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A careful study of 1 and 2 reveals that the means, standard deviations, and the variances in both groups are nearly the same and interactive. The rationale behind these figures is that the two groups are homogeneous, with no previous knowledge about the passivisation rule.

After the task performance, the following results were obtained:

Table3: The results of the students' posttest scores

Group	Mean	SD	Variance
1	12.63	2.13	4.54
2	15.88	1.83	3.53

Table4: The results of the students' t-value scores

Group	Mean	one tailed probability	t-observed
2.00	58	0.05	6.34

A careful study of Tables 3 and 4 points out highly significant difference between the two groups. Clearly, the generating group performed more signifcantly than did the reading group. The mean of the generating group differed more sizably than that of the other one. The main

effects of the t test shown in table 4 gained a strong support for the research question and hypothesis posed earlier.

Further, the current findings seem to complement and lend support to the related finidings reported earlier. The analysis showed the priority of learning FL grammatical rules by generating over learning them by reading.

Pedagogical Implication

The study is highly related to the teaching issues. Nowadays most of the time in the classes of grammar is wasted on teaching the rules of grammar. But a good condition such as the generating condition has opened a new door to the teaching of grammar, which will be of benefit for both teachers and learners. Undoubtedly, any issue related to teaching would be related to testing as well. The present study provides a key for designing and preparing valid and reliable tests of grammar.

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subjects were homogenous as far as English grammar was concerned. The age range of the subjects was from 15 to 16.

Instrumentation and materials

First of all, in order to form homogeneous groups, a proficiency test of grammar was given to 200 students who were taking the English courses at Shokouh's institute. Then, a pretest was given to ensure the researcher that the subjects had not learned the passivisation rule before. After scoring, the subjects were divided into two groups of thirty. A list of sentences was prepared. The list contained fifteen pairs of active sentences and their passive forms.

At the end of the study, a posttest containing 60 items selected from the book *800-test items* written by Dr. Birjandi and et al (1996) and TOEFL was given to the two groups to find out the probable differences between thire perfromances.

Design

The design of this study was "*pretest control group design*". There were two groups of thirty in the study.

R	G1(A)	T1	X	T2
R	G2(B)	T1		T2

R=Random   G =Group
                           T1=Pretest
X=Passivisation Rule   T2=Posttest

Procedures

Since the purpose of this study was to compare the two groups, they were given the materials differently. Subjects in group 1 were given the reading task and subjects in group2 were given a generating task. The learning condition was the same for both groups. In the former, the subjects were given the passivisation rule. The subjects had to read the rules and then the given examples. To be sure that the subjects had understood the rules, they were checked by being asked to convert one structure into another.

In the generating condition, the researcher gave the generating group the same materials given to the reading group. But the passivisation rule was not given. The subjects' duty was to bring forth the rule of passivisation after reading the given sentences.

At the second stage, the same groups of subjects took the posttest. the scores obtained from the posttest then were compared in terms of their means.

Data Analysis and conclusions

Research question: Can the GEP be extended to the learning of grammatical rules of English?

Hypothesis: Learning of grammatical rules, when extended by the Generation Effect Phenomenon, is significanty different from when they are not.

It was empirically suggested that learning the FL grammatical rules is better if the learners those rules than passively read them ($P<0.05$).

Table1: The results of the students' proficiency score

Group	Mean	SD	Variance
1	13.53	1.64	2.69
2	14.01	1.98	3.93

Table2: The results of the students' pretest scores

Group	Mean	SD	Variance
1	8.75	1.17	1.37
2	8.06	1.80	3.24

(Bartlett, 1932, Dooling & Christiansen, 1977). Third, people who are expecting a memory test on surface form can remember it, while the others who have seen or heard the same materials cannot (Johnson-Laird Stevenson, 1970).Finally, if the surface form of a sentence has been specifically chosen to convey information, it may be comparatively well remembered (Keenan, Macwhinny and Mayhew, 1977). Sachs (1967) showed that people rapidly forget surface syntax. She conducted her experiment regarding listening comprehension. Her subjects listened to some passages and at the end of listening activity, four kinds of test sentence were used: the original, a passivised version of it, a version with phrases switched round and a version in which the roles of characters were reversed. When the test was immediates, the subject were good at distinguishing all three kinds of changes. Wanner (1974) demonstrated forgetting of spoken detail at seven appearant instructions for a different experiment after they had read them and found that they were unable to remember the details.

In most cases, researches have demonstrated that self-generation of cues (i.e., one or a few words) for the paragraphs of a text either during learning or at the unset of recall facilitates the retrieval of a text's contents, whether or not the cues are inspected during recall (Sharifian, 2000, 2001 a; Van Dam & Brinkerink, Carlier, 1988, 1989, 1990).

Dr. Jourabchi (1994) performed some experiments to measure the extension of GEP into FL vocabulary. In her study, she conducted four experiments. She carried out the experiments in dual and unilingual combinations of Farsi (L1) and English (FL). The subjects' retention of the study items in the reading and generating conditions was measured by free recall and recognition memory tests. The results of the data analysis showed that her hypotheses were tenable.

Anderson, Goldberg, and Hidde (1971) prepared a series of sentences in such a way that the rest of the sentences semantically determined the last word of those sentences. They showed that the subjects generated the last word of the sentences, remembered significantly more than the subjects who read the already completed sentences.

It seems that the generation phenomenon involves deeper meaning processing in comparison with pure reading and this deeper meaning processing in comparison with pure reading and this deeper processing produces better memory (Anderson, Goldberg, & Hidde, 1971; Jacoby, 1978; Kane & Anderson, 1978). In fact, the act of generation requires more effort than reading (Griffith, 1976; McFarland, Frey & Rhodes, 1980), which can play an important role in producing a stronger trace in memory (Jacoby,Craik & Begg, 1979; Tyler, Helter, Mc Callum & Ellis 1979).

When subjects are generating the items themselves, any memory trace(s) should involve attributes that are related to one's cognitive operations and this enhances memory (Greenwald, 1981; McFarland et al., 1980). In short, many experts agree upon the effect of GEP on different parts of language. Thus, GEP might also affect the grammar of the language too.

Method
subjects
Sixty female students participated as subjects in two groups of thirty in this study were selected from among the first-year high school students. In the initial stage of selection, a proficiency test of grammar was given to 200 students. The

the stability of this task will be much more than that of reading. But whether the GEP can be exteded to the learning of grammatical rules is a matter of investigation in the present research.

Review of the Related Literature

In the literature concerning GEP, it has been frequently shown that people remember words best when they have generated them in comparison with when they have only read them. Bower (1969) showed that cued recall for pairs of words was better if people generated their own responses cued by the experiments. Slamecka and Graph (1978) conducted a series of five different experiments, they evaluated the effects of generation by recognition testing under five different encoding rules such as: associate (lamp-light), category (ruby-diamond), opposite (short-long), synonym (sea-ocean), and rhyme (save-cave). The results showed that there was better remembering in the generation task as compared the reading task. Greenwald and Johnson (1989) in a series of experiments showed the effect of GEP in a wide range of circumstances.

In memorizing a list of items or events, the first few items are remembered best, the last few next best, and the items in the center are the hardest to recall (Frensch, 1994; Healy, Havas, & Parker, 2000; Todd & Roediger, 1995). This effect is referred to as "*The Serial - Position Effect*". The higher recall for the first items on the list is called "*The Primacy Effect*", and the better recall on end-of-list is called "*The Recency Effect*". It seems that *serial position effects* influence the generation of items to a large extent (Healy, Havas & Parker, 2000).

According to Thompson (1996) grammar is too complex to be taught in that over-simplifying way has had an influence, and the focus has now moved away from the *teacher covering grammar* to the *learners discovering grammar*.

While it is essential for learners to be able to manipulate grammatical form, it is not sufficient. Learners also need to understand the concept(s) expressed and the function(s) performed by a particular grammatical element (Harmer, 1987: 9-11 & 17; Littlewood, 1984: 1; Widdowson, 1990: 95, 97 & 166).

Miller in his Kernel-plus-tags theory emphasized largely on syntax held that sentences are remembered in terms of their syntactic structures. After giving this assumption, it became necessery to determin what aspects of sentences people actually remember. It appeared that they could not remember syntactic details very well. This showed that people are mostly *content-interested* rather than *form-interested*.

There are several factors that show why the surface form of sentences is forgotten so rapidly. One of these factors is auditory versus visual presentation of the text to be remembered. Thus, it is more difficult to remember the form of spoken sentences than the written form (Flagg and Reynold, 1977). Another factor is the time between presentation and testing. Surface form is remembered well only for a short time

was measured by a multiple-choice test. The participants were all at the ages of 15-16. Three kinds of materials were used in the study: a proficiency test, a pretest and a posttest. Teaching materials were fifteen pairs of active/ passive sentences. The subjects, while being divided into two equal groups in number, had to read the study lists. The generating group, the group generating the rules, produced the rules inductively, while the group who read the rules (reading group), was given the rules beforehand.

After taking a posttest, the mean was calculated for each group and the t value was also determind. The result was that the generating group had outperformed the reading group. This confirmed the hypothesis posed above.

Key Words: Generation Effect, lexical activation, lexical memory, semantic file, syntactic file.

Introduction

In recent years there has been a sudden increase of interest in the Generation Effect Phenomenon proppsed by Slamecka and Graph (1978). They argued that the same materials were better retrieved than the reading ones, when produced by the subjects themselves. Slamecka and Katsaiti (1987) found no generation effect in dual language study lists, but showed the generation effect in unilingual materials in English.

McElroy and Slamecka (1982) in three different experiments demonstrated that the GEP is sensitive to the lexical status of the item to be remembered. In defense of a lexical activation hypothesis, McElroy, et al. (1982) reason that since non-words contain no lexical entry, one should be unable to obtain a generation effect with such stimuli because no contact with lexical memory is possible.

After that, their experiments yielded a GE for the word responses but not for the non-word ones. Their study can be developed to the sentence level as well. If the sentence is ungrammatical and as a result has no fixed meaning, then there should be no GE for it. But if the words are in their correct slots; in other words, if the sentences are both grammatical and acceptable, then the GE must occur.

Semantic analysis occurs in the deep stages of processing. We have boxes in our heads called "schemes of memory". Information is transferred from stage to stage until some of it is finally lodged in long-term memory. When the subjects produce a rule, they should transfer information about the words and find their refernces in their memory. In other words, when a sentence like *"Mary saw Jack"* is to be compared with *"Jack was seen by Mary"*, the subjects refer to their mental lexicon and find out that *"Jack"* and *"Mary"* are in the same slots since the pointers to these items are the same. But the things that are different are the two verbs and the object movement to the beginning of the sentences and finally adding a "by-doer" at the end of passives. To do these interpretations, the subject should refer to the mental lexicon for each item.

The grammatical items should be found in syntactic file and the acceptable meaning is to be judged in the semantic file.

In the case of reading task, it can be argued that all of these bits of information are given and the brain has nothing to do with information processing. The thing that is to be done is a simple searching in the semantic file for the related meaning. But in the generating task, both syntactic and semantic files are activated. Thus,

Researches

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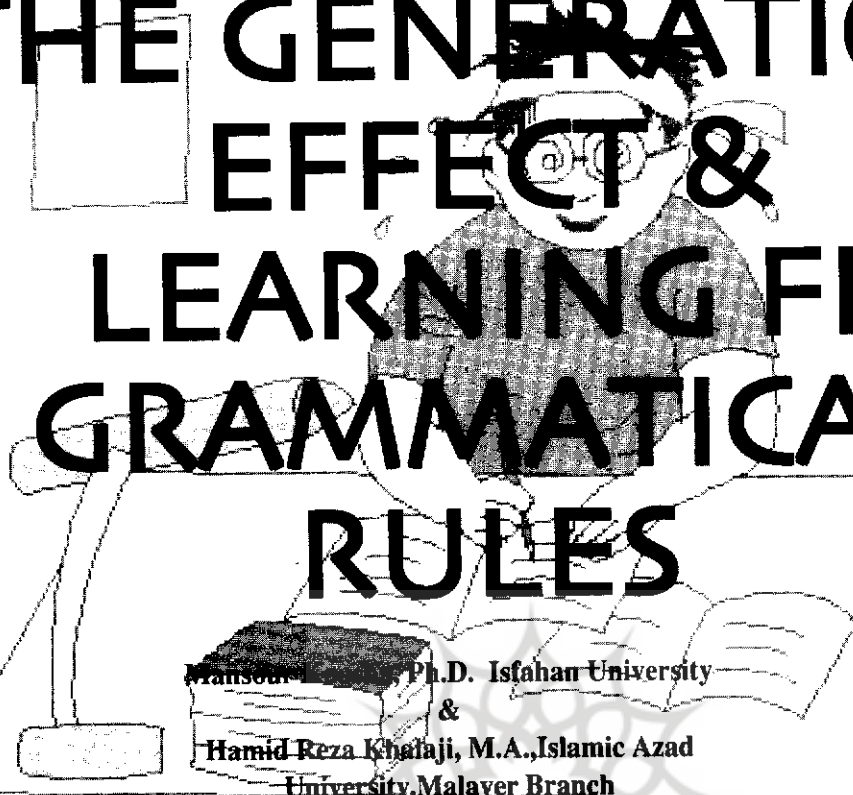
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چکیده

اسلامکا و گراف (۱۹۸۷) پس از انجام یک رشته آزمون‌های جامع، اصطلاح «تاثیر تولید» را وضع کردند که ثابت نمود آزمون شوندگان مطالبی را که خود تولید می‌کنند بهتر است از مطالبی که به صورت انفعالی می‌خوانند، به‌خاطر می‌سپارند. برای اثبات گسترش پدیده «تأثیر تولید» در یادگیری قوانین دستوری، آزمایشی انجام شد و به کمک یک آزمون چندگزینه‌ای، توانایی کاربرد قوانین معلوم و مجهول کردن جمله در آزمون شوندگان مورد اندازه‌گیری قرار گرفت. سه‌نوع آزمون: تست دانش عمومی زبان، پیش تست و پس تست (آزمون نهایی) در این تحقیق مورد استفاده قرار گرفت.

پس از انجام تست نهایی، میانگین دو گروه «تولید کنندگان» و «خوانندگان انفعالی» محاسبه شد و ثابت گردید که گروه اول (تولید کنندگان) عملکردی به مراتب بهتر از گروه دوم داشتند. بدین ترتیب نظریه اسلامکا و گراف مجدداً مورد تأیید واقع شد.

کلید واژگان: تأثیر تولید، فعال‌سازی واژگانی، حافظه واژگانی، فایل معنایی، فایل ترکیبی /نحوی

Abstract

Slamecka and Graf (1978) coined the term "Generation Effect" after conducting a comprehensive series of tests that demonstrated the subjects' superior retention of the self-produced targets over the items that are passively read.

The generation effect refers to the finding that learners are more likely to remember the items that they have generated in one way or another, either totally or partially, than the items they have just read or memorized (e.g. Kinjo & Snodgrass, 2000).

An experiment was performed in order to show the extension of GEP into learning Foreign Language (FL) grammatical rules. The subjects' retention of the rules of making passive sentences