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MAKING LINGUISTIC DECISIONS IN PROBLEM-SOLVING DOMAIN: A PSYCHOLINGUISTIC PERSPECTIVE

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ABSTRACT: The purpose of this study is twofold. First, it posits a link between metalinguistic awareness (MLA) and students' performance in linguistic problems. Second, it reports on the outcomes of an experiment on some foreign language learners. The subjects of the present study (N=80) were in their fourth year of academic study in the Department of English, Menufia University, Egypt. Two tasks were used: (1) "Sentence Completion" task, and (2) "Error Recognition and Correction" task. In the first task, a list of 15 incomplete sentences was given to the subjects who were asked to choose the word or phrase that best complete the sentence. In the second task, students were asked to detect the word or phrase that must be changed in order for the sentence to be correct. A list of 25 sentences with four words underlined, and marked (A), (B), (C), and (D) was given to the subjects. Finally, students were individually interviewed to explain and comment on their performance in the previous tasks. The data were analyzed both quantitatively and qualitatively. Results were obtained and conclusions were made.

Keywords: Metalinguistic awareness; Grammaticality Judgments, Linguistic Knowledge.

I. INTRODUCTION

One of the basic questions facing educators has always been 'where do we begin in seeking to improve human thinking?". Most faculties would agree that academic success should be measured not just in terms of what students can remember but what students are able to do with their knowledge. It is commonly accepted that memorization and recall are lower-order cognitive skills that require only a minimum level of understanding, whereas the application of knowledge and critical thinking are higher-order cognitive skills that require deep conceptual understanding (Bransford et al., 2000). In the past decade, therefore, considerableeffort has been directed toward developing students' critical-thinking skills by increasing student engagement in the learning process (See Gowe et al., 2008; Bissel&Femons, 2006; Countinho, 2007).In a world characterized by dynamic change, it is productive to develop an attitude of sensitivity to new information. This attitude can provide the flexibility that will permit us to change our ideas in the face of new evidence. Advanced societies demand citizens who can do more with their intelligence than just survive. All of us need the skills and strategies that enable us to be the productive members of our society. Therefore, a modern system of education should provide conditions under which a student can develop facilities and habits to set a problem, to build and optimize models, make decisions under conditions of uncertainty and learn how to get knowledge. On the other hand, it is one of the goals of research in applied linguistics to gain insight into the process and mechanisms of second language acquisition. Relatedly, Morley (1987) points out that during the last twenty years ideas about language learning and language teaching have been changing in some very fundamental ways. Significant developments in perspective on the nature of second language learning and learning process have had a marked effect on language pedagogy (See Conley, 2008; Lightbown & Spada, 2006).

The cornerstone and the single most fundamental change in perspectives on the nature of language and language learning in recent years is, perhaps, the focus on learners as active creators in their learning process, not as passive recipients. Views of cognitive psychologists on learning as an active process have been examined as counters to behavioral views. Specifically, the preoccupation has been with learners' language and what it may reveal about the language-learning process. In this connection, Gass (1983:273) points out that "it is widely accepted that the language of second language learners, what Selinker (1972) has called 'interlanguage' or what Gass (1983) has called "Learner-language' is a system in its own right". To understand such a system, we should focus on discovering how second language (L_2) learners evaluate and correct their own or other people's utterances, an issue that will be explored in the present study. In other words, the major point of

interest here is L_2 learners' metalinguistics awareness; and their role in making linguistic decisions (Loewen et al., 2009).

II. THE PRESENT STUDY

The present study was undertaken with a major purpose of mind: investigating advanced students' performance in solving multi-dimensional grammatical problems; that is, problems that contains four alternatives to choose from. The subjects of this study are 80 advanced students in the faculty of Arts, Minufiya University, Egypt. They are students in the department of English, in their fourth year of academic study. They are equally divided into two groups: 1) the male group (N=40) and the female group (N=40). In the first phase of the study, the experiment used in this study was conducted on 300 advanced students; males and females. In the second phase of the study, 80 students were randomly chosen to serve as the subjects of the study. The instruments used in this study are of two kinds: (1) sentence completion task (15 sentences); and (2) error correction task, which consists of (25) grammatical problems (See Appendix (1)). In my first meeting with the subjects, I asked them (males, and females) to work on the sentence completion task. They took a break for half an hour and, then, gathered to work on the second task. Instructions were given to them in English and Arabic. For each problem, they were asked to do three things: (1) to detect the word or phrase that must be corrected for the sentence to be correct; (2) to provide correct form for the erroneous item, and, (3) to provide their rationalizations for their detection and correction of the error. The first task (Sentence Completion) was analyzed quantitatively. Each sentence was worth one point; so, the total score of this task was 15 points. Some descriptive statistical procedures were applied to see the difference between the males and the females in the sentence completion task; if there is any. The subjects' performance in this task was used just as an indication of their accumulative linguistic progress. The rationale, here, is that students' metalinguistic performance is said to be interrelated to their linguistic progress or level in a language. The subjects' performance in the second task (error correction) was analyzedqualitatively.

III. THE STUDY'S QUESTIONS

The present study attempts to find some answers for the following questions: (1) What are the major characteristics of L_2 learners' performance in multidimensional linguistic problems?; (2) What do these characteristics tell us about the linguistic repertoire of these learners?; (3) What implications can we draw out of the results and discussions of the subjects' performance in both tasks?

IV. RATIONALE FOR CHOOSING THE TASK

A convenient means for dichotomizing language tasks is to consider their relative emphasis on code-related features of the language or communicative use of the language.This distinction has been expressed by the terms "Formal" and "Functional" language respectively.According to Bialystock (1981) interpretation, when a fluent speaker uses language he draws upon three aspects of language: a structural aspect, which is concerned with the formal features of language including pronunciation, grammatical rules and vocabulary; a rhetorical aspect, which is concerned with the development of generalized rules of spoken and written rules of spoken and written discourse; and an instrumental aspect, which involves the ability of the speaker to interpret or express the conceptual meaning which is appropriate to a given context.In this regard, Bialystock (1981: 33) rightly pointed out that the application of this tricomponential model to the description of language tasks concerns the extent to which the purpose of the task is to focus the learner's attention on the formal, the rhetorical, or the instrumental aspects of language aspects of language. A grammar task, for example, relies primarily on knowledge of the formal features of language, while a communication task can incorporate formal, rhetorical and instrumental aspects in various degrees.With the above-discussion in mind, one can argue that the first task (Sentence Completion) is an example of communicative tasks, in which the subjects draw upon the structural rhetorical and instrumental aspects, previously discussed.On the other hand, the second task (Error Recognition) relies primarily on knowledge of the formal features of language.

Theoretical Framework

Metalinguistic Knowledge is, sometimes, seen as unnecessary or peripheral in second language acquisition. According to Krashen (1982), this knowledge has no effect on 'acquisition' (the primary mode for L2 development), which operates without the learner's awareness. This view is known as the "Non-Interface Position". Interest in the concept of metalinguistic awareness has been growing recently in the fields of psychology and language education, with particular focus on reading (Thomas, 1992). Based on research studies by Edwards and Kirkpatrick (1999); and Griessler (2001); it has been suggested that metalinguistic awareness allows reasoning and application of logic with language. That is, a person who has reached this stage is able to reason that a word appearing in a story, always begins with a capital letter, is probably the name of the main character of the story. In addition, metalinguistic awareness is related to a greater ability to discover

connotations from paralinguistic clues, and to understand ambiguities in language. In this connection, Klein (1995) found that multilinguals that learned English as their third or fourth language, learned the language faster than bilinguals who learned English only as a second language. It has, also, been argued that learning a third language has a positive effect on proficiency in a second language that was learned previously. According to Thomas (1988), therefore, this advantage in learning a new language is due to better metalinguistic awareness in bilinguals as compared to monolinguals. Specifically speaking, a growing body of evidence indicates that metalinguistic awareness plays a significant role in reading achievement (Yopp, 1988). In this connection, Nagy and Anderson (1995: 6) argue that skillful bilingual readers are those who can effectively transfer skills and knowledge gained in one language to reading in other languages. Transfer of useful information from one language to another may be mediated by metalinguistic awareness. Therefore, Nagy & Anderson argue that children with limited metalinguistic awareness may be especially vulnerable in second language reading acquisition.

The cross-linguistic transfer research points out how reading ability is enhanced when students whose first language (L1) is Spanish learn to apply their linguistic knowledge and literary skills to reading in English as a second language (L2) (See Bialystok, 2007; August & Shanahan, 2006, and Koda, 2008). Specifically, metalinguistic awareness and knowledge acquired in students' L1 can enhance their speaking, reading and writing in their L2 English. Accordingly, the relationship between metalinguistic awareness and language promises to be a fruitful area of research for those interested in multilingualism. At the same time, there is increasing interest in language learning strategies, variables affecting a student's choice of such strategies, and strategy training (Thomas, 1992).

Since the focus, in this study, is on the subjects' performance in the second task, few words on (GJ) task may be worth-mentioning (Lado et al., 2014). Since about the mid-1970s, grammaticality judgments (GJ) tasks have come to be used with some frequency in L_2acquisition research. (GJ) data are customarily used in both L_1 acquisition psycholinguistic research and formal linguistic research designs to determine what structures are grammatical or syntactically possible within a given language and what structures are not (Tremblay, 2005; Rimmer, 2006). In this regard, Schutze (1996) states that the use of (GJ) data in linguistic theory is necessary. First, (GJs) can provide data more representative of a speaker's competence in a particular language than can data derived from many other types of performance tasks such as natural conversation. Second, (GJs) allow researchers to gather specific types of data for testing hypotheses generated about particular grammatical structures. Accordingly, to many L_2 researchers (Gass 1994), L_2 grammaticality judgment data are useful tools for researchers in order to investigate L_2 learners' competence separate from their performance (See Jessner, 2006, 2008).

Grammaticality judgments tests have been popular for a variety of practical and theoretical reasons (Gutierrez, 2013). As R. Ellis (1991: 163) points out "some phenomenon are not accessible to investigation in production data because they occur either rarely or not at all". To put it simply, it is difficult to test L_2 learners' knowledge of certain structures via production because of their low frequency of occurrence in their L_2 output (Gutierrez, 2013: 426). Moreover, GJTs are relatively easy to administer to large numbers of learners at once. Theoretically speaking, many researchers seem to agree that these tests "provide a performance measure of L_2 learners' linguistic abilities through which inferences about learners' linguistic competence can be made" (Loewen, 2009: 95). On the other hand, in recent years, the use of (GJ) tests in L_2 acquisition research design has become quite controversial (Riemer, 2009). In L_2 studies, the question has been raised about whether the data generated from this type of tests are reliable measure of the learner's underlying syntactic competence: "in the case of second language [grammaticality] judgments, one is asking learners to make judgments about the language being learned at a stage in which their knowledge of that system is incomplete" (Gass, 1994: 305). (GJ) tests have been criticized, also, due to the absence of clear criteria to determine the exact nature of grammaticality; whether it is a dichotomous concept or a gradient concept (Sorace& Keller, 2005). Another reason is questions related to the validity of grammaticality judgments; that is, the extent to which they actually reflect learners' grammatical competence (Leow, 1996). Other researchers have studied questions related to the tests' reliability (whether the data obtained from these kinds of tests are reliable or not). For a detailed discussion, see (Johnson et al., 1996). To sum up, whereas some researchers argued that L_2 grammaticality judgments provide valid data for L_2 research, other researchers suggested that grammaticality judgment data not only reflect linguistic knowledge of learners but also reflect other factors such as their processing constraints. Tremblay (2005) argues that (GJ)s do not provide a direct window into linguistic competence as it was assumed. Birdsong (1989), also, states that L_2 learners are often inconsistent in their performance on (GJ) tests (see De Bot &Jaensch, 2013).

Moreover, recent research in L_2 acquisition has been characterized by continuous efforts to construct theoretical models of learning and in so doing to explain the function of explicit, formally acquired knowledge of the target language (Ellis, N., 2005; Ellis, R., 2001, 2002; Dekeyser, 2003). In this regard, Bialystok's (1978, 1979, 1981, 1982, 1986) distinction between explicit and implicit knowledge has been very helpful in furthering

the understanding of metalinguistic awareness in L_2 learning research. Bilaystok (1988) postulates three hypothetical constructs. First, explicit language knowledge which contains all the conscious facts the learner has about the language and the criterion for admission to this category is the ability to articulate these facts". Second, implicit language knowledge which refers to the intuitive information upon which the language learner operates in order to produce responses. Third, other knowledge which includes knowledge of the native language and of other languages and knowledge of the world (Rauch et al., 2011, Moore, 2012).

Bialystok (1981) adopted the terms 'analyzed' and 'non-analyzed' knowledge for explicit and implicit knowledge "to avoid the tendency to associate explicit with conscious knowledge of language rules. She no longer assumes that the ability to articulate conscious facts is criterion for researchers; determine what explicit knowledge is. Bilaystok (1982) transforms her earlier distinction between 'Explicit' and 'Implicit' into the distinction between analyzed and unanalyzed knowledge, and adds to this the distinction between automatic and non-automatic to give a four-way matrix of kinds of second language performance. The analyzed factor, according to Bialystok (1984), refers to the extent to which the learner is able to represent the structure of knowledge along with its content. The control factor refers to the relative ease of access that the learner has to different items of linguistic knowledge; it relates to automaticity. Bialystok concludes by stating that different tasks require different types of knowledge, and different kinds of learners can be identified according to which kind knowledge they possess. According to Mclaughlin et al. (1983), explicit abstract knowledge of linguistic structure can help adult learner's process language by creating a shortcut in the learning process. It also saves them the trouble of creating false hypotheses (see Reder et al., 2013).

Bialystok' model constitutes a theoretical base for Sharwood-Smith's (1981) model which has been developed as a full interface model to account for the role of formal instruction in (SLA). According to this model, the learner can produce L_2 output by using implicit knowledge, explicit knowledge, or both explicit and implicit knowledge. As Sharwood-Smith (1981) points out, only some learners are able to talk about what they have become aware of. Moreover, Sharwood-Smith notes that, because learners are unable to articulate rules or facts about language does not mean that they are not aware, either dimly or clearly, of the structure of the language they are learning. Relatedly, Sorace (1985) found in her study that students develop the ability to make rules explicit relatively late, even when they have studied the target language in a formal environment. She, also, found that her students assimilated and reproduced a particular grammar rule in different ways: "what learners use are in fact their own reformulations of rules, which are different from the pedagogical rules that they are taught in the classroom (Sorace, 1985: 250). In this regard, Ellis (2016: 236) maintains that "it follows from [Bialystok's model] that performance that is planned entirely or partly on the basis of explicit knowledge which is lacking in automaticity can provide feedback into implicit knowledge; if this happens often enough (ie. Through practice), the explicit knowledge can become fully automated as part of implicit knowledge". In another study, Bialystok (2007) applied her model to judgments of grammaticality, and showed that one can make a judgment about grammaticality either on the basis of knowledge of rules or on the basis of intuition. Thus, the task of judging grammaticality is one that does not necessarily bias towards implicit or explicit knowledge (El-dali, 2019 a,b, 2017, 2016 a, b, 2015).

Review of Literature on 'Problem-Solving'

Although research on problem-solving extends back to the roots of psychology, the theoretical basis of current work has only been developed in the last 40 years, to a large extent by Newell and Simon (1972). A major difficulty in discussing problem-solving seems to be a lack of any clear-cut agreement as to what constitutes a 'problem'. According to Bransford and Stein (1984: 15), "even when people explicitly try to solve problems they often fail to use appropriate strategies. This is because, in part, some people seem to be unaware of the importance of taking strategic approaches to problems. In other cases, people may be aware of the general importance of strategies yet may not have learned the specific strategies needed for a problem they are trying to solve". In addition, when people begin to analyze their approaches to various problems, many discover that they frequently employ a "let me out of here" approach when a problem seems difficult and an answer does not immediately come to mind. At times like this there is a natural tendency to attempt to get out of the situation and to do something with a higher probability of success. In this connection, Bransford and Stein (1984: 4) maintained that "people who avoid dealing with problems place limitations on themselves that are not necessarily there to begin with".The behavior of actually walking away from important problems is a relatively extreme negative approach to problem-solving. In other cases, people may mentally 'walk away' without physically removing themselves. Bransford and Stein (1984: 6) provided the following example "people frequently think that they are diligently trying to complete tasks, yet when prompted to stop and think about it, they realize that they have not been attending to the problem to be solved". In this connection, they argue that lack of attention to a task is not simply a result of 'disinterest' or 'laziness'. Attention can also be affected by fear and anxiety. It can be very difficult to focus attentively on a problem while we are concerned with

competing thoughts about personal problems or about fears we may fail. Negative reactions not only keep us from solving problems that we could solve, they can also keep us from exploring new areas.

Problem-solving is a means by which an individual uses previously acquired knowledge, skills, and understanding to satisfy the demands of an unfamiliar situation. The student, then, must synthesize what he or she has learned, and applies it to the new and different situation (Heylighen, 1998). Interest in language learning strategies (behaviors that learners engage in to learn a second / foreign language) and in attempts at remediating the strategies of unsuccessful language learners have blossomed in recent years. Yet learner strategy research, for all its promise is "embryonic" with conflicting methods and results and few unequivocal findings. The important point about problem-solving is not that some people are better at it than others. Instead, the important point is that problem-solving can be learned. It frequently is not learned because it is not taught. In school, for example, we are generally taught what tothink rather than how to think. As Bransford and Stein (1984: 3) argue "this is not due to some great conspiracy to hide the secrets of thinking and problem-solving from the general public. Instead, many teachers are simply unaware of the basic processes of problem-solving even though they may unconsciously use these processes themselves. It therefore never occurs to them to make these processes explicit and to teach them in school". On the other hand, that we may be good at solving problems in some domains does not guarantee that we are also good problem-solvers in other domains. Problem-solving requires learning. By becoming aware of the processes we use when solving problems successfully, we can learn to apply them to new situations. To do this, however, each of us must attempt to overcome a common tendency, the tendency to avoid problems that we cannot easily solve (Adti, 2004).Relatedly, the most recent development in both applied linguistics and cognitive psychology research is how adult learners of English make linguistic decisions in problem-solving domain, and how they display their strategic thinking in reaching solutions for linguistic problems. The rationale, here, is that learners of English as a foreign language should develop skills in solving linguistic problems and in making strategic decisions. With this in mind, the major question of this study is "How do L_2 learners solve linguistic conflicts? And what are their strategies in doing so?" (Messina, 2005). The motivation for conducting this study is that researchers, in their attempts to improve the effectiveness of foreign language instruction, have focused their attention in recent years on language learning strategies. For example, Oxford et al. (1990: 199) point out that while "all language learners use strategies, the more effective students use them more consciously, more purposefully, more appropriately, and more frequently than less effective students" (Jiang, 2007).

Problem-solving is a central aspect of everyday life. Informally, one can say that a problem arises whenever somebody wants to achieve a certain goal, while it is not immediately obvious how this goal could be attained, or while direct access to the goal is somehow prevented or restricted. Typically, solving a problem involves two successive stages. First, a mental representation of the problem needs to be constructed. Next, the cognitive operations that will yield the solution are carried out. As obvious as it may sound, individuals must recognize that a problem exists before they can solve it. In other words, individuals need to identify and define the givens and goals of the situation. Sometimes the givens and goals of a problem are well defined and obvious; often they are not (Lynch & Wolcott, 2001; Coutinho,2007; Bissel, 2006).The first step in problem definition is to encode the critical elements of the problem situation (Newell & Simon, 1972). Encoding involves storing features of the problem in working memory and retrieving from long-term memory information that is relevant to these features. A very useful and informative way to think about this process is in terms of search of a problem space. These concepts were introduced by Newell and Simon (1972). They proposed that problem-solving involves the progression from an initial mental state to a goal state, through a sequence of cognitive actions. These actions are called operators, and their effect is a transformation of the current state of the solution process into a new state. For some problems, the search process is relatively simple and straightforward. If a problem space is not too large, it can be searched in a very systematic manner. The problem solver can simply try different paths, until a path is found that leads to the solution. After a problem is encoded, the solver must determine what is known, what is unknown, and what is being asked in the situation. Problems vary in how well the goals and procedures are specified (Greeno, 1980). As the name implies, well-structured problems have well-defined initial states and goal states. In other words, the givens and goals of these problems are usually easy to identify and specify. In contrast to well-structured problems, ill-structured ones do not have well-defined given and goal states. Many of the insight problems studied by the Gestalt psychologists are of this nature. The difficulty in solving these problems often lies in defining the problems in novel ways. Many of the problems found in the real-world are ill-structured and they are often more difficult to identify and define than are school-like problems or problems found on standardized tests (Hayes, 1981; Allen, Tonner, 2006).

After a problem has been identified and defined, individuals must make a "mental map" of the elements, the relations among the elements, and the goals found in the externally presented problem. Information is mentally inserted, deleted, and interpreted from the original situation and held in memory (Hayes, 1981). These internal representations allow people to understand a problem and to think through its solution. Kotovsky, et al. (1985)

describe three advantages to creating mental representations of a problem. One advantage is that good representations allow the problem-solver to organize blocks of planned moves or strategies as a single "chunk" of memory. In other words, good representations help reduce the memory demands found in many problems. Second, good representations allow the problem-solver to organize the conditions and rules of a problem and to determine whether certain steps are allowable and productive. Finally, good representations allow the problem-solver to keep track of where he or she is in terms of reaching a solution and to foresee potential obstacles to reaching the solution. It must be emphasized, however, that there is no single representation that is best for all problem situations. For some problems, such as geometric analogies, an attribute value representation may be most efficient. For other problems, such as animal-name analogies, a spatial representation may be best (Sternberg & Gardner, 1987). Just as no single representation is best for all situations, there is no single representation that is best for all individuals. Different people often represent the same problem in different ways. For example, younger children tend to organize information about concepts in terms of function, whereas older children tend to organize the same information taxonomically. Without sufficient knowledge about a class of concepts, taxonomic organization is not possible for the younger children. Cognitive abilities can also determine how a problem is mentally represented. Individuals who are high in verbal ability are likely to form verbal representations whenever possible, whereas individuals who are high in spatial ability are likely to form spatial representations (Sternberg & Weil, 1983). Frequently individuals change or develop their mental representations during the course of solving a problem (Hayes, 1981). Changes can occur as people gain a more complete understanding of the givens, goals, and restrictions in a problem or as they find some information that has been previously overlooked. For example, many insights or nonroutine problems are difficult to solve because the problem solver does not have a familiar representation and set of procedures that can be used. According to Sternberg (1984); Sternberg & Davidson, 1987), new mental representations are constructed through three related mental processes: selective encoding, selective combination, and selective comparison.

Selective encoding involves seeing in a stimulus, or set of stimuli, one or more relevant features that previously have been non-obvious. Selective encoding contributes to insight by restructuring one's mental representation so that information that was originally viewed as being irrelevant is now seen as relevant for problem solution. Also, information that was originally seen as relevant may now be viewed as irrelevant and, therefore, eliminated from one's mental representation. There are many instances of selective encoding in real-world performances. Professors, for example, often have too much information to present to a class; an insightful professor focuses on the information that is relevant to the students' needs and abilities (Messina, 2005). Selective combination involves putting together elements of a problem situation in a way that previously has been nonobvious to the individual. This new way of combining the problem's elements results in a change in the solver's mental representation of the problem. There are numerous examples of how selective combination insights operate in real-world situations. An insightful professor is able to fit facts together to form a coherent package for her/his students. Selective comparison involves discovering a non-obvious relationship between new information and information acquired in the past. It is here that analogies, metaphors, and models are used to solve problems. The person having an insight suddenly realizes that new information is similar to old information in certain ways (and dissimilar to it in other ways), and then uses this information to form a mental representation based on the similarities.

In sum, these three processes form the basis for a theory of insightful thinking. To the extent that there is a commonality in the three processes, it appears to be in the importance of selection and relevance. In encoding, one is selecting elements from the often numerous possible elements that constitute the problem situation; the key is to select the relevant elements. In combination, an individual is selecting one of many possible ways in which elements of information can be integrated; the key is to select a relevant way of combining the elements in a given situation. In comparison, an individual is selecting one (or more) of numerous possible old elements of information to which to relate new information. There are any number of relations that might be drawn; the key is to select the relevant comparison or comparisons to make for one's purposes.

Not every instance of selective encoding, selective combination, or selective comparison leads to an insight. The products of these operations are referred to as "insights" when an individual suddenly realizes which relevant information to select for encoding, combining, and comparing. This realization results in a change in the problem-solver's mental representation of the task. If individuals do not know an appropriate set of procedures for a problem, they must search through a space of alternative ways of approaching the problem. They can guide this search by (1) looking for and recognizing previously overlooked relevant information in the problem (selective encoding), (2) looking for and recognizing previously overlooked ways of combining information (selective combination), and (3) looking for and recognizing previously overlooked connections between prior knowledge and the problem situation (selective comparison). Successful search for, and selection of, this relevant information leads to a change in problem-solvers' mental representations of the problem. In contrast, non-insightful applications of encoding, combination, and comparison do not involve non-obvious search nor do they lead to a sudden change in mental representations.

Some problem situations contain hints or clues about the problem's solution (Gick & Holyoak, 1983; Kaplan & Simon, 1990). When used successfully, hints seem to guide the problem-solver in forming a new mental representation. Many hints; however, are too general to help problem-solvers change their mental representations.

Hints such as "there is a trick way that does not involve trying to cover the board" (Kaplan & Simon, 1990) or "use the prior problem" (Gick & Holyoak, 1983) often lead problem-solvers to abandon their old representations, but do not guide them to the correct mental representations that they need to solve the problems. After a problem has been identified and mentally represented, the solver must decide which steps and resources to use in solving the problem. Planning often involves dividing a problem into subproblems and then devising a sequence for how the subproblems should be completed(Hayes, 1981). There are three general characteristics of planning. First, individuals are more likely to engage in planning when the problem situation is novel and complex. Because people do not have well-known paths and strategies to follow in these situations, they must plan how to proceed. A second characteristic of planning is that it tends to be relatively abstract, rather than concrete and complete. As people proceed through a problem, they revise their plans based on how well the plans are working and on what opportunities for modification are available. A final characteristic of planning is that it has both costs and benefits. Plans take time and cognitive resources to develop but, in the long run, they can improve the efficiency of problem-solving.

Implementing a plan involves the selection of a set of lower order, strategic processes to use on the problem. Selecting a nonoptimal set of processes can result in incorrect or inefficient problem-solving performance. These lower order processes must also be sequenced in a way that facilitates task performance, and a decision needs to be made about how exhaustively the processes will be executed. For example, younger children tend to process with early termination the same stimuli that older children tend to process exhaustively (Brown & DeLoache, 1978; Sternberg & Nigro, 1983; Sternberg & Rifkin, 1979). Overuse of a self-terminating strategy can result in a large number of errors (Sternberg, 1977; Sternberg & Rifkin, 1979). Overuse of an exhaustive strategy can result in an increased amount of time spent on the problem. As individuals work on a problem, they must keep track of what they have already done, what they are currently doing, and what still needs to be done. Solution evaluation includes an individual's control over the internal representations he or she has formed and still needs to form for understanding and solving a problem. Often, new strategies need to be formulated as a person realizes that the old ones are not working. In general, solutions for ill-structured problems are difficult to evaluate because the desired state is often not clearly defined. Metcalfe (1986) found that although feelings of knowing an answer are predictive of memory performance, they do not predict performance on insight problems. In addition, high feelings of confidence (warmth) that one is converging on the solution to an insight problem seem to be negatively predictive of correct solution of these problems. In other words, subjects who felt they were gradually getting closer to solving the problems tended to arrive at incorrect solutions, whereas individuals who felt they were far from solving the problems and then suddenly felt they knew the answers tended to give correct solutions (Metcalfe, 1986. Metcalfe concluded that insight problems are correctly solved by a subjectively catastrophic process rather than by accumulative processes. This view fits the Gestalt notion that insight involves a sudden realization of a problem's solution.

Results/Discussion

Table (1), (2) and (3) clearly shows that there were not significant statistical differences between the scores of the male subjects and the female subjects in the "Sentence Completion Task". The T value was 0.75 which is not statistically significant (see Appendix (11)).The above tables show some characteristics of L_2 learners' performance in multidimensional linguistic problems. These characteristics may be worth deeper discussion and analysis. First, analyzing the subjects' performance in both tasks shows that almost all subjects performed at on high level in the first task. This can be taken as an indication of high level of linguistic ability.One may expect, then, that these subjects will demonstrate the same high level of performance in the second task.This expectation can be true if their performance is systemic and stable across various language tasks.However, this is not the case in the present study.Comparing the subjects' performances in the two tasks clearly shows that these advanced students' meta-linguistic ability is not a unitary construct.

The subjects of the study performed at a remarkably high level in the first task.This is why we can argue that these subjects are quite aware of the structural, rhetorical and instrumental aspects of English as a foreign language.Unfortunately, this argument turns out not to be necessarily true.Their performance in detecting the error; correcting it, and providing accurate rationalizations for their detection and correction of the error, was not at the same high level of excellency. This indicates that students' performance varies from one language task to another.It all depends on three factors: (1) the nature of the language task/grammatical problem: whether it is simple or complex; whether it requires straightforward application of a rule, or thinking strategically; (2) the type of knowledge required by the task itself, and (3) the accessibility of such knowledge.These factors will be discussed next.

The nature of the language tasks/grammatical problems

Some grammatical problems were very easy for the subjects to solve correctly, and some other problems were extremely difficult to handle.In other words, some problems were easy because they require simple and straightforward application of certain rules.As Skemp (1978) points out, such problems require what

he called "instrumental understanding".Other grammatical problems require what he called "relational understanding" because of its complexity; and therefore, students had to think strategically to solve the problem. My classification of the nature of the task (being simple or complex) has been made based on the subjects' performance.The major criterion in making such a classification is students' success or failure in accomplishing three requirements successfully: (1) detecting the error; (2) providing the correct form; and (3) providing correct rationalization. In some cases, as Table 1 shows, some subjects did not tend to make any response or change.During the interview, these subjects reported that they "thought the sentence is correct and nothing wrong", therefore, they kept the sentence as it is although they had been told that each of these sentences contains one grammatical error. The following discussion will shed some light on samples of both easy and difficult problems to see how the subjects dealt with each type.

Grammatical problems (2, 8; 9; 11; 13; 21, and 24) constituted a great deal of difficulty for all the subjects(see Table 3). For clarification, let's see problems (2), (8) for illustration.

2. Monitoring authorities credit mandatory seat-belt laws for thereduces in traffic fatalities.
A A C D

Grammatical problem (2) deals with using nouns as an object of preposition; so, instead of saying... "for the reduces in traffic fatalities", we should say "for the reduction in". Only seven subjects were able to detect; correct, and provide accurate rationalizations for their total performance. Twenty-nine subjects were not able to detect the error; rather, they made other choices which were grammatically correct. Their rationalizations for making such choices were also incorrect. Twenty-nine subjects were able to detect the error; however, they failed in correcting it, and their rationalizations for both detecting and correcting the error were not grammatically accurate. Ten subjects made no response on the basis that the sentence is correct, and no correction is required. Five subjects were not able to justify or rationalize their accurate detection and correction of the error in the sentence.

8. Scientists worry what the continued use of certain pollutants may damage the earth's ozone layer.
A B C D

Grammatical problem (8) deals with another specific rule: (the noun clause marker "that" should be used to introduce a statement). Only twelve subjects were able to detect; correct, and provide accurate rationalizations for their total performance. Eight subjects were not able to detect the error; rather, they made other choices, which were grammatically correct. Their rationalizations for snaking such choices were also incorrect. Forty-nine subjectsmanaged to detect the error in the sentence correctly; however, they failed to correct it or, even, provide accurate or any rationalization for such a detection. Eleven subjects were not able to justify or rationalize their accurate detection and correction ofthe error in the sentence.

Grammatical problems (1, 3, 5, 7, 10, 14, 15, 16, 18; 19, 20) constituted the easiest ones; that is, most of the subjects demonstrated a high level of performance. The following discussion will shed light on the characteristics of problems (1, 3) for more clarification.

1. Small animals can survival the desert heat by finding shade during the daytime.
A B C D

Grammatical problem (1) deals with a straightforward, simple rule; that is, "we should use infinitive without 'to' after modal verbs". Because of its simplicity, seventy-one subjects were able to detect the error; correct it, and provide accurate rationalizations. Also, all subjects made linguistic responses; that is, they had certain opinions towards the sentence, and only two subjects couldn't detect the erroneous item. Four subjects were able to detect and correct the error, although they failed to rationalize their successful detection and correction of the error. Only three subjects were not able to correct the error they had successfully detected, and their rationalizations were not accurate.

3. Vancouver, British Columbia, wasnamed after the man which explored thearea in 1792.
A B C D

Grammatical problem (3) deals with another straightforward and simple rule; that is, the correct uses of "which" and "who" as relative pronouns. Because of its simplicity, seventy-one subjects were able to detect the error; correct it, and provide accurate rationalizations. Also, all subjects made linguistic responses; that is, they had certain opinion towards the sentence; and only four subjects couldn't detect the erroneous item. Also, only four subjects were not able to correct the error or rationalize their successful detection of the error. In addition, only one subject (Female) was not able to rationalize her accurate detection of the error and successful correction of the error.

The type of knowledge required by the task

In thinking about foreign language learners' performance as an object of study, the essence of the

underlying knowledge that accounts for their performance must be examined. This examination of the learner underlying knowledge will in turn uncover the basis for the strategies they use in solving language problems.In this regard, Gass (1983:277) suggested that for foreign language learners the ability to think and talk about language might involve abstract analyses of a number of different types.It might include, for example, analyses of their own language, a comparison between their native language and the target language, a comparison between their native language and other languages previously learned, or even a comparison between the target language and other languages previously learned.And, as Johnson (1988) maintained, when learning a language is viewed as learning skills, the process appears to be usefully broken into two or three phases.The first is the development of declarative knowledge; however, "declarative linguistic knowledge cannot be employed immediately but only through procedures activating relevant parts of declarative knowledge in speech reception and production". In the second or associative phase, the skill is performed.In the third phase, the skill is continually practiced, and becomes automatic and faster.

With the above background in mind, one can argue that deficiency in the subjects' declarative knowledge resulted in (1) failure to detect the erroneous item that must be corrected for the sentence to be correct; (2) failure to decide whether the sentence is correct or incorrect; and (3) in most cases, the sentence seems grammatically correct although it violates a certain "invisible" grammatical rule.The data provide us with many examples that sustain the above argument. Thirteen subjects were not able to detect the erroneous item in the second grammatical problem.Also sixteen subjects failed to correct the error they previously identified.They also failed to provide any rationalizations for their seemingly successful detection of the error.In addition, because there was not a link between declarative and procedural knowledge, many subjects (males and females) failed to correct the item they identified as erroneous or provide accurate rationalizations for their performance.Therefore, examining the relationships between declarative and procedural knowledge is a worthwhile pursuit since students often fail to recognize or construct these relationship, and, sometimes are able to reach correct answers for problems they do not really understand.In his discussion of this issue, Carpenter (1986) pointed out that three different models have been proposed to describe the relationship between conceptual and procedural knowledge.The first model hypothesizes that advances in procedural knowledge are driven by broad advance in conceptual knowledge.The second hypotheses that advances in conceptual knowledge are neither necessary nor sufficient to account for all advances in procedural knowledge.The third model concurs with the first that advances in procedural skills are linked to conceptual knowledge but hypotheses that the connections are more limited than those suggested by the first model.

It seems that the best way for effective classroom instruction and for improving our students' performance is to link conceptual with procedural.Heibert and Lefevre (1986) maintained that linking conceptual and procedural knowledge has many advantages for acquiring and using procedural knowledge.These advantages are: (1) Enhancing problem representations and simplifying procedural demands; (2) Monitoring procedure selection and execution; (3) Promoting transfer and reducing the number of procedures required.Moreover, linking conceptual knowledge and procedural knowledge has some benefits for conceptual knowledge.According to Anderson (1983), problems for which have no routine procedure are available are solved initially by applying facts and concepts in an effortful and laborious way.As similar problems are solved repeatedly, conceptual knowledge is gradually transformed into set routines (condition-action pairs) for solving the problem.The condition-action pairs constitute the basic elements of the procedural system.Thus, knowledge that is initially conceptual can be converted to knowledge that is procedural.In addition, procedures can facilitate the application of conceptual knowledge, because highly routinized procedures can reduce the mental effort required in solving a problem and thereby make possible the solution of complex tasks.Case (1985) explained this phenomenon by pointing out that efficient procedures require less of one's limited cognitive processing capability.In this regard, Gelman and Meck (1986:30) pointed out that "Knowledge of the correct principles does not guarantee correct performance.Principles specify characteristics that a correct performance must possess, but they do not provide recipes for generating a plan for correct performances.Nor do they guarantee correct execution of plan".In addition, R. Ellis (2004) argues that tests that require learners to locate and correct errors likely entail access to explicit knowledge. Moreover, tests that require learners to describe the rules that have been violated can only be done on the basis on explicit knowledge. Relatedly, research studies have shown that there are three principal processing operations in which learners may engage when carrying out a judgment of grammaticality (R. Ellis, 2004, 2009; Ellis & Loewen, 2007; Loewen, 2009). The first operation is called "semantic processing" which means 'understanding the meaning of sentence' (R. Ellis, 2004: 256). The second operation is called "noticing" in the sense that learners decide whether or not there is something ungrammatical in a sentence. The third operation is called "reflecting", which means that learners are to identify what is incorrect and possibly determine why it is incorrect. According to these authors, semantic processing and noticing can be carried out using implicit knowledge, whereas 'reflecting' likely requires access to explicit knowledge because learners are to verify whether or not the sentence is grammatical. Brooks and Kempe (2013) argue that in first language acquisition,

learners distinguish grammatical from ungrammatical patterns without any explicit instruction. In contrast, second language (L_2 learners often fail to discover grammatical patterns on their own in the absence of grammatical awareness. As Gutierrez (2013) has maintained, the constructs of implicit and explicit knowledge of the L_2 are central to the field of SLA. According to R. Ellis (2005) and Bowles (2011), seven features distinguish implicit and explicit knowledge. The first feature is called "degree of awareness'; that is, learners resort to their intuitions or feelings in tests that measure implicit knowledge. On the other hand, they access their conscious knowledge of rules in tests that measure explicit knowledge. The second feature is called "Time available"; that is, implicit knowledge is used in tests that place time constraints on learners, whereas explicit knowledge is used in test with no time limits. The third feature is called 'focus of attention"; that is, learners are like to resort to their implicit knowledge of the focus of the test in is on meaning. If the focus is on form, learners are likely to resort to their explicit knowledge. The fourth, feature is called "systematicity in the sense that, learners' responses are likely to be more consistent in a test that taps implicit knowledge than in an explicit knowledge test. The fifth feature is called "certainty" which means that learners would be more certain about the responses to a test for which they resorted to implicit knowledge than those of an explicit knowledge test. The sixth feature is called "metalanguage"; that is, learners may make use of their knowledge of technical terms in an explicit knowledge test but not in an implicit knowledge test. The seventh feature is "learnability", which means that learners may show higher levels of implicit knowledge if they start their L_2 learning a children than those who start at an older age.

Two important notes, however, must be made. The first is that it is likely impossible to construct tests that are pure measures of one or the other type of knowledge (Gutierrez, 2013: 425). The second is that the above features might predispose learners to draw on one type of knowledge rather than the other, but there is no guarantee that learners would actually do so (R. Ellis, 2005). There seems, however, to be consensus that both types of knowledge interact at the level of performance. Research studies have shown that explicit knowledge may facilitate L_2 acquisition by accelerating the establishment of links between form and meaning. It may contribute to linguistic problem solving if implicit knowledge is not enough. It may be, also, used for the conscious production of output, which through continuous usage, may lead to implicit learning (see R. Ellis, 1991, 2009; N. Ellis, 2005, 2011). According to Bowles (2011) and R. Ellis (2005), implicit knowledge is intuitive and procedural, variable but systemic, and usually accessed by means of automatic processing and during fluent performance. On the other hand, explicit knowledge is conscious and declarative, often anomalous and inconsistent. It is usually accessed through controlled processing. In addition, it is a tool to achieve control in linguistic problem solving and it can be learned at any age (Gutierrerz, 2013: 424).

To conclude, it has been shown that explicit knowledge may be accessed when a learner confronts a language task in an attempt to find a solution to the problem at hand (Ellis, 1991). When language learners are asked to make and then justify grammaticality statements they often draw on declarative information to explain their positions. Learners resort to their implicit knowledge when judging grammatical sentences and to their explicit knowledge when judging ungrammatical ones. Furthermore, it was found that both time pressure and task stimulus have a significant effect on the learners' performance on the GJTs. Several studies have found that tests in which learners have time constraints to judge the sentences (i.e. timed GJTs) constitute measures of implicit knowledge, whereas tests without time limits (i.e. unlimited GJTs) are measures of explicit knowledge. Additionally, some studies have noted that, in untimed GJTs, only ungrammatical sentences actually measure explicit knowledge.

Many studies have focused on examining two major aspects of grammaticality judgments tests that seem to affect learners' judgments in terms of using implicit or explicit knowledge. The first aspect is 'time pressure', and the second is 'task stimulus'. As R. Ellis (2004) has argued, GJTs that do not place any time constraints on learners to respond allow participants to engage in three processing operations (Semantic processing, noticing, and reflecting). In such a case, learners have the opportunity to resort to their explicit knowledge of the L_2. In contrast, as Bialystok (1979) and R. Ellis. (2004) have suggested, GJTs that impose time limits for responding to the test terms constrain the learners to accessing their implicit knowledge. The reason for such a behavior is that the possibility of accessing the explicit knowledge is highly reduced because of the speeded nature of the test. However, as De Keyser (2003, 2009) has suggested, time pressure is at a guarantee that explicit knowledge can not be retrieved, particularly if this knowledge has been automated. A few recent studies, however, have shown that timed grammatically judgments tests tap into learners' implicit knowledge, whereas untimed GJTs constitute a measure of explicit knowledge (See Bowles, 2011; Loewen, 2009; R. Ellis, 2005).

The second aspect of GJTs that seems to affect learners' reliance on implicit or explicit knowledge is 'Task stimulus'. As Gutierrez (2013: 427) points out, "the findings of those studies that have investigated this aspect are somewhat inconclusive". For example, R. Ellis (1991) found that L_2 learners judged grammatical sentences more accurately than ungrammatical ones. Bialystok (1979) found that learners seem to rely on their intuitions implicit knowledge) in making decisions on the well-formedness of sentences, regardless of whether

the sentences were grammatical or ungrammatical, and whether the test was timed or untimed. In a latter study, Bialystok (1986) also found that ungrammatical sentences are more difficult to judge than grammatical ones. Hedgcock (1993), after reviewing the literature on this issue, seems to argue that learners resort to different types of knowledge when carrying out grammaticality judgments (see Loewen, 2009; Davies & Kaplan, 1998; Bowles, 2011).

Access to Knowledge

The results of this study show that the existence of knowledge for a learner is not sufficient to distinguish skilled or fluent performance from less skilled.Through practice and experience, the learner must gain easy access as "automatic", "not automatic" or "controlled".In other words, foreign language learners may appear to have the necessary knowledge to make correct responses; however, they are unable to display this knowledge in multi-dimensional tasks such as "Error Correction" task used in the present study.In such a task, learners are required to do more than one thing simultaneously.This argument is compatible with the principle of the attention theory.This study shows that although "noticing" or "conscious awareness" may have some positive effect on L_2 learners' performance; this effect, however, is constrained by two important factors: (1) learners' overall linguistic competence; and (2) the nature of the task; that is, whether it requires controlled or automatic processing of information.These two factors determine the amount of attention and degree of coordination on the part of L_2 learners.In this sense, this study does not exclusively support Schmidt's Noticing Hypothesis. Rather, it supports the claim that noticing is necessary but not sufficient condition for convening input into intake.As a whole, this study supports the claim that L_2learners have difficulty in attending to both form and content in the input.This is why conscious awareness or "Noticing" is not sufficient condition for converting input into intake.

The subjects' performance in the ER (Error Recognition)task can be analyzed in the light of what "Divided attention" phenomenon maintains.Research on this phenomenon shows that, at certain times, the attentional system must coordinate a search for the simultaneous presence of two or more features.To put it simply, the attentional system must perform two or more discrete tasks at the same time. In such a case, "the speed and accuracy of simultaneous performance of two activities was quite poor". Relatedly, it was also hypothesized that the performance of multiple tasks was based on skill (due to practice), not on special cognitive mechanisms. In "divided attention" tasks, the subjects are asked to spread attention over as many stimuli, as possible.In this regard, Shiffrin (1988:34) pointed out that, "as a general rule, subjects find it extremely difficult to divide attention. When there are more tasks to be carried out more stimuli to be attended…Performance is reduced". Many studies showed that subjects' exhibit reduced performance when they try to accomplish simultaneously an increased number of tasks or to attend simultaneously to an increased number of stimuli.Also, many researches in attention assumed that there is a limited pool of attentional resources or capacity that can be distributed across tasks.For example, according to simple capacity models, if the subjects had 100 units of capacity and required to perform two tasks each requiring 75 units, performance should decline when shifting from performing the tasks individually to performing them simultaneously.

Subjects' performance in the ER task reflects what "Selective Attention" phenomenon maintains.In these tasks, subjects relatively attend to a certain "stimuli" or aspects of stimuli, in preference to others.This concept presupposes that there is some capacity limitation, or some bottleneck in the processing system; however, subjects have the ability to pass through this bottleneck and at the expense of other stimuli, by giving performance to certain stimuli.What is worth mentioning here is that some students were able to correct only some of the errors, but not all errors.And, the number of the corrected errors differed from one subject to another.In this regard, it can be argued that selectively is the result of capacity limits of the subjects' information-processing system; and these limits are relative, and they depended on the type of activity itself.This can be explained in the light of the four varieties of "selective attention": (1) detection; (2) filtering; (3) search; and (4) resource attention.First, as a result of "selective attention", the subjects' ability to detect the errors increased. That is, their ability to notice what is missing or incorrect in the sentence has been improved.It must be emphasized, however, that this ability depends on the observer's sensitivity and his ability to respond.Second, the subjects' ability of "filtering" has been improved; that is, they were able to select, analyze deeply, and concentrate on a particular item and exclude others.Third, as a result of noticing, deep analysis and concentration, the subjects' search mechanisms have become automatic.In this regard, Cave and Wolfe's (1990) theory of "guided search" seems to be quite pertinent.The guided-search model suggested that search involves two consecutive stages: (1) Parallel stage, in which the individual simultaneously activates a mental representation of all the potential targets; and (2) Serial stage, in which the individual sequentially evaluate each of the activated elements, according to the degree of activation, and then chooses the true targets from the activated elements. Second, it has been clear from the above discussion that the subjects of this study had some difficulty with some grammatical constructions than other constructions. This seems to be consistent with the results of previous research. Late L_2 learners do have fewer problems with some grammatical constructions than others (McDonald, 2006: 385). Research has shown that they show high performance in grammaticality

judgments tests on (1) sentences involving violations of simple word order (Johnson & Newport, 1989); (2) Yes/No questions without do support (McDonald, 2000); (3) omission of the present progressive –ing suffix (Bialystok & Miller, 1999). Other structures seem to be particularly difficult for L_2 learners such as (1) determiners (Flege et al., 1999); (2) plurals (Bialystok & Miller, 1999); (3) past tense and verb agreement (Jian, 2004); (4) gender agreement (Scherag et al., 2004). According to DeKeyser and Larson-Hall (2005), people who learn a second language later in life generally perform more poorly on tests of L_2 grammar than native speakers or early acquirers. As McDonald (2006) explains, poorer performance by late L_2 learners has been repeatedly shown using oral and written grammaticality judgments tasks. Relatedly, Bialystok & Miller (1999); DeKeyser (2000); McDonald (2000) and Birdsong & Molis (2001) point out that late L_2 learners are much more likely to accept ungrammatical sentences as grammatical than are native speakers or early L_2 learners. This finding has been taken as support for Lenneberg's (1967) Critical period Hypothesis of language acquisition. According to this hypothesis, language acquisition must occur early in life if native like mastery is to be achieved. As stated in Birdsong (2005), somewhere within the critical period, performance begins to decline with increasing age of acquisition, and after the critical period has passed, native like performance is no longer supposed to be achievable. It must be noted, however, that a few cases of high performing late learners have been found (see Ioup et al., 1994; Kellerman, 1995; White & Genesse, 1996). Given this "it is clear that we need to go beyond the Critical Period Hypothesis in searching for an explanation of the generally poor performance of late L_2 learners on grammatical tasks. Such an explanation must account for the within subject variability seen in late L_2 learners' performance across tasks and conditions (McDonald, 2006: 382). In this regard, it has been suggested that variable accessibility to and use of grammatical knowledge may be caused by difficulties in basic level cognitive processing, which are due to three possible sources: (1) low L_2 memory capacity; (2) poor L_2 decoding ability; and (3) slow L_2 processing speed. First, many research studies point out that L_2 learners tend to have lower working memory spans in their L_2 than their L_1, and this L_2 span rather than L_1 span correlates with L_2 comprehension. Moreover, L_2 working memory span scores are correlated with written tests of L_2 grammatical mastery, and with how native-like L_2 learners are in using various syntactic and semantic cues in L_2 sentence interpretation (McDonald, 2006; Service et al., 2002). Accordingly, the impact of memory load on grammatical performance should not be neglected. Second, late L_2 learners perform more poorly than native speakers because they have poorer L_2 decoding lexical abilities. Their ability in identifying L_2 words through noise is lower than native speakers (Meador et al., 2000). Such an ability is correlated to the grammaticality of sentences produced in a sentence repetition task (McDonald, 2006). Accordingly, "decoding and lexical access ability in a second language may be related to grammaticality performance" (McDonald, 2006: 384). Third, there is evidence that late L_2 learners are slower at processing their second language than are native speakers. As Bialystok & Miller (1999); Mayberry & Lock (2003) point out, they manifest longer L_2 grammatical judgment times than native speakers. They are slower to contact the semantics of an L_2 word, and have slower lexical decisions times (see Scherag et al., 2004). As McDonald (2000) found, across items on a grammaticality judgment test, L_2 learners have more difficulty on items that have the slowest native speaker reaction time.

To sum up, for all three factors (working memory capacity, decoding ability, and speed of processing) there is evidence that late L_2 learners have poorer abilities than native speakers. The results of the above-mentioned research studies are consistent with the proposal that relevant grammatical knowledge can become inaccessible or unusable under conditions of high processing stress: "it is possible that poor grammatical performance by late $_{L2}$ learners is actually at least partially a result of problems with accessibility of grammatical knowledge due to poorer L_2 memory capacity, lexical decoding and/or processing speed" (McDonald, 2006: 385). It is also, worth-mentioning that these three factors are not necessary independent of each other: "If someone has trouble decoding a particular language, this may result in lower working memory capacity, longer reaction times, and also poorer grammatical performance in that language" (McDonald, 2006: 385). In addition to the nature of the grammatical problem (being simple or complex; requires instrumental or relational understanding) as a factor in shaping foreign language learner's metalinguistic ability, the type of the knowledge required by the task is another factor.

V. CONCLUDING REMARKS

Although "focus on form" instructions may have some positive effects on L_2 learners' performance in multidimensional tasks such as ERtasks, this effect is constrained by some factors, as previously explained.There are, however, some problems concerned the application of "Focus onforminstruction' approach.First, in many secondary and university language programs, teachers are obligated to teach certain form in a specific order by using government-mandated materials.Relatedly, in many countries, teachers have little saying in designing the curriculum, choosing the materials and text books, or developing assessment techniques.In this regard, Poole (2005) pointed out that even if teachers can find the means to occasionally incorporate focus on form instruction, they may feel pressure not to do so for two reasons: (1) they may be risking their own job security by not following the mandated curriculum; and (2) the pre-packed classroom

textbooks and materials will most likely form the basis for important evaluations such as entrance/exit exams, which teachers frequently have littleinfluence.Therefore, teachers will most likely feel obliged to spend the majority of their time helping students prepare for exams.Unfortunately, such exams focus on discrete grammatical points and minimize real life communicative abilities (see Alfieri et al., 2011; Foucart et al., 2011; Kaufman et al., 2010; Kempe & Brooks, 2015).

Another problem with focus on form instruction is practical; that is, it involves class size.The views expressed by Long (1991) and Long and Robinson (1998) seem optimally suited to classrooms that are small enough to enable teachers to verbally address their students' problematic forms.In many settings, however, classes are large and individual attention and student-student interaction is not possible.In addition, in many countries, there is a lack of funds to hire qualified teachers. Relatedly, many English language teachers lack a high level of L2 oral proficiency and do not have opportunities for developing it.The problem is that Long's (1991) and Long and Robinson's (1998) conceptions of focus on form instruction obliges teachers to have native - like or near native - like competence fluency, particularly in oral situations.Accordingly, teaching English through the native language is common place in a many settings not because of any objections against using English, but simply because of low L_2 proficiency on the part of teachers. Another problem with focus on form instruction is that, in many settings, the students and teachers often share a common language and culture.Accordingly, they can easily code-switch in order to overcome communicative difficulties or fill communicative gaps.If problematic grammatical forms can be addressed using another language, then, focus on form instruction could be seen by teachers and learners as either unnecessary or impractical.A final problem with focus on form instruction is cultural; that is, "focus on form is highly individualistic in that errors are frequently addressed on an individual basis". Contrary to individualistic societies which tend to produce more individualistic teaching approaches, collectivist societies, which tend to focus more on the general good of all students, may find focus on form at odds with their cultural values.

Regardless of these barriers, focusing on teaching grammar is well-justified.First of all, many of our students seem to want more grammar expansion.They always ask for more discussion of the rules underlying the structures they are learning.They seem to need to know more about how the language is put together.This does not deny the fact that some to need to know more about how the language in put together.This also does not deny the fact that some leaners rely on natural processing mechanism.However, the desire of at least some of our students to have more rule explanation may indicate something about differences is learning strategies.Some learners may learn more effectively through deductive strategies, requiring understanding of general principle prior to their application in language activities and exercises, and through, carefully constructed grammar explanations would seem to benefit this type of learners.Furthermore, during the course of a typical grammar lesson, our students are assaulted with a great deal of oral language.Seeing the structures under consideration within the context of the grammar explanation provides for some learning to take place through the visual modality, a fact which is of particular advantage to our visual learners.Secondly, to ignore what students typically expect and what they consider to be important or necessary is to invite resistance, either overt to covert to our teaching.Therefore, it seems more reasonably to try to expand and broaden their expectation than to try to change them.This does not mean that teachers should follow students' wishes all the way.Rather, they should keep their students' needs in mind when they design language lessons.An observant ESL teacher does not need to be told that students learn in different ways.This suggests that learners' variables, such as age, can be very important in helping the ESL teacher decide whether or not it will be of any use to focus on form.In addition, proficiency level can be another factor.If ESL students are beginners, there is little point in focusing on form regardless of their ages.However, if they are at the intermediate or advanced level, it may well be necessary for the teachers to do some correction.From another perspective, the educational background of ESL students is another noteworthy factor. On the one hand, if they are preliterate with little formal education, it is waste of time and effort to focus on form.On the other hand, if they are literate and well-educated, they may become frustrated and annoyed if teachers do not provide adequate opportunity for them to focus on the formal aspects of English.

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Appendix 1 (A): Structure and Written Expression.

Directions: Questions 1-13 are incomplete sentences. Beneath each sentence you will see four words or phrases, marked (A), (B), (C), and (D). Choose the one word or phrase that best completes the sentence.

1. Broadway musical comedy has been called ----- of the United States to modern theatre.
A. the major contribution that
B. what is the major contribution
C. the major contribution
D. to the major contribution

2. ----- in 1968 as a nonprofit agency to finance the growth of noncommercial radio and television in the United States.
A. the Corporation for Public Broadcasting established
B. the Corporation for Public Broadcasting was established
C. when the Corporation for Public Broadcasting was established
D. even though the Corporation for Public Broadcasting was established.

3. Cold temperatures, short growing seasons, and heavy snows prevent….at high elevations.
A. grow trees
B. the growth of trees
C. trees are growing
D. and growth of trees

4. Usually, the more skilled an athlete----the more effortless the athlete's movement appear to be
A. what is
B. that is
C. that it is
D. is

5. Trilobites, a group of spineless animals, flourished in the oceans for several hundred million years --- some 200 million years ago.
A. until they became extinct
B. and their extinction
C. that were extinct
D. because their extinction

6. Recent engineering developments have made----to recycle plastic soda bottles into polyester fabric.
A. possible, and

B. it is possible
C. the possible
D. it possible

7. ----bottle-nosed dolphins become talented performers at many aquariums.
A. when to train
B. are training
C. when trained
D. to train them

8. The art of the 1970's was characterized by diversity and by the independence of artist-------- main affinities were more often sociopolitical than stylistic.
A. whose
B. that
C. they have
D. of which

9. Flower oils are –of the ingredients used in making perfume.
A. among expensive
B. among the most expensive
C. being most expensive
D. expensive

10. A quite that looks ordinary--- may become a work of abstract art when it is hung on a white wall.
A. lying on a bed
B. lies on a bed
C. to be lying on a bed
D. to lie on a bed

11. ----the hummingbird gets its name from the sound that is wings make during flight.
A. has a brilliant color
B. the brilliant color
C. which is brilliantly colored
D. brilliantly colored

12. Except for the sun, all stars are too far from the Earth for their distance----in miles or kilometers
A. to be conveniently measured
B. which conveniently measured
C. to measure conveniently
D. conveniently measured

13. Many technological innovations, such as the telephone, ---the result of sudden burst of inspiration in fact were preceded by many inconclusive efforts.
A. whose appearance
B. the appear to be
C. and appear to be
D. are appearing

Appendix 1 (B): Error Correction Task

Directions: In questions 1-22 each sentence has four underlined words or phrases. The four underlined parts of the sentence are marked (A), (B), (C) and (D). Identify the one underlined word or phrases that must be changed in order for the sentence to be correct.

1. Belgian chocolates is considered by many to be more finer than any other in the world.
A B C D
2. The dream of building a permanently staffed space station it may soon become a reality.
A B C D
3. It is well-known fact that Camels can go for extend periods without water.
A B C D

4. Several expedition have attempted to find the remains of Noah's ark on the slopes of Mount Ararat.
A B C D

5. Scientists worry what the continued use of certain pollutants may damage the earth's ozone layer.
A B C D

6. The artists John Constable and Thomas Gainsborough werebornat a few miles of each other.
A B C D

7. Starches provide people with important nutrients which they need them.
A B C D

8. Sunlight can be used to generate electricity by means of cells containing substances that emit electrons that bombard with photons.
A B C D

9. Norma Jean Baker was the real name of the famous Hollywood actress known such as Marilyn Monroe.
A B C D

10. The capital of Yemen issituating 2.190 meters above sea level.
A B C D

11. Bleak house is in many ways the most controversial of the novelthat Charles Dickens wrote.
A B C D

12. The Aswan High Dam has protected Egypt from the famines of their neighboring countries.
A B C D

13. Some 2.300 years ago, Greek philosophers gave the name 'atom' to the smaller particle of matter in nature.
A B C D

14. A budget is a plan that estimate how much money will be spent, what it will be spent on, and how much money is left over.
A B C D

15. When Lake Victoria was discovered by John Speke in 1858, he was believed to be the source of the Nile.
A B C D

16. With the discovery of Pluto's moon, Charon,astronomers now think Pluto is smallest planet in our solar system.
A B C D

17. The psychological school of behaviorism it was founded by J. B. Watson.
A B C D

18. The first Wagon train on the Oregon Trail setting out from independence, Missouri, in 1941.
A B C D

19. The discoveryof gold in 1849 brought California nationwide attentive.
A B C D

20. The Kerma civilization was some of the earliest indigenous African tribal groups.
A B C D

21. Human beings who live longer than one hundred years are a rare.
A B C D

22. Scientists have identified several hundred subatomic particleheld together by a nuclear force.
A B C D

Appendix 2

Sentence Completion Task (SC): Quantitative Analysis.

Table (1) Subjects' raw scores in the sentence completion task.

S.	Males' Scores (TS = 15)	S.	Males' scores (TS = 15)	S.	Females' scores (TS = 15)	S.	Females' scores (TS = 15)
1	14	21	10	1	14	21	11
2	14	22	10	2	14	22	10
3	13	23	10	3	14	23	10
4	13	24	10	4	14	24	10
5	13	25	10	5	14	25	10
6	13	26	10	6	13	26	10
7	12	27	10	7	13	27	10

8	12	28	09	8	13	28	09
9	12	29	09	9	13	29	09
10	12	30	09	10	12	30	09
11	12	31	09	11	12	31	09
12	12	32	09	12	12	32	9
13	12	33	09	13	12	33	09
14	11	34	08	14	12	34	08
15	11	35	07	15	12	35	08
16	11	36	07	16	12	36	08
17	11	37	07	17	12	37	07
18	11	38	07	18	11	38	07
19	10	39	06	19	11	39	06
20	10	40	05	20	11	40	05
Total			**410**		**Total Score**		**425**

Table (2)
Means and standard deviation of both males and females in the Sentence Completion Task.

	Number	**Means**	**Standard Deviation**	**T**	**Significant**
Males	40	15.25	2.15	0.75	Insignificant
Females	40	10.63	2.31		

Table (3) Summary of the subjects' performance in the Error Correction Task.

# of problem	(+) detection (+) correction (+) Ration	(+) detection (+) correction (-) Ration	(+) detection (-) correction (-) Ration	No response (Sentence is Correct)	(-) detection
	Total	Total	Total	Total	Total
1	71	4	3	-	2
2	7	5	29	10	29
3	71	1	4	-	4
4	36	5	4	1	34
5	42	14	3	-	21
6	26	29	10	6	19
7	56	11	2	-	11
8	12	11	49	-	8
9	-	-	51	7	22
10	42	17	13	-	8
11	01	-	39	9	31
12	32	24	5	2	17
13	15	10	16	5	34
14	50	8	3	7	12
15	55	8	6	1	10
16	44	10	-	2	24
17	30	6	6	7	31
18	63	8	-	5	4
19	62	7	2	2	6
20	53	20	2	4	01
21	9	2	43	10	16
22	27	8	21	9	15
23	37	27	06	3	7
24	01	-	41	11	27
25	39	02	03	10	26