub-group (2) of the beginning subjects in the post-test, its effect is not the same as that of the visual training.

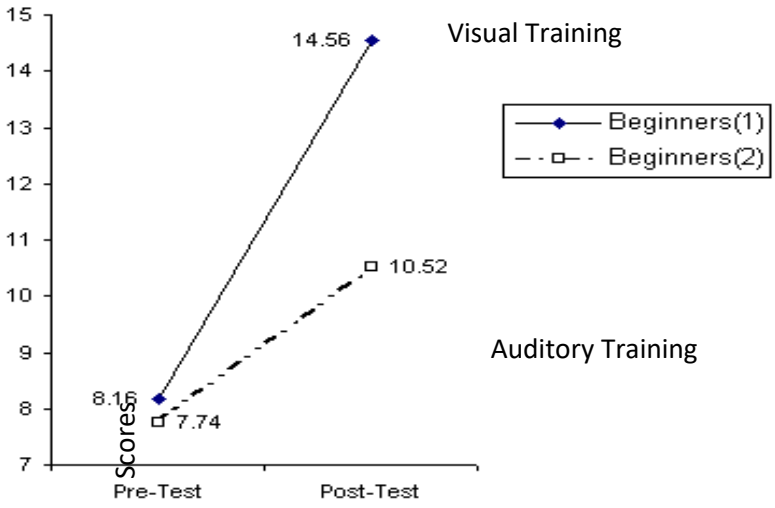


Figure (1)

Tables (7) and (8), and Figure (2) show the extent to which the training that was given to the Advanced subjects affected their performance in the post test. Table (8) shows that neither the visual nor the auditory training significantly affected the advanced subjects' performance in the post test. The F values that signify this result are 2.73 and 0.28, respectively. Table (8) also shows that the Advanced subjects' performance in the post test was somewhat better than it was in the pre-test. The F value that signifies this result was 51.88, which is statistically significant at 0.01. This second result may appear to contradict the first result; but it is not. This can be illustrated in Figure (2).

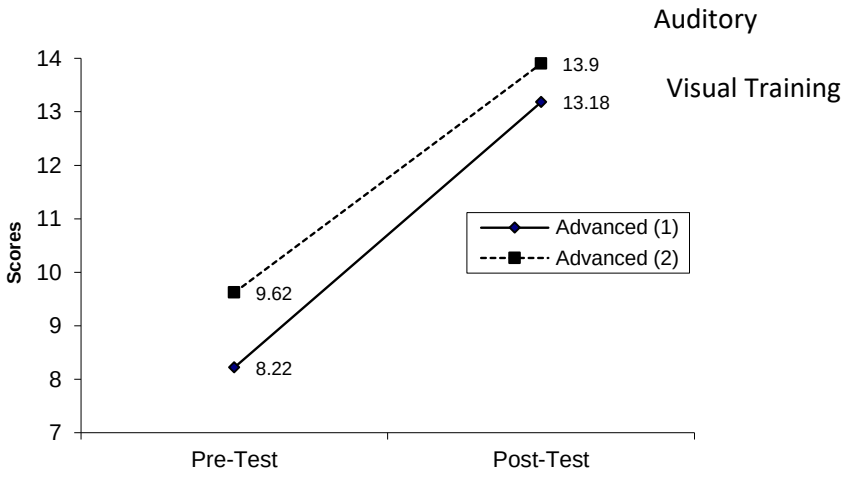


Figure (2)

Figure (2) clearly shows the increase in the Advanced subjects' performance in the post-test, which implies that the training had some effect. This effect, however, is not statistically significant. The means for sub-group (1) of the advanced subjects were 8.22 in the pre-test, and 13.18 in the post-test (after visual training). Similarly, the means for sub-group (2) of the advanced subjects were 9.62 in the pre-test, and 13.90 in the post-test (after auditory training). This will be, further, clarified more in tables (9) and (10) and Figure (3).

The means of the subjects' scores, which are presented in Table (11) will be clearer in the following Figures.

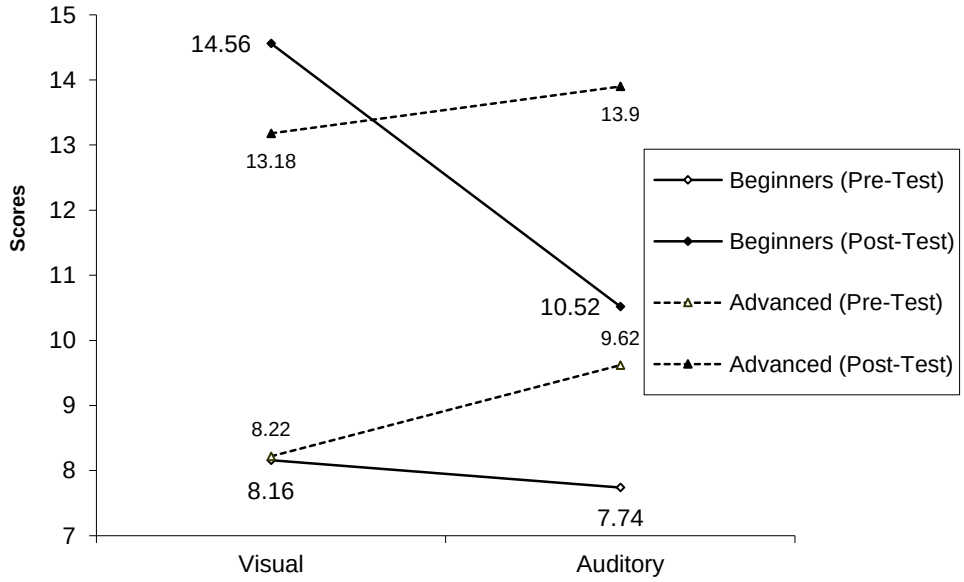


Figure (3)

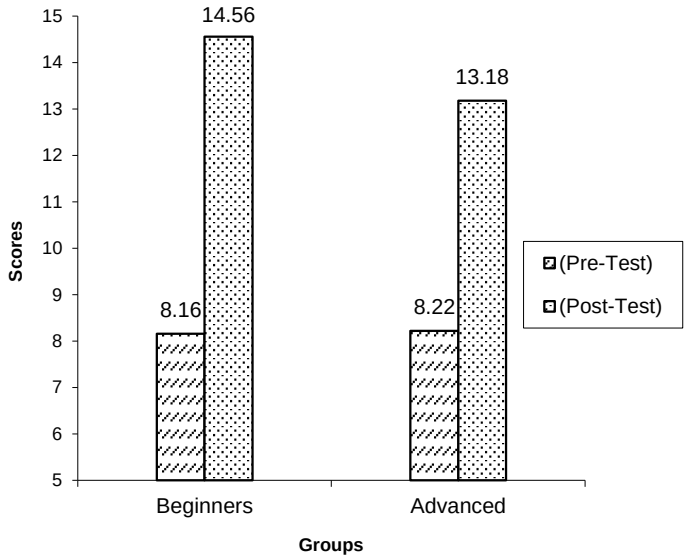


Figure (4): Visual Training

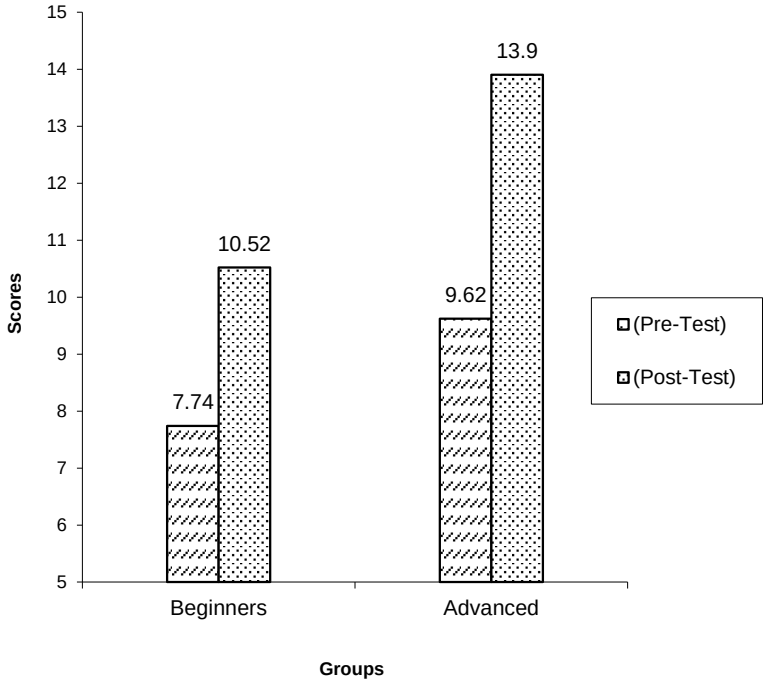
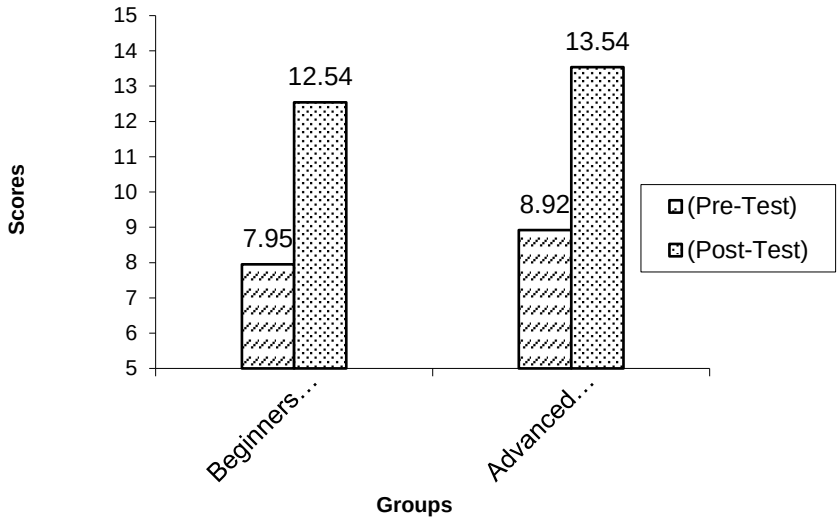


Figure (5): Auditory Training



8. Concluding Remarks

In the light of the previous discussion, some remarks can be made:

1) Increased practice may lead to improved performance. And, skilled performance is due in large part to a decrease in the total amount of attentional capacity that must be devoted to a task and to an increase in the efficiency of responding through the removal of unnecessary elements (See Field, 2008).

2) The results of the present study advocate practicing consistent single-task components first, prior to having the learner perform the tasks concurrently. That is, in single-task training, components become automatic, no longer requiring attention (See Goh, 2000, 2008).

3) This study provides evidence suggesting that even after substantial single-task practice, additional practice was needed to stabilize performance when a multidimensional task such as listening

comprehension had to be performed concurrently. As previously mentioned, listening comprehension is characterized as a highly problem-solving activity that can be broken down into a set of distinct subskills. Two of these skills were described by Rivers (1972) as the recognition of component parts of the language (words, verb groups, simple phrases) and a memory for these elements, once they have been recognized. Recognizing linguistic elements, while essential to the process, is not sufficient for comprehending what is heard (See Kemp, 2010).

4) For any training program to be effective, the trainee must have some level of proficiency on the individual tasks on one hand, and the whole task on the other hand. In this regard, it can be suggested that adaptive training can be idealistic solution. In adaptive training the task is first simplified and is then made progressively more difficult as the learner acquires greater levels of expertise. Typically the learner is exposed to the whole task or almost the whole task to be mastered. In this way, each component is practiced in the context of the whole task (See Moyer, 2006).

5) Comparing the performance of the advanced students to that of the beginning subjects in the Pre- and Post- tests may suggest that learners' motivation and attitudes toward the skill they are to master are crucial factors in their success or failure in mastering such a skill.

6) Based on the subjects' interpretations of their performance in the Pre- and Post-tests, it can be said the skill of listening should be given due attention. Almost all of them (Beginners and Advanced) complained that they had no sufficient training, and they were not satisfied with the quality and the quantity of the care currently given to the listening comprehension skill compared to other skills.

Such a compliant should be taken seriously if we really value the role played by the listening comprehension skill in language acquisition (See Rost, 2006; Sadighi & Sare, 2006; Zeng & Ya-Jan, 2007).

Based on the subjects' explanations during the interview, one can argue that listening comprehension skill is a multidimensional activity which requires L_2 learners to do more than one thing simultaneously. The problem here is that the demands on short-term memory exceed human being's cognitive capacity. The argument is compatible with the principles of the attention theory. This means that the subjects' incorrect responses can he explained within the principles of attention theory. That is, some L_2 learners may appear to have the necessary knowledge for successful listening; however, they are unable to display this knowledge during listening. In this regard, Foder, Bever, and Garrett (1974) suggest that native language words are held in short-term memory only long enough for the listener to organize them into clauses and to extract the meaning that they convey. As soon as the listener has interpreted the clause, the elements that made it up are purged from memory in order to make room for incoming sounds. As Call (1985) points out, foreign language input seems to be processed in the same way, but, as Rivers (1981) points out, short-term memory for target language words is often overloaded, causing words to be purged before they can be organized and interpreted. Thus, even though language learners may be able to recognize each word of n utterance in mind long enough to interpret them. The capacity of short-term memory is limited to about even units, plus or minus two (Miller 1956; Zhang, 2006).

This study showed that the subjects relied on many strategies in reaching correct answer: (1) focusing on certain key words; (2) relying on syntactic and semantic representations; (3) setting the overall meaning even when some words are missed (4) reading the four choices in advance, and (5) complete and successful listening comprehension but, unfortunately, in only few cases. However, their success or failure is constrained by the depth and completeness of their knowledge as well as the nature of the task they are performing. Second language learners' strategies are, in essence, knowledge driven. Consequently, in thinking about their performance as an object of study, the essence of the underlying knowledge that accounts for their performance must be examined. The examination of the learners' underlying knowledge will, in turn, uncover the basis for the strategies they use in solving language problems. It must be kept in mind that when we talk about knowledge, we do not only talk about the presence versus absence of knowledge, but also the depth, completeness, and accuracy of such knowledge. And, because subjects' knowledge was not as complete as it should be, their strategies were not as successful as we all hope. And, since their knowledge was fragmentary,

some subjects failed to provide rational justifications for their correct responses. Rather, they tended to rely on totally unrelated, even, strange reasons (See Vandergift & Tafaghodtari, 2010; Vandergrift, 2003; 2008).

9. Pedagogical Implications

Change in the way we think about learning and what we know about the way learning occurs have important implications for those situations in which we want to facilitate changes in what people know and/or do. In education, for example, corresponding changes are occurring in the way we think about teaching. Since learning is an active process, the teacher's task necessary involves more than the mere dissemination of information. Rather., if students are to learn desired outcomes in a reasonably effective manner, then the teacher's fundamental task is to get students to engage in learning activities that are likely to result in their achieving their outcomes, taking into account factors such as prior knowledge, the context in which the material is presented, and the realization that students' interpretation and understanding of new information depend on the availability of appropriate schemata. Without taking away from the important role played by the teacher, it is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does.

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APPENDIX

Table (1): Means and standard deviations of subjects' scores in the pre- and post- tests.

Note: Beginners and Advanced (1): Visual training group.

Beginners and Advanced (2): Auditory training group.

No.	Group	N	X	X^2	$\bar{X}$	SD
1	Beginners (1) Pre-Test	50	408	3836	8.16	3.18
2	Beginners (1) Post-Test	50	728	11724	14.56	4.74
3	Beginners (2) Pre-Test	50	387	3507	7.74	3.20
4	Beginners (2) Post-Test	50	526	6552	10.52	4.51

5	Advanced (1) Pre-Test	50	411	3971	8.22	3.44
6	Advanced (1) Post-Test	50	659	9741	13.18	4.59
7	Advanced (2) Pre-Test	50	481	5321	9.62	3.72
8	Advanced (2) Post-Test	50	695	11351	13.90	5.82

Table (2): Means and standard deviations of both beginners and advanced in the pre- and post- tests.

No.	**Group**	**N**	**X**	**X2**	**$\bar{X}$**	**SD**
1	Beginners (1+2) Pre-Test	100	795	7343	7.95	3.20
2	Beginners (1+2) Post-Test	100	1254	18276	12.54	5.05
3	Advanced (1+2) Pre-Test	100	892	9292	8.92	3.65
4	Advanced (1+2) Post-Test	100	1354	21092	13.54	5.25

Table (3): T-Test

Variables	N	$\bar{X}$	SD	T	Sign. Level	In favour of
Beginners (1) Pre-Test	50	8.16	3.18	0.65	Insign.	-
Beginners (2) Post-Test	50	7.74	3.20			
Advanced (1) Pre-Test	50	8.22	3.44	1.93	Insign.	-
Advanced (2) Post-Test	50	9.62	3.72			
Beginners (1) Pre-Test	50	8.16	3.18	0.09	Insign.	-
Advanced (1) Pre-Test	50	8.22	3.44			
Beginners (2) Pre-Test	50	7.74	3.20	2.68	0.01	Advanced (2) Pre-Test
Advanced (2) Pre-Test	50	9.62	3.72			
Beginners (1+2) Pre-Test	100	7.95	3.20	1.99	0.05	Advanced (1+2) Pre-Test
Advanced (1+2) Pre-Test	100	8.92	3.65			
Beginners (1) Pre-Test	50	8.16	3.18	7.85	0.01	Beginners (1) Post-Test
Beginners (1) Post-Test	50	14.56	4.74			
Beginners (2) Pre-Test	50	7.74	3.20	3.52	0.01	Beginners (2) Post-Test
Beginners (2) Pre-Test	50	10.52	4.51			

$N_1 = N_2 = 100$

T = 2.60 significant at 0.01

= 1.97 significant at 0.05

Table (4): T-Test

Variables	N	$\bar{X}$	SD	T	Sign. Level	In favour of
Beginners (1+2) Pre-Test	100	7.95	3.20	7.64	0.01	Beginners (1+2) Post-Test
Beginners (1+2) Post-Test	100	12.54	5.05			
Advanced (1+2) Pre-Test	100	8.92	3.65	7.19	0.01	Advanced (1+2) Post-Test
Advanced (1+2) Post-Test	100	13.54	5.25			
Advanced (1) Pre-Test	50	8.22	3.44	6.05	0.01	Advanced (1) Post-Test
Advanced (1) Post-Test	50	13.18	4.59			
Advanced (2) Pre-Test	50	9.62	3.72	4.34	0.01	Advanced (2) Post-Test
Advanced (2) Post-Test	50	13.90	5.82			
Beginners (1) Post-Test	50	14.56	4.74	4.32	0.01	Beginners (1) Post-Test
Beginners (2) Post-Test	50	10.52	4.51			
Advanced (1) Post-Test	50	13.18	4.59	0.68	Insign.	-
Advanced (2) Post-Test	50					
Beginners (1+2) Post-Test	100	12.54	5.05	1.37	Insign.	-
Advanced (1+2) Post-Test	100	13.54	5.25			

$N_1 = N_2 = 50$; T = 2.63 significant at 0.01

= 1.98 significant at 0.05

Table (5): Beginners (N=100)

Total	Test Type				
	Post-Test	Pre-Test			
100	50	50	N	Beginners (1) Visual	Type of Training
1136	728	408	X		
15560	11724	3836	X^2		
100	50	50	N	Beginners (2) Auditory	
913	526	387	X		
10059	6552	3507	X2		
200	100	100	N	Total	
2049	1254	795	X		
25619	18276	7343	X^2		

Table (6): Analysis of Variance (2x2) between the type of Training (visual vs. Auditory) and Test-Type (Pre- and Post-Tests) For Beginners

Source of Variance	Squares	Degree of freedom	Variance	F	Sign.
Total Score	4627	199			
Between Groups	1465.86	3			
Within Groups	3161.14	196	16.13		
Type of Training	248.65	1	248.65	15.42	0.01
Test Type	1053.41	1	1053.41	65.31	0.01
Interaction	163.80	1	163.80	10.16	0.01

F = 6.76 significant at 0.01

= 3.89 significant at 0.05

Table (7): Advanced (1+2)

Total	Test Type				
	Post-Test	Pre-Test			
100	50	50	N	Advanced (1) Visual	Type of Training
1070	659	411	X		
13712	9741	3971	X^2		
100	50	50	N	Advanced (2) Auditory	
1176	695	481	X		
16672	11351	5321	X^2		
200	100	100	N	Total	
2246	1354	892	X		
30384	21092	9292	X^2		

Table (8): Analysis of variance (2x2) between the type of training (Visual vs. Auditory) and test-type (pre- and post-tests) for advanced subjects

Source of Variance	Squares	Degree of freedom	Variance	F	Sign.
Total Score	5161.42	199			
Between Groups	1129.18	3			
Within Groups	4032.24	196	20.57		
Type of Training	56.18	1	56.18	2.73	Insign.
Test Type	1067.22	1	1067.22	51.88	0.01
Interaction	5.78	1	5.78	0.28	Insign.

F = 6.76 significant at 0.01

= 3.89 significant at 0.05

Table (9)

Total	Students' Academic status				
	Advanced	Beginners			
100	50	50	N	Visual	Type of Training
1387	659	728	X		
21465	9741	11724	X2		
100	50	50	N	Auditory	
1221	695	526	X		
17903	11351	6552	X2		
200	100	100	N	Total	
2608	1354	1254	X		
39368	21092	18276	X2		

Table (10): Analysis of variance (2x2) between students' academic status (beginners vs. advanced) and type of training: the post-test

Source of Variance	Squares	Degree of freedom	Variance	F	Sign.
Total Score	5359.68	199			
Between Groups	471	3			
Within Groups	4888.68	196	24.94		
Type of Training	137.78	1	137.78	5.52	0.05
Academic Status	50	1	50	2.01	Insign.
Interaction	283.22	1	283.22	11.36	0.01

F = 6.76 significant at 0.01

= 3.89 significant at 0.05

Table (11)

	Beginners (N=100)	Advanced (N=100)
	Visual Training Sub-group (N=50)	Visual Training Sub-group (N=50)
Pre-Test Post-Test	8.16 14.56	8.22 13.18
	Auditory Training Sub-group (N=50)	Auditory Training Sub-group (N=50)
Pre-Test Post-Test	7.74 10.52	9.62 13.90