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The Effect of Peripheral Learning on Vocabulary Acquisition, Retention and Recall Among Iranian EFL Learners

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Abstract

This study is an attempt to investigate the effect of peripheral learning on Iranian EFL learners' vocabulary acquisition, retention and recall. Peripheral learning here refers to the perception occurring implicitly and incidentally as a result of continuous *exposure* to the increasing quantity of information (Taylor, 1990). 80 female participants aged between 18 to 21 were selected and randomly divided in two groups, namely as the experimental and control groups. Before starting the treatment, a validated content-based test was administered to both groups as the pre-test. Then, after the treatment, three post-tests were administered as immediate recall, delayed recall and retention test respectively. The results demonstrated a significant difference between the two groups for each post-test. By analyzing the results, it was revealed that the peripheral exposure of vocabulary to the participants had a very significant impact on the participants' vocabulary acquisition, retention, and recall.

Key words: Peripheral learning; Vocabulary acquisition; Retention and recall

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INTRODUCTION

There are two popular views on what it means to learn a second language. One view holds that it means months and even years of 'intentional' study, related to memorizing thousands of words, their meaning, pronunciation and spelling. The other view holds that much of the burden of intentional learning can be taken off the shoulders of the language learner by such processes as 'incidental', 'implicit', 'accidental', 'subconscious', or 'peripheral' learning which involve picking up of words, grammar, and sentence patterns simply by engaging in a variety of communicative activities during which the learners may hardly use their focal attention or their complete awareness.

It will be preferable to utilize both aspects of learning i.e., explicit/implicit, intentional/incidental, or core/peripheral to take the best advantage of the educational time to acquire as much knowledge as possible.

The term 'peripheral' carries the meaning of everything happening in the margin rather than the core or centre. In other words, 'peripheral learning' refers to a sort of perception occurring implicitly and incidentally as a result of continuous *exposure* to the increasing quantity of information. In effect, it is basically a way of encouraging students to indulge in learning through indirect techniques.

In effect, peripheral learning is regarded to be implicit as opposed to explicit learning, and incidental as opposed to intentional learning. It is implicit since it is implied and happens indirectly, and it is incidental, because it occurs naturally and unintentionally. It is also regarded as a sort of subliminal perception, since in its most forms it takes place below the learners' absolute threshold for conscious perception.

Terminological issues

There is a sequence of researches carried out by many

scholars on incidental learning, implicit learning, and subliminal perception, besides the ones accomplished to prove the relationship between these concepts.

Incidental Learning

As Cahoon (1995) points out, in the case of incidental learning while a learner gets involved in a core activity which is his/her main concern, such a learner often gets busy with some sorts of unintentional or unplanned activities which are learned incidentally. To put it clearly, learners in the secondary school can still remember such features as their teacher's voice, the color of his shirt or her dress, or behavior in class related to the time when they studied in elementary school.

Hulstijn (2003) holds that incidental vocabulary acquisition occurs through operation of his input hypothesis: that reading provides comprehensible and necessary input that eventually leads to acquisition. This sheds light into the issue that if the language exposure is offered contextually meaningful in a way that is facilitated by sufficient contextual clues, it will stick to the learners' minds more readily. In fact, the acquisition of vocabulary and spelling like many other tasks is achieved through exposure to comprehensible input, in this case, reading.

Concerning incidental vocabulary acquisition in a context of English as a foreign language, Wong (2001) believes that doing research on properties of English immersion (IM) teaching might trigger the incidental learning with respect to vocabulary (and other linguistic elements such as verbs and verbal inflections). These researches may shed light into the way(s) in which children or learners develop the acquisition of verbs and other lexical items particularly the derivations in their first two years of schooling.

To make a distinction between intentional and incidental learning, Hulstijn (2006) maintains that the former refers to the learning mode in which participants are informed, prior to their engagement in a learning task, that they will be tested afterward on their retention of a particular type of information. But the latter refers to the mode in which participants are not forewarned of an upcoming retention test for a particular type of information.

Implicit Learning

The term "implicit learning" refers more to learning of a complicated set of information incidentally rather than to a consciously done set of activities. In effect, this type of learning takes place without awareness of what has been learned. It may require a certain minimal amount of attention and may depend on intentional and working memory mechanisms. To exemplify prototypically, the grammatical knowledge of our native language is the best instance of implicit knowledge although some parts of this knowledge remain to be acquired explicitly. Among the many features of implicit learning, one can readily refer to the unconscious status of the knowledge acquired by learners (Reber, 1989); another feature of implicit learning which is more contingent is the extent to which implicit learning is related to attention. Although implicit learning can occur incidentally, it is modulated by what features are selectively attended (Jiménez & Méndez, 1999), just as explicit learning is. Unlike Shanks and John (1994) who believe in the characteristics of implicit and dissociable human learning systems laying more stress on unconsciously noticed features of language, Schmidt (1990) proposed that we merely have access to the consciously noticed features of a language.

Implicit/Explicit Learning in Incidental Vocabulary Acquisition

According to the terminological framework regarding the two complementary viewpoints whether vocabulary acquisition takes place with or without awareness, involving explicit or implicit learning processes, the tie between incidental vocabulary acquisition and implicit/explicit learning has been the focus of attention. As far as English as a foreign language is concerned, the overall goal of the learners is text comprehension and not vocabulary acquisition, if so the incidental vocabulary acquisition can be regarded as non-explicit in so far as it does not involve an explicit learning intention. In fact, the most comprehensive account of implicit/explicit learning processes in incidental vocabulary acquisition available to date is that of Ellis (1994a, 1994b). Based on an extensive body of experimental psycholinguistic research in the fields of vocabulary and intelligence, implicit memory and global amnesia, he developed a theory for L1 and L2 vocabulary acquisition. His findings imply that both implicit and explicit learning mechanisms are involved in incidental vocabulary acquisition: while the acquisition of a word's form, collocations and grammatical class information involve implicit processes, acquiring a word's semantic properties and mapping word form to meaning result from explicit learning processes.

Subliminal Perception

Concerning the measurability of an individual's awareness of a stimulus below his threshold has always been a stumbling block in psychology. To measure it empirically, one has to either embark on self-reporting which was traditionally used or measure it in terms of its influence on thoughts, memory, feelings, or actions that seems relatively easy to measure. Pierce and Jastrow (1884) held that the extent we can arouse people's interest regarding a stimulus or particularly the pace at which they can respond to a couple or a set of stimuli being identical and difficult to distinguish is termed as "subliminal perception" (or perception without awareness).

The term subliminal perception once depicted situations where weak stimuli were achieved without awareness, but nowadays it is opined that it refers

to situations where unnoticed stimuli may be perceived. The implication is that people actions, thoughts and feelings can be deterred by use of stimuli and more so change witnessed without an individual awareness. Thus, to evaluate such a type of perception, Pierce and Jastrow devised an experiment in which they each had to evaluate which of two pressures on skin was greater, along with a reported confidence level. In effect, if stimuli presented below a person's limen for awareness, the subliminal perception happens and influences his thoughts, feelings, or actions (Merikle, 2000). This idea has today given rise to the use of subliminal symbols available in markets in most of the products offered to and merely processed by people with preconscious minds who find unexplained fondness towards those products.

The Relationship Between Subliminal Perception and Implicit Memory

As a well-supported theory, subliminal perception holds that perception can occur without conscious awareness and it has a significant impact on later behavior and thought (Ramsoy and Overgaard, 2004).

Following the experiments on amnesic syndrome and priming effects, a distinction was made between the two expressions of explicit and implicit types of memory by Schacter (1987) and (1985) could distinguish the differences between two expressions of explicit and implicit types of memory. They define explicit memory as referring to the person's conscious recollection of some previous episode. It is most commonly reflected in free recall, cued recall, or recognition tasks that make a clear reference to some prior episode and ask the subject to deliberately remember some aspect of the experience. By contrast, implicit memory is demonstrated by any change in experience, thought, or action that is attributable to some past experience, even in the absence of conscious recollection of that event. Implicit memory tasks do not necessarily refer to prior episodes in the subject's life, and do not require him or her to remember any experiences, qua experiences, at all. What seems of interest is the apparent parallel between implicit memory and subliminal perception. In implicit memory, we have evidence of memory despite the subject's claim that he or she cannot remember some event. In so-called "subliminal" perception we have evidence of registration despite the subject's report that he or she cannot perceive some event.

The above-stated issues are greatly correlated with the concept of "schema" activation proposed by Klein and Holt (1960) who assume that memory schemata are activated by sets, by relevant incoming stimuli, and by drives. Under appropriate conditions, marginal inputs are likely to activate drive-related ideas and lead to an effect. This notion is more elaborated by Klein (1999) in terms of a model of motivation in perception which emphasizes the interplay of executive and concurrently active peripheral motives in relation to their accessibility to awareness, and as determinants of what is focal versus subsidiary in perceptual experience. If subliminal stimuli are considered as a special case of incidental or peripheral activation, then this model constitutes a promising way to understand the interaction of the variables studied in subliminal research.

SIGNIFICANCE OF THE STUDY

Modern learners, who have grown up in a modern technological world, do not appear to have enough stamina to keep being completely focused and concentrated on the material all during the class time. They have got used to picking up information while browsing in the net, playing computer games, or dealing with various digital environments.

As a result, this study is an attempt to offer a way to make it possible for the learners in general, and EFL vocabulary learners in particular to acquire knowledge without having to be focused and concentrated on the material, and enhance both the quality and quantity of learning by taking advantage of focused and peripheral attention at the same time. In this way, the ultimate desire of vocabulary learners i.e., absorbing as many words as possible in their limited time can be fulfilled.

RESEARCH QUESTIONS

1. Is the material acquired through peripheral learning readily retrievable?

2. Does the peripheral exposure to vocabulary lead to better retention?

The followings are the hypotheses upon which the study was carried out:

$H0_1$. There is no significant difference among Iranian EFL learners in vocabulary acquisition under peripheral and non-peripheral conditions.

$H0_2$. There is no significant difference among Iranian EFL learners in the retention and recall of vocabulary under peripheral and non-peripheral conditions.

METHODOLOGY

Subjects

The experiment samples undergoing the treatment were 80 participants selected from 200 students studying in different majors of humanities passing their two-credit General English Course at the non-profit 'Osoul-al-din' ⁄ collage, Dezful, Iran. The age of the subjects ranged from 18 to 23, and they were all female. The sample was randomly divided into two equal main groups of 40 participants-assigned to experimental and control groups.

Instruments

A sample of Nelson's proficiency test (Fowler & Coe, 1976) was administered to all the participants to select a homogeneous group. Then, a validated content-based test was administered to both groups as the pre-test. This test was designed and developed based on the students' book which was Intermediate Vocabulary (Thomas, 1986), and Thoughts and Notions (Patricia Ackert & Linda Lee, 2005). The reliability of this test was estimated as r = .725 using (KR-21). In order to ensure the validity of this test, the correlation coefficient between this test which was teacher-made, and Nelson proficiency test as a standard index was estimated, and it was found to be significant (r = .71).

The treatment was carried out lasting for eight class sessions i.e. half of an academic semester.

Immediately after the treatment a post-test was administered to the participants of the study, using the same idea units tested in the pre-test to see if any improvement had occurred regarding the students' familiarity with the introduced vocabulary. This test was meant to be the test of immediate recall.

By the end of the semester, in the sixteenth session, a second post-test was applied. The purpose for applying such a test was to find out the extent to which the treatment had been effective in facilitating the students' recall of the vocabulary exposed to them in the experiment. This test was the test of delayed recall.

Eight sessions after post-test 2, the third post-test, meant to be the test of retention, was administered to figure out whether the acquired knowledge had remained in their mind.

Procedures

The control group received the natural conventional order of instruction, covering the original passages with no specific treatment. In fact, the vocabulary was taught in grammar-translation method.

For the experimental group, words having received the least correct answers in the pre-test were selected and prepared in power-point format to be shown peripherally. There was an LCD in the class, not exactly in the front, but rather towards the side wall, so that it was possible for the students to watch it without interfering with the teacher and what she was doing. The instructor gave her own lesson conventionally, and the power-point slides composed of the selected words together with vivid pictures of them were shown simultaneously. The teacher paid no attention to the LCD as if it hadn't existed there. The slides were timed to change every ten seconds with a blank after each one for the learners to have time to think. The TV set was turned off when the class was over.

Results

Table 1 shows the descriptive statistics related to the results acquired from both groups in terms of Nelson language proficiency test. It shows that both groups had approximately similar performances on Nelson language proficiency test. In effect, they show no apparent significant differences, i.e. by conventional criteria, their difference is considered to be not statistically significant (t < 0.05).

Table1
Descriptive Statistics for Both Groups in Terms of Nelson Language Proficiency Test

Group	N	Mean	SD	T-test
Experimental	40	11.90	2.32	0.1439
Control	40	11.83	2.02	

Table 2 depicts the descriptive statistics related to the results of the both groups' pre-test. It shows that both groups under study have the same potential and ability in case of the items tested.

Table 2
Descriptive Statistics Related to the Results Acquired from Both Groups' Pre-Test

Group	N	Mean	SD	T-test
Experimental	40	7.2	4.489	0.6174
Control	40	6.6	4.199	

Table 3 illustrates the descriptive statistics related to the results of the pre-test and three post-tests administered to the two groups under study. According to the output results of the above-mentioned statistical calculations, the mean scores related to the pre-test results are displayed to be lower compared to the mean scores due to each of the post-tests in both groups. Besides, it proves that both groups have had improvements in case of the vocabulary knowledge, which is supposed to be the effect of the instruction used.

Furthermore, the mean scores of the results related to the three post-tests show higher amounts in the experimental group comparing to the control group. It manifests that the specific treatment applied to the experimental group has led to a sort of learning in the subjects which, in turn, has caused a better performance of the subjects in all the tests administered after the treatment.

Table 3
Descriptive Statistics Related to the Test Results in The Two Groups Under Study

Index / Measure	Experimental Group		Control Group	
	Mean	SD	Mean	SD
Pre-test	7.20	4.50	6.60	4.25
Post-test (1)	19.85	8.59	15.10	5.22
Post-test (2)	15.90	8.88	9.40	6.11
Post-test (3)	13.80	8.93	7.50	5.97
Total	14.18	9.12	9.65	6.326

The mean scores also show that both groups have had their best performance in post-test (1). It proves that time plays an important role in their retention and recall of the acquired knowledge; so that they could best remember the acquired vocabulary knowledge immediately after the instruction.

Diagram 1, depicts the comparison between the two groups under study in case of their performance in the pre-test and the three post-tests applied. It illustrates the homogeneity of both groups in the pre-test, and the outperformance of the experimental group comparing to the control group in all three post-tests applied.

It also shows that both groups had their best performance in post-test (1).

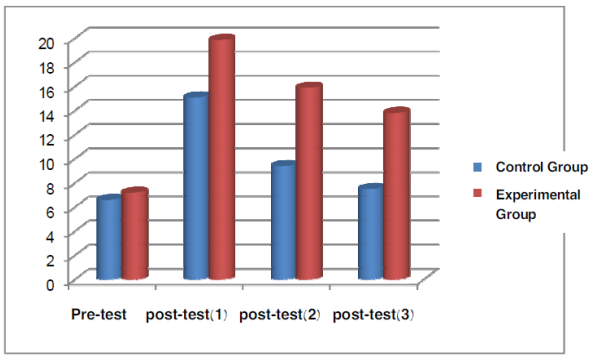

Diagram 1
Comparison Between the Experimental and Control Group in Case of Pre-Test and the Three Post-Tests Applied

DATA ANALYSIS AND DISCUSSIONS

Applying GLMR, the following analyses were carried out:

1. Leven's test for homogeneity of variance
2. MANCOVA technique for controlling the pre-test results
3. Analysis of variance showing the co-efficiency of group and time
4. Comparison of the two groups under study in different time intervals
5. Testing the effect of the independent variable of time on the dependent variable of test score
6. LSD test as the test of the equality of means in different time intervals
7. Comparison of means concerning the two groups under study

Table 4 shows the results of Leven's test which illustrates that the significance is bigger than the critical value ($p>0.05$) for the pre-test, and it confirms the equality of variance for the pre-test for both groups. This is to say that the subjects were homogeneous, and there was no significant difference due to the test scores between the experimental and control groups in the pre-test. However, p is < 0.05 for post-test (1), (2), and (3) which testifies that there is no equality of variance between the experimental and control group for the tests administered after the instruction. Therefore, there is a significant difference between the results of the two groups under study due to the three post-tests. This is to say that the treatment has had a significant effect on the subjects, and as a result, has raised their test scores. In this way, the first null-hypothesis saying that there is no significant difference among Iranian EFL learners in vocabulary acquisition under peripheral and non-peripheral conditions is rejected.

Table 4
Leven's Test for Homogeneity of Variance Between the Two Groups Due to the Four Tests Applied

Source	F	df1	df 2	Significance
Pre-test	.141	1	78	.709
Post-test(1)	8.900	1	78	.004
Post-test(2)	5.004	1	78	.028
Post-test(3)	5.497	1	78	.022

Table 5 depicts the results of MANCOVA technique on the post-tests controlling the pre-test. Accordingly, controlling the pre-test, there is a significant difference between the experimental and control group in case of post-test (1) ($p < 0.05$). This is to say that controlling the pre-test effects on the results of the post-test(1), there is a significant difference between the experimental and control group in case of post-test(1). These findings prove that the treatment had affected the subjects in the experimental group, and improved their acquisition. In this way, the first null-hypothesis saying that there is no significant difference among Iranian EFL learners in vocabulary acquisition under peripheral and non-peripheral conditions is rejected.

Table 5
Results of Mancova Technique on the Post-Tests Controlling the Pre-Test

Dependent Variable	Source	Sum of Squares	df	Mean Square	F	Significance	Eta-squared
Post-test (1)	Pre-test	1521.531	8	190.191	5.490	.001	.386
	Group	225.942	1	225.94	6.522	.013	.085
	Error	2425.169	70	34.64			
Post-test (2)	Pre-test	1498.653	8	187.33	4.316	.001	.330
	Group	553.564	1	553.564	12.753	.001	.154
	Error	3038.547	70	43.408			
Post-test (3)	Pre-test	1453.937	8	181.742	4.176	.001	.323
	Group	527.148	1	527.148	12.113	.001	.148
	Error	3046.463	70	43.521			

Also, controlling the pre-test, there is a significant difference between the experimental and control group in case of the second post-test i.e. the test of delayed recall and the third post-test i.e. the test of retention ($p < 0.05$). In effect, the findings related to the comparison of the two groups involved in the study concerning the second and the third post-tests reject the second null-hypothesis saying that there is no significant difference among Iranian EFL learners in the retention and recall of vocabulary under peripheral and non-peripheral conditions.

Table 6 illustrates multivariate analysis of variance and the co-efficiency of group and time. According to this table, comparing the two groups under study, i.e. the experimental and control group, the difference between the two groups' mean scores was shown to be significant at $p < 0.05$. Therefore, the null- hypothesis related to the first thesis hypothesis saying that there is no significant difference among Iranian EFL learners in vocabulary acquisition under peripheral and non-peripheral conditions is rejected.

Table 6
Analysis of Variance Related to the Findings of the Whole Study

Source	Sum of Squares	df	Mean Square	F	Significance
Group	053.35	1	29.73	29.73	.001
Group * Time	36.70	2	29.73	.266	.767
Error	8079.95	117	.266		

However, the significance level indicates the efficacy of the variable of time over the variable of group. It means that the variable of time has no significant effect on the variable of group. This is to say that, the existing difference between the experimental and control groups' mean scores still exists even in the course of time. These results made clear that the passage of time doesn't affect the difference between the experimental and control group. In this way, the second null-hypothesis saying that there is no significant difference among Iranian EFL learners in the retention and recall of vocabulary under peripheral and non-peripheral conditions is also rejected.

Table 7 depicts the results of the comparison between the two groups involved in the study in various time intervals. Based on the data obtained from this comparison, both groups had had their best performance in the test of immediate recall administered immediately after the instruction.

Table 7
Comparison of the Two Groups Under Study in Various Time Intervals

Group	Time	SD	Mean	Number
Experimental Group	Immediately after the instruction	8.598	19.85	40
	8 weeks after the instruction	8.886	15.90	40
	16 weeks after the instruction	8.930	13.80	40
	Total	9.087	16.52	120
Control Group	Immediately after the instruction	5.22	15.10	40
	8 weeks after the instruction	6.113	9.40	40
	16 weeks after the instruction	5.970	7.50	40
	Total	6.586	10.66	120

Table 8 illustrates the results of the test concerning the effect of the independent variable of time on the dependent variable of test score. As illustrated here, the independent variable of time had effects on the dependent variable of test score since the level of significance for time was less than 0.05 ($p < 0.05$). This is to say that different time intervals had various effects on the test scores related to the subjects' acquisition, retention and recall of the vocabulary. Accordingly, the closer the subjects were to the period of instruction, the better mark they achieved in the test.

Table 8
Test Relevant to the Effect of the Independent Variable of Time on the Dependent Variable of Test Score

Source	Sum of Squares	df	Mean Square	F	Significance
Test score	44336.01	1	44336.017	1058.02	.001
Time	1969.63	2	984.817	23.494	.001
Error	4904.35	117	41.918		

Table 9 shows the results of LSD test on the research findings. According to the data presented in this table, for both groups involved in the study, there is a significant difference between the results of the tests administered in different time intervals after the instruction ($p < 0.05$).

Table 9
LSD Test as the Test of the Equality of Means in Different Time Intervals

Time(1)	Time(2)	M(1) – M(2)	Significance
Immediately after instruction	8 weeks after instruction	4.82	.001
	16 weeks after instruction	6.82	.001
8 weeks after instruction	Immediately after instruction	- 4.82	.001
	16 weeks after instruction	2.000	.049
16 weeks after instruction	Immediately after instruction	- 6.8250	.001
	8 weeks after instruction	- 2.00	.049

To provide answer for the main research questions the following results and findings can be elaborated:

As witnessed in the comparison between the statistical results of the experimental group and those of the control group related to post-test 1; i.e. the test of immediate recall which was administered immediately after the treatment, there was a significant difference between the two means. As was demonstrated in tables 3 and 7, the experimental group performed significantly better than the control group. It proved that the material learned was readily retrievable, because the participants undergoing the treatment in the experimental group worked well in the post-test 1 applied immediately after the treatment. One of the reasons may be that the material learned by peripheral perception is often below the threshold of the student, and it is usually perceived without any anxiety or fear.

Grounded upon the data collected from the comparison between the post-tests in general, and post-test 3 i.e. the retention test, in particular, illustrated in tables 3 and 6, the participants under peripheral conditions could have better retention of vocabulary learned compared to the control group who received only conventional methodology. In fact, the statistics showed an extremely significant difference between the two groups in post-test 3.

Based on the results illustrated in tables 3 through 9, there is a significant difference between the experimental and the control group due to the results of the three post-tests administered. It basically shows that the specific treatment of peripheral exposure of vocabulary applied to the experimental group has significantly affected the learners' vocabulary acquisition. The results also prove that the subjects in the experimental group had a significantly better performance in post-test 2 and 3 comparing to the control group which depicts that they outdid the control group in the retention and recall of the material.

Therefore, this study demonstrated that when subjects are exposed to comprehensible input (Hulstijn, 2003) or continuous exposure of the increasing quantity of information which is below their normal threshold for intentional learning (Taylor, 1990), a sort of incidental, subliminal, implicit peripheral perception will occur which has a significant impact on the subjects' later behavior (Ramsoy and Overgaard, 2004). And, by means of the utilization of both peripheral perception which is incidental, subliminal, and implicit, and core learning which is intentional, conscious, and explicit at the same time we can optimize the action of learning; specifically vocabulary learning which according to Ellis (1994a, 1994b), is normally carried out using both implicit and explicit sorts of learning mechanism.

CONCLUSIONS

Considering the study questions, hypotheses, and findings the followings are concluded:

1. There is a significant difference among Iranian EFL learners in vocabulary acquisition under peripheral and non-peripheral conditions.
2. There is a significant difference among Iranian EFL learners in the retention and recall of vocabulary under peripheral and non-peripheral conditions.
3. The teaching material can be taught peripherally.
4. The material learned through peripheral phenomenon is readily retrievable.
5. The material learned in this way has a longer retention.

PEDAGOGICAL IMPLICATIONS

Based on the insights gained, the following are a set of implications suggested with reference to the findings of this research.

This study is primarily beneficial for EFL learners, specifically the ones who are in search of ways to increase their span of vocabulary in a time span as short as possible.

This study showed that if the learners come to know that they can learn by themselves and this way take the lead of education, they will not limit themselves to the material offered by the teacher and indulge in self-learning.

This experiment demonstrated that learners' exposure to weak stimuli can cause learning without awareness, so pupils of all levels of intelligence and aptitude can use the periphery of the educational setting to acquire knowledge.

The findings of this study are fruitful for language teachers, because by means of such techniques they are informed how to heighten the quality and quantity of education without much burden, and put a share of instruction's responsibility on the learners' shoulders.

The EFL teachers are hereby notified to search for alternatives to conventional methodologies to satisfy the taste of modern learners, explore a way to help the learners keep the acquired knowledge in mind and thereby decrease the problems that learners usually face while learning a foreign language.

The instructors are also informed to apply everything even the periphery of the classroom as an educational tool. Furthermore, they should keep in mind that not only the learners' focused attention, but their peripheral attention could be used in the process of education.

Using indirect techniques such as the one used in this study which proves that the ability of learners' self-

learning must be taken into account can enhance the autonomy and confidence and as a result motivation in students.

Last but not least, this investigation is of paramount importance not only to the teachers but to text books designers, because it prompts them to prepare materials that can be perceived by peripheral vision as well as the ones usually obtained by focused one. They must also be cautious about the quantity and volume of the material that is to be offered peripherally, and make it so that it can be achieved without needing focused vision.

SUGGESTIONS FOR FURTHER STUDIES

The results of this research can lead the future researchers to investigate other related areas. In this regard, the following potential subjects are suggested for further research.

1. This study concentrated on the effect of peripheral learning on the learners' vocabulary acquisition in physical environment. So, comparative studies might be undertaken investigating the above- mentioned effect but in the cyber or virtual environment.

2. This experiment was conducted at Osoul-al-Deen collage, Dezful branch, Khuzestan, Iran, which is definitely an EFL situation; the same study can also be replicated in other geographical situations, in ESL situations and even on native speakers to prove the external validity of the hypotheses formed and tested in the current study.

3. This research was conducted with learners at the intermediate level. Other levels of language proficiency can also be subject of future studies if researchers wish to make generalizations about language learners at different proficiency levels.

4. The amount of time allotted for this study was two academic semesters. Succeeding studies can allot more time to such kinds of investigation if they wish to see the long-term effect of peripheral learning on the participants.

5. This study investigated the effect of peripheral learning on the learners' vocabulary acquisition. Other researches may be required to concentrate on such an effect on learners' various abilities and skills, i.e. reading, writing, listening, and speaking.

6. The present study was carried out on just one gender, i.e. girls. The other gender can also be subject of future studies if the researchers are to see if peripheral learning can take place variously in different genders.

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