
Does Form-focused Instruction Affect L₂ Learners' Performance?: Insights from Cognitive Psychology and SLA Research

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Abstract

Recent years have seen a growing concern with the role of conscious process in Second Language Acquisition (SLA). This concern is frequently centered on the "Noticing Hypothesis" of Richard Schmidt (1990; 1993a; 1994; 1995a; 1995b; 2001; Schmidt and Frota, 1986). This study, then, examines Schmidt's hypothesis that L₂ learners must consciously notice the grammatical form of their input in order to acquire grammar. Fifteen subjects participated in this study. They were asked, first, to write an essay on the value of learning English. Second all subjects performed on two correction tasks; one was unfocused and the other was focused. Finally, each student was interviewed to explain his/her performance in the three tasks. The data analysis had a quantitative part which consisted of statistical comparison of the number of errors in the composition, unfocused correction and focused correction tasks (by means of one-way ANOVA). It also had a qualitative part which was an analysis of each student's conception of the grammatical rules that were violated in order to explain any discrepancies between their performances in the three tasks.

This study, first, demonstrates that the deficiency in L₂ learners' knowledge results in inaccurate composition writing and unsuccessful correction of errors even if their attention was drawn to these errors. Second, it offers another interpretation for the noticeable discrepancies in the subjects' performance. Such an interpretation is mainly based on the argument that composing in English is a multidimensional activity which requires L₂ learners to do

more than one thing simultaneously. Third, it shows that our students' failure to perform systematically may be due, sometimes, to cognitive deficiency. Accordingly, this study supports the view that language acquisition may not be fully understood without addressing the interaction between language and cognition. Fourth, this study shows that although 'noticing' or 'conscious awareness' may have some positive effect on L₂ 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.

1. INTRODUCTION

During the last decade, there has been substantial growth in interest in analysis of texts of various types. To a large extent, emphasis has been given to the analysis of spoken text. More recently, attention has been turned to the analysis of written text. In this regard, Krashen (1982: 41) points out that "studies of second language writing are sadly lacking"¹. And of the four skills that are discussed and (supposedly) taught with equal emphasis in our foreign language classrooms, writing is perhaps the most poorly understood and the skill that is given, in fact, the most cursory attention. This situation was due to the fact that, for too long, proficiency in English has meant only oral proficiency. In other words, communicating in English has always been associated with students' ability to speak appropriately. What makes the situation even worse is that recent attention to communicative competence, with its emphasis on sociolinguistic factors of language use, has led to the erroneous impression that communication is an oral phenomenon. A rationale for the delayed use of writing was grounded in principles of behavioral psychology and structural linguistics: written language was essentially a recording of speech, and a learner could code writing only through reference to the oral code, which was previously and thoroughly mastered.

Writing has been the focus of much discussion in the literature for more than 30 years. Writing attracted the attention of researchers and language teachers. As Coombs (1986:115) suggests, "writing in a foreign language constitutes an important part of language proficiency. Like speaking, writing shows that the individual can use the language to communicate"². In this regard, Buckingham (1979), also, maintains that writing is no less communicative in intent than speech. Writing, like speech, is intended to reach a specific audience with specific recognized characteristics, and has the intent of inducing, maintaining, eliminating specific mental or physical behaviors in reader³. However, there exists, at present, no coherent, comprehensive theory of second language (L₂) writing. This can be explained in part by the

newness of L₂ writing as an area of inquiry, but an equally important reason is the prevalent assumption that L1 and L2 writing are, for all intents and purposes, the same. This, largely unexamined, assumption has led L₂ writing specialists to rely for direction almost exclusively on L₁ composition theories (Silva, 1993)⁴. Therefore, L₂ writing specialists need to look beyond L₁ writing theories to better describe the unique nature of L₂ writing, to look into the potential sources of this uniqueness (cognitive, developmental, social, cultural, educational, linguistic), and to develop theories that adequately explain the phenomenon of L₂ writing. Johns (1990:24), rightly, maintains that “in the 1980s, English as a second language composition research developed and matured to an extent never imagined by the oral -aural proponents of the 1960 s and early 1970s. Most of this research, however, has been drawn from research in first language (L₁) composition, which in turn is based upon L₁ theory”⁵.

For students who learn English as a second or foreign language, they “must learn to create written products that demonstrate mastery over contextually appropriate formats for the rhetorical presentation of ideas as well as mastery in all areas of language”, (Kroll, 1990: 140)⁶. About native - speaker writing, Collins and Genter (1980:67) make the following observation: “Much of the difficulty of writing stems from the large number of constraints that must be satisfied at the same time. In expressing an idea, the writer must at least consider four structural levels: Overall text structure; paragraph structure, sentence structure (syntax), and word structure.... Clearly the attempt to coordinate all these requirements is a staggering job”⁷.

On the other hand, recent years have seen a growing concern with the role of conscious processes in SLA. This concern is frequently centered on the Noticing Hypothesis of Schmidt (1990; 1993; 1994; 1995a; 1995b; Schmidt and Frota, 1986)⁸⁻¹³. The present study examines the Noticing Hypothesis: the claim that L₂ learners must consciously notice the grammatical form of the input they receive in order to acquire grammar. The hypothesis is a claim about how input becomes intake. It claims that conscious awareness (noticing) of grammar plays an important role in the process of L₂ acquisition. In the strong form of the hypothesis, noticing is a necessary condition for learning. In its weaker version, noticing is helpful, but might not be necessary. As Truscott (1998) points out, the hypothesis also has strong and weak forms in another respect. In the weak version, learners need only be aware of the input in a global sense; they do not have to notice any details of its form¹⁴.

To support the Noticing Hypothesis, Schmidt cited work on attention. He argued that research has found attention necessary for learning and that, for

all practical purposes, attention can be equated with awareness. From these premises it would follow that attention research supports the claim that consciousness is necessary for learning. Accordingly, 'Noticing' is often associated with the influential notion of "consciousness raising" (Rutherford, 1987¹⁵; Sharwood Smith, 1986)¹⁶ or input enhancement (Sharwood Smith, 1993)¹⁷.

2. LITERATURE REVIEW

2.1 Attention Research in Cognitive Psychology

The following discussion is concerned with some of the theories that have attempted to explain attention by using ideas from information processing theory. Of the most influential theories in the field, the majority fall into two broad categories: "bottleneck" theories and capacity model theories.

It is worth noting at the outset that both bottleneck and capacity theories are based on the idea that humans have limited information processing capacity. That is, we are never able to deal with all the inputs that continuously flood into our processing systems from our senses and memory, and even if we were, we are limited in the number of motor responses we can make. One can describe bottleneck theories as a strong version of this limited capacity idea, in that only one message at a time can enter consciousness, since at some point processing is reduced to a single channel. Capacity models, on the other hand, are a weaker version, in that information can be processed via many channels but that there is a fixed capacity limit to be distributed amongst the channels. The models proposed by Broadbent (1957)¹⁸, Treisman (1960)¹⁹, Deutsch and Deutsch (1963)²⁰, and Norman (1968)²¹ attempted to explain the process by which we attend to certain information, but not all information available to us. The issue all of these theories had to resolve was the location of selection to the stimuli. More specifically, the models had to explain the process by which we are able to make sense of our environment, given that we are constantly bombarded with information.

The initial model was termed the bottleneck theory of attention, since information could only be attended to from one source at any given time. Broadbent (1957) developed the filter model to explain the proposition that a bottleneck occurs before pattern recognition, and that attention determines what information reaches the pattern recognition stage. This model asserts that the selective filter allows information to come in from only one channel at a time, into working memory.

Treisman proposed a model which consists of two components, each

relying on the other to function properly, named the attenuation model. In this model, the selective filter distinguishes between two messages on the basis of their physical characteristics, such as location, intensity and pitch. The 'dictionary' in Treisman's model allows for selection between messages on the basis of content. Certain information requires a very low threshold in activating awareness of a stimulus. The attenuation model therefore proposes that there is a decrease in the perceived loudness of an unattended message. This message will usually not be loud enough to reach its threshold unless it has a very low threshold to begin with, or there is a general momentary decrease for all messages.

Broadbent and Treisman's models proposed that the selection filter in attention occurs prior to selection, or pattern recognition stage. Later models by Deutsch and Deutsch (1963), and Norman (1968), attempted to merge growing information regarding memory and the selection process of attention. These more recent models claimed that "selection occurs after the pattern recognition stage. In these models attention is equivalent to the selection stage "(Beneli: 1997)²². Deutsch and Deutsch suggested that both channels of information are recognized but are quickly forgotten unless they hold personal pertinence to the individual. In shadowing experiments, the participant is asked to repeat a certain message, that would create the personal significance needed in attention. Norman elaborated on Deutsch and Deutsch's model by suggesting that selection is determined not only by the pertinence of the sensory input but also the strength of the input.

These theories have far more ideas in common than they do differences; yet, it is the differences which are the key aspects. First, Broadbent's filter is all-or-nothing (it does not allow through unattended messages), whereas Treisman's filter allows unattended messages through, but in an attenuated form. Second, Broadbent's is a simple single filter model, whereas Treisman's can be thought of as a two-stage filtering process: firstly, filtering on the basis of incoming channel characteristics, and secondly, filtering by the threshold settings of the dictionary units.

2.2 From Cognitive Psychology to (SLA)

2.2.1 SLA Research: Acquisition and Focus on Form

As Mangubhai (2006:1) points out, in the last twenty-five years a number of insights have been achieved through research on the processes of second language acquisition/learning. He, further, claims that Second Language Acquisition (SLA) has been in existence as a field of study for over 25 years, applied linguistics as a field just over 40 years (if we take the influential book

by Halliday, McIntosh and Stevens (1964) as the beginnings of applied linguistics)²³.

One of the most interesting insights that have been offered by SLA research is that “adults and adolescents can ‘acquire’ a second language” (Mangubhai, 2006: 2)²⁴. The focus of this insight is the word ‘acquisition’ in the sense that Krashen (1982, 1985, 1991, 1994) has used it in distinguishing it from the term ‘learning’. Acquisition is a non-formal, subconscious way of picking up a second language through exposure to it. It therefore refers to implicit knowledge, rather than explicit knowledge. The term has generally been associated with children learning their first language in contexts that are informal, meaningful and not planned²⁵⁻²⁸. The claim, however, is that it is not just children who can acquire a language, but adults can do so also provided there is a large amount of exposure, or input. Some evidence for this comes from the early work of Elley and Mangubhai (1983)²⁹. Further examples of acquisition through reading have been documented in Elley (1991)³⁰ and Krashen (1993a; 1993b)³¹⁻³².

Another line of research has, however, addressed the question of whether anything can be learned unless it is noticed. One of the earliest writers to discuss noticing in the field of SLA was Schmidt (Schmidt, 1990; 1992; 1993)³³ who has emphasized the importance of noticing in second language learning. While he has acknowledged that there can be acquisition, he has argued that most second language learners learn the second language and hence, the concept of noticing is critical to understanding SL development. In this connection, Ellis (2002) rightly points out that research has not been able to settle this question definitively and it remains of on-going interest³⁴.

In his discussion of this issue, Ellis (2005: 306) has argued that the “bulk of language acquisition is implicit learning from usage. Most knowledge is tacit knowledge; most learning is implicit; the vast majority of our cognitive processing is unconscious”³⁵. He does agree with Krashen (1982) that implicit and explicit learning are different, but unlike Krashen, he sees a role for explicit instruction and thus he can be seen to subscribe to a weak interface between the two types of knowledge, implicit and explicit.

Research in SLA has shown that learners need to focus on form in order to develop a more complete grammatical repertoire in the second language. Evaluations of the immersion programs in Canada talk about their obvious success in teaching a second language, French. It has been noticed, however, that while students seemed to show a great amount of fluency in the use of French, the range of grammatical structures that were used in their communication was limited (Swain, 1993)³⁶. This means that despite the

provision of large amounts of comprehensible input provided in the immersion classrooms, many students did not acquire the full range of grammatical structures. This situation led to what is called “form-focused instruction”, defined by Spada (1997: 73) as “any pedagogical effort which is used to draw the learners’ attention to language form either implicitly or explicitly”³⁷. This is a slightly different definition from that of Long (1991) where he talks about ‘focus on form’³⁸. The intended outcome in ‘focus on form’, according to Long, is “noticing”, defined by Long and Robinson (1998) as the allocation of one’s attentional resource at a particular moment to a form³⁹.

The evidence for the efficiency of ‘focus on form’ is growing, with learners as young as 7 and 8 (Harley, 1998)⁴⁰, in content-based classroom (Doughty & Varela, 1998)⁴¹, and in reviews of focus studies (Ellis, 2001)⁴². However, there are some who are still not convinced of its effectiveness (Sheen, 2003)⁴³.

2.2.2 SLA Research on Attention and Noticing

Over the past two decades, researchers in the field of second language acquisition (SLA) have become increasingly interested in concepts traditionally associated with cognitive psychology, such as memory, learning ability, and connectionism. Ellis (2002:299) points out, “we are now at a stage at which there are important connections between SLA theory and the neuroscience of learning - and memory”. The concept of attention has become especially important because of its crucial role in so many aspects of SLA theory, such as input, processing, development, variation, and instruction.

Tomlin and Villa (1994) suggest that there are four conceptions of attention in SLA⁴⁴. One is that of attention as a limited capacity system. The idea being that the brain may be presented (through the sensory system) with an overwhelming number of stimuli at any given time, and it seems impossible to process them all. The limitations of attention refer not only to the amount (or duration) of attention that may be given to a single stimulus but also to the number of stimuli that may be attended to simultaneously. This leads to a second conception of attention, namely that it constitutes a process of selection. The overwhelming amount of incoming stimuli force the attentional system to be selective. The third conception of attention involves controlled rather than automatic processing of information. The underlying assumption here is that some tasks require more processing effort, and hence a higher degree of attention, than others. A person may therefore perform two tasks at the same time, especially if one requires automatic processing (low attention). By the same token, it is more difficult to perform two tasks if both require controlled processing (high attention). The fact that controlled processing of

two simultaneous tasks is sometimes possible led researchers to develop a fourth conception of attention, which is that it must involve a process of coordination among competing stimuli and responses. In this process, attention must be established, maintained, discontinued, and redirected in order to perform different actions.

Posner and Petersen (1990) describe attention in terms of three networks: *alertness, orientation, and detection*⁴⁵. Alertness refers to a general state of readiness to receive input. The higher the level of alertness, the faster the speed of selecting information for processing will be. Orientation to the alignment of attentional resources to a particular stimulus from among a host of stimuli. Orienting attention to a stimulus facilitates the processing of that stimulus. Orientation differs from alertness in that a learner might for example be ready to learn (alertness) but not know whether to focus on form or meaning (orientation). Detection is probably the most important network in attention; it refers to the cognitive registration of a stimulus. Once a stimulus is detected, it becomes available for further processing. Although detection does not necessarily imply awareness, Schmidt (2001) suggests using the term registration to refer to stimuli that are detected without awareness⁴⁶.

According to Schmidt (1994: 179), noticing refers to the “registration [detection] of the occurrence of a stimulus event in conscious awareness and subsequent storage in long term memory”⁴⁷. Schmidt is careful to distinguish noticing from *understanding*, which he defines as “recognition of a general principle, rule or pattern” (1995d: 29)⁴⁸. Understanding represents a deeper level of awareness than noticing, which is limited to “elements of the surface structure of utterances in the input” rather than underlying rules (Schmidt, 2001: 5)⁴⁹.

Much of Schmidt’s work ties findings from cognitive psychology into SLA theory. As N. Ellis (1994: 10) points out, “Schmidt is one of the few linguists who have adopted the conceptual and experimental rigours of experimental psychology in answering questions concerning the role of consciousness in L₂ acquisition”⁵⁰. Reviewing the psychological literature on consciousness has led Schmidt to propose the *Noticing Hypothesis*, which states that “noticing is the necessary condition for converting input into intake” (1990: 129)⁵¹. Since then, a considerable amount of research has addressed the issue of noticing in SLA (Cross, 2002; Sakai, 2004; Chun & Zhao, 2006)⁵²⁻⁵⁴.

The noticing hypothesis seems to have been motivated by a seminal study by Schmidt and Frota (1986)⁵⁵ which documents the role of noticing for a beginner learning Portuguese in Portugal over a period of 22 weeks. Their findings question the assumption that language acquisition is a purely sub-conscious process (Krashen, 1982)⁵⁶, since the learner clearly noticed some

of the grammatical structures he seemed to have acquired. Different results were obtained in a similar study by Altman (1990, as cited in Schmidt, 1990)⁵⁷, who monitored her own acquisition of Hebrew over a period of five years. Altman was unable to identify the source of half of the new verbs she had learned. She concluded that awareness was not necessary in learning vocabulary. Schmidt and Frota also admit that they were unable to trace much of what had been acquired to what had been noticed. Self reports are inherently subjective. Moreover, memory effects may play a role depending on the amount of time that passes before the diary entry is made. Nevertheless, first person accounts seem to be the most valid method for assessing what is noticed.

One of the most influential attentional studies in SLA was conducted by VanPatten (1990)⁵⁸, who investigated the notion of attention as a limited resource (Broadbent, 1957, as cited in Robinson, 1995)⁵⁹. More specifically, the study examined whether learners were able to consciously attend to both form and meaning when processing input. Results showed that the *content only and lexical* groups significantly outperformed the *form and morphology* groups. This led VanPatten to conclude that it was difficult, especially for beginners, to notice content and form at the same time. Moreover, he postulated that learners would notice meaning before form, since their primary objective is to understand the propositional content of utterances.

VanPatten's findings have led SLA researchers to try to find ways to help learners focus on both form and meaning. One such way is input enhancement, which refers to the manipulation of certain aspects of the input (e.g., form) to make them more salient and thereby more noticeable to learners (Sharwood Smith, 1993)⁶⁰. Typographical input enhancement usually entails italicizing, using boldface, or underlining in order to highlight the target structure. Alanen (1995) examined the role of typographical input enhancement and explicit rule representation on the acquisition of locative suffixes and consonant alternation in semi-artificial Finnish. The input consisted of two passages with a picture and a Finnish-English glossary of relevant words and forms. Think-aloud protocols revealed that learners who noticed the target forms learned more than those who did not⁶¹.

Stronger evidence for the facilitative role of noticing comes from a study by Jourdenais, Ota, Stauffer, Boyson, and Doughty (1995)⁶². Results showed that the Enhanced group used the target structure more often than the Unenhanced group on both the think-aloud protocols and the written production task, suggesting that input enhancement made the target forms more noticeable. Moreover, subsequent production by the Enhanced group was more target-like than the Unenhanced group, suggesting that noticing facili-

tated acquisition. A more innovative experimental design by Leow (1997, 2000) provides further evidence for the facilitative role of awareness in SLA. Leow (1997) used a crossword puzzle task as input that was designed to initially induce learner error⁶³. Eventual clues in the puzzle provided learners with the correct form, thereby increasing their chances of noticing the mismatch. Similar results were found in a subsequent study (Leow 2000)⁶⁴. Results showed that participants who displayed evidence of awareness performed better on the post-exposure tasks than those classified as unaware. In a similar experimental design, Rosa and O'Neill (1999) investigated the role of awareness in acquiring syntactic structures. Among other things, the study found that awareness seemed to increase learners' ability to recognize the syntactic structures on the post-test. There was also a strong correlation between awareness and intake⁶⁵.

Leow (2001) also used think-aloud protocols to examine how typographical input enhancement affects learners' noticing of the formal imperative in Spanish. Participants were 38 college-level students in a beginning level Spanish language program. The input consisted of a 242-word reading passage that was typographically enhanced for one group and left unenhanced for the other. Participants were asked to provide think-aloud protocols as they read the passage. The pretest, posttest, and delayed posttest consisted of a multiple-choice recognition task and a cloze test. A short-answer task was used to measure comprehension of the reading passage. Results showed that 33% (7 out of 21) of the enhanced group mentioned the target forms in their protocols as compared with only 12% (2 out of 17) in the unenhanced group. No statistically significant differences were found between the two groups for: (a) amount of reported noticing of the targeted form, (b) comprehension, and (c) intake as measured by recognition. However, significant correlations were found in both groups between noticing and recognition. Leow points out that the effects of typographical enhancement may have been diminished by the length of the input. When faced with a long reading passage, learners might be using more global noticing strategies in order to process the large amounts of input. This would probably shift attention toward meaning and away from form, since the former is more important for comprehension⁶⁶.

Leow's explanation seems to be supported by VanPatten's (1990) findings that attention to both form and meaning is difficult. However, the modality of the input in this case (written) differed from that in VanPatten's study (aural)⁶⁷. Could modality differentially affect attention to meaning and form?. Wong (2004)⁶⁸ tried to address this question with a partial replication of VanPatten (1990). His variations included the addition of a written mode of

input and using English (instead of Spanish). Findings for the aural input mirrored those of VanPatten, since there was a significant decrease in performance when participants had to attend to both content and form. However, no significant difference was found when the input was written (which incidentally took less time to read than the aural input). Moreover, when processing both form and meaning, the listening task proved more difficult than the written task, suggesting once again that different modalities may impose different attentional demands (Chun & Zhao, 2006)⁶⁹.

3. THE PRESENT STUDY

3.1 Subjects/Language Tasks

Fifteen subjects participated in this study. There were nine females and six males. The subjects were asked, *first*, to write an essay of about two hundred words. The topic was 'the value of learning English'. It was chosen because it was related to students' interest and not technical. Second, all subjects performed on two tasks: unfocused and focused correction tasks. The basis of these two tasks was the morphosyntactic errors that appear in each student's essay. In the unfocused correction task, all sentences with morphosyntactic errors were provided. Each sentence contained one or more errors from the individual's essay. Each student was told that there were grammatical errors in the sentence and was asked to correct them. Having done this task, students were given written instructions on how to work on the 'focused correction task'. In this task, the same sentences from the student's essay were presented. This time, the student's attention was drawn to the specific errors (the errors were underlined). Finally, each student was interviewed to explain his/her performance in the essay, the unfocused correction task and the focused correction task. During the interview, students were asked to explain why changes were made and were probed to clarify as often as necessary. Students' explanations were tape-recorded and transcribed.

The data analysis had a qualitative and a quantitative, interpretative part. The quantitative part consisted of a statistical comparison of the number of errors in the composition, unfocused correction and focused correction tasks (by means of one-way ANOVA). The qualitative part was an analysis of each student's conception of the grammatical rules that were violated in order to explain any discrepancies between their performances in the tasks.

4. RESULTS AND DISCUSSION

Tables (1, 2, 3, 4, 5), below, present the number of student's errors in the essay, unfocused correction and focused correction tasks.

Table (1)
Number of students' errors in the essay unfocused correction and focused correction tasks

Subject	Essay	Unfocused Correction			Focused Correction		
		Remaining	New	Total	From Remaining	From New	Total
1	8	4	3	7	1	2	3
2	27	8	5	13	1	3	4
3	9	3	1	4	0	0	0
4	18	7	4	11	0	4	4
5	23	7	1	8	3	2	5
6	17	11	1	12	12	0	12
7	9	1	5	6	3	0	3
8	12	6	0	6	0	2	2
9	12	4	5	9	2	1	3
10	7	1	4	5	0	0	0
11	15	8	0	8	6	2	8
12	11	2	2	4	2	1	3
13	9	2	4	6	6	1	7
14	11	5	0	5	3	1	4
15	25	8	2	10	3	2	5

The following analysis represents the frequency distributions and descriptive statistics for students' errors in the essay, and unfocused and focused correction tasks.

Table (2)
The mean standard deviation and other measures of central tendency of subjects' errors in the essay

Mean	14.200	Std err	1.665	Median	12.000
Mode	9.000	Std dev	6.450	Variance	41.600
Kurtosis	-0.383	S P kurt	1.121	Skewness	0.920
S F Skew	0.580	Range	20.000	Minimum	7.000
Maximum	27.000	Sum	213.000		

Table (3)
The mean, standard deviation and other measures of central tendency of subjects' errors in the unfocused correction task

Mean	7.600	Std err	0.742	Median	7.000
Mode	6.000	Std dev	2.874	Variance	8.257
Kurtosis	-0.799	S P Kurt	1.121	Skewness	0.548
S F Skew	0.580	Range	9.000	Minimum	4.000
Maximum	13.000	Sum	114.000		

Table (4)
The mean, standard deviation and other measures of central tendency of subjects' errors in the focused correction task

Mean	4.200	Std err	0.788	Median	4.000
Mode	3.000	Std dev	3.052	Variance	9.314
Kurtosis	2.091	S P Kurt	1.121	Skewness	1.121
S F Skew	0.580	Range	12.000	Minimum	0.000
Maximum	12.000	Sum	63.000		

Table (5)
ANOVA Summary Table

Source	Ss	D.F	MS	P
Type of task	775.60	2	387.80	35.53*
Error	305.73	28	10.92	

* p < 0.001

The statistical analysis indicates that the condition (essay, unfocused correction, focused correction) affected the number of errors made by students. Students made the most errors in the essay, the fewest errors in the focused correction task. The mean number of errors in the essay is 14.2 with a standard deviation of 6.5. The mean number of errors in the unfocused correction task is 7.6 with a standard deviation of 2.9, while the mean number of errors in the focused correction task is 4.2 with a standard deviation of 3.1.

The following figure illustrates the decrease in the number of errors made by the subjects in the three tasks.

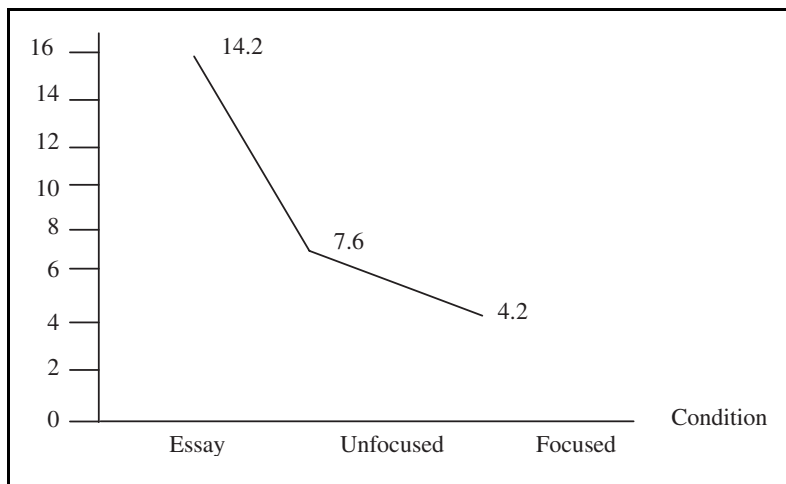


Figure (1): Plot of mean number of errors under the three conditions (the essay, the unfocused correction and the focused correction task)

From a language acquisition point of view, the results of this study demonstrate that deficiency in students' knowledge of grammar results in inaccurate composition writing and unsuccessful correction of errors. When asked to correct their errors, L₂ learners with deficiency in conscious knowledge of grammar seem to rely on their 'feelings' about the structures of the target language. However, since these 'feelings' are based on incorrect knowledge, L₂ learners tend to follow false assumptions and, in turn, their corrections of errors are unsuccessful. This conclusion is based on four pieces of evidence. First, many errors do not get corrected in the unfocused correction task. An examination of the performance of the subjects shows that none of the subjects was able to correct his/her errors in the unfocused correction task. Second, even when the error is identified (as in the focused correction task), students often fail to correct it. Third, many new errors are

introduced, even when the subjects are paying attention. Finally, even when the subjects' errors are eliminated, it is often because students tend to write new sentences instead of correcting them.

In addition to the above analysis, another interpretation can be provided, which is based on a cognitive psychology perspective. That is, in addition to the deficiency in grammar knowledge as a reason for students' inaccurate composition writing, there is another possible reason that makes these students commit many morphosyntactic errors in writing, such as the many constraints that writing in a foreign language imposes on foreign language learners and deficiency in students' abilities to transfer their knowledge of grammar to complex tasks such as writing. It can be argued that composing in English as a second language is a multidimensional activity which requires L₂ learners to do more than one thing simultaneously. This argument is compatible with the principles of the attention theory. Two important features within the phenomenon of attention have been identified: 1) an individual can attend to only one thing at a time or think only one thought at a time; 2) attention appears to be serial, and we find it very difficult to mix certain activities, that is, the focus of attention is only on one place at one time. Our ability to attend to several sources of information simultaneously is severely restricted. Consequently, a human who must process information that exceeds his channel capacity will inevitably make errors.

Moreover, L₂ learners may appear to have the necessary knowledge to make correct responses; however, they are unable to transfer this knowledge while writing, listening to spoken English, reading written texts, and solving certain types of grammatical problems (El-daly, 1999)⁷⁰. In this regard, Gelman and Meck (1986:30) rightly point out that knowledge of the correct principles do 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 performance. Nor do they guarantee correct execution of plan⁷¹. With this in mind, 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 learners underlying knowledge will in turn uncover the basis for the strategies they use in solving language problems. In this regard, Gass (1983: 277) suggests 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 learned⁷². And, as Johnson (1988)⁷³ maintains, when learning a language is viewed as learning skills, the process appears to be usefully broken down 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” (Farch and Kasper, 1986:51)⁷⁴. In the second or associative phase, the skill is performed. In the third phase, the skill is continually practised, and becomes automatic and faster. Accordingly, one can argue that deficiency in the subject’s declarative knowledge may result 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, in most cases, the sentence seems grammatically correct although it violates a certain “invisible” grammatical rule.

In addition, because there was no 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 relationships, and, sometimes are able to reach correct answers for problems they do not really understand. In his discussion of this issue, Carpenter (1986) points out that three different models have been proposed to describe the relationship between conceptual and procedural knowledge⁷⁵. The first model hypothesizes that advances in procedural knowledge are driven by broad advances in conceptual knowledge. The second proposes 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 proposes 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. Hiebert and Lefevre (1986) maintain that linking conceptual and procedural knowledge has many advantages for acquiring and using procedural knowledge⁷⁶. These advantages are: (A) Enhancing problem representations and simplifying procedural demands. (B) Monitoring procedure selection and execution. (C) Promoting transfer and reducing the number of procedures required. Moreover, linking conceptual knowledge and procedural knowledge has benefits for conceptual knowledge. According to Anderson (1983), problems for which no routine procedures are available are solved initially by

facts and concepts in a laborious way. As similar problems are solved repeatedly, conceptual knowledge is gradually transformed into set routines (condition-action pairs) for solving the problem⁷⁷. 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 by making possible the solution of complex tasks.

5. CONCLUSION

The results of this study show that the existence of knowledge is not sufficient to distinguish skilled or fluent performance from less skilled. Through practice and experience, the learner must gain easy access to knowledge. Cognitive psychologists describe this difference in access as “automatic” or “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. In such tasks, learners are required to do more than one thing simultaneously. This argument is compatible with the principles of the attention theory. That is, this study supports Van Patten’s (1990) conclusion that it is difficult, especially for beginners, to notice content and form at the same time⁷⁸. Also, this study provides further evidence for the facilitative role of increased attention in improving L₂ learners’ performance. This implies that our students’ failure to perform on language tasks may be due, sometimes, to cognitive rather than linguistic deficiency. And, in broad terms, language acquisition may not be fully understood without addressing the interaction between language and cognition. Therefore, further research is needed in this area, at least, to know how our students think and how to teach them to think strategically.

As a whole, the results are consistent with VanPatten (1990): the second language learner has difficulty in attending to both form and content in the input⁷⁹. In other words, the attentional resources are limited, and therefore it is difficult to understand the content of input when the attention is allocated to a certain form in the input. This can serve as evidence supporting such theoretical and pedagogical proposals as consciousness-raising (Rutherford & Sharwood-Smith, 1985)⁸⁰, input enhancement (Sharwood-Smith, 1993⁸¹; Alanen, 1995⁸²), and focus on form (Doughty & Williams, 1998⁸³). They all start with the common assumptions that (1) focus on meaning is necessary with a sufficient amount of input; (2) a certain level of conscious attention to form is also necessary; (3) it is difficult, however, to pay attention to form while

processing input for meaning; and (4) therefore some sort of encouragement to attend to form is helpful and facilitative for SLA. The present study and VanPatten (1990)⁸⁴ have provided some evidence for Assumption 3: simultaneous attention to form and meaning is difficult. Furthermore, these studies favor focus on form. VanPatten (1990:295)⁸⁵ suggests that “if attention to form needs to be conscious at some point, then the input must be easily comprehended”. Therefore the learner is able to allocate most of the attentional resources to the form on the spot, which will facilitate the processing and acquisition of that form.

This study shows that although ‘noticing’ or ‘conscious awareness’ may have some positive effect on L₂ learners’ performance, this effect 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 L₂ 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 converting input into intake. As a whole, this study supports Van Patten’s claim that L₂ learners have difficulty in attending to both form and content in the input. This is why conscious awareness or ‘Noticing’ is not a sufficient condition for converting input into intake.

Finally, more research is needed to see the extent to which the principles of the cognitive theory can be applied to other language skills such as listening and reading. It is also hoped that the principles of the cognitive theories can be further clarified by researchers, and adopted by practitioners and language teachers.

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هل تؤثر أساليب التعلم التي تركز على "الشكل اللغوي" على أداء متعلمي اللغة الثانية؟ آراء من علم النفس المعرفي ودراسات اكتساب اللغة الثانية

حسني مصطفى الدالي

يتركز الاهتمام في الآونة الأخيرة في مجال علم اللغويات التطبيقية على الكشف عن الميكانيزمات الإدراكية واللغوية التي تؤثر في أداء متعلمي اللغة الإنجليزية بوصفها لغة ثانية، وبخاصة في حل المشكلات اللغوية المتعددة الاتجاهات. . ومن هنا تهتم هذه الدراسة بإلقاء الضوء على المفاهيم النفسية والإدراكية وبخاصة ظاهرة "الانتباه" وبيان تأثير هذه الظاهرة على أداء الدارسين للغة الإنجليزية بوصفها لغة ثانية في أثناء كتابة المقال وتصحيح الأخطاء النحوية والمورفولوجية. . . وذلك من خلال دراسة تجريبية أجراها الباحث على عينة من الطلاب الذين يدرسون اللغة الإنجليزية بوصفها لغة ثانية. وتوصلت هذه الدراسة إلى عدة نتائج، منها، أولاً: أن أداء الطلاب في كتابة المقال وتصحيح الأخطاء النحوية والمورفولوجية يرتبط إيجاباً أو سلباً بما لديهم من معرفة بطبيعة المهام اللغوية التي كانوا يعملون على حلها. ثانياً: أن إخفاق الطلاب في الأداء اللغوي قد يرجع في بعض الأحيان إلى الضعف الإدراكي لديهم وليس بالضرورة إلى الضعف اللغوي كما كنا نتصور في الماضي. . . و على هذا تؤكد الدراسة أن فهم عملية اكتساب اللغة الثانية يتطلب معرفة مدى التفاعل بين اللغة والإدراك، ولهذا تنادي بضرورة إجراء المزيد من الدراسات البحثية لمعرفة الكيفية التي يفكرون بها والكيفية التي نعلمهم بها التفكير تعليمياً إستراتيجياً فعالاً.