**The telling image**. Oxford: Claredon Press.

Ellis, S.R. (1993). **Pictorial communication in virtual and real enviornment**. New York: Taylor & Francis.

McDaniel, M.A., & Waddill P.J. (1994). The mnemonic benefit of pictures in text. In Wolfgang Schnotz & Raymond W.Kulhavy (Eds.), **Comprehesion of Graphics**. North-Holland: Elsevier Science B.V.

Mayer, R.E. (1994). Visual aids to knowledge construction. In Wolfgang Schnotz & Raymond W. Kulhavy (Eds.), **Comprehesion of Graphics**. North-Holland: Elsevier Science B.V.

Paivio, A. (1971). **Imagery and verbal processes**. New York: Holt, Rinehart & Winston.

Richards, J.C. (1985). **The context of language teaching**. Cambridge: Cambridge University Press.

Richards, J.C. (1985). Theodor, S.R. (1986). **Approaches and methods in language teaching: A description and analysis**. Cambridge: Cambridge University Press.

Robinson, P.C. (1991). **ESP today: A practioner's guide**. NY-London: Prentice Hall.

Wilson, J. (1986). Task-based language learning. In David Harper (Ed.), **ESP for the university**. Oxford: Macmillan Education.

Yule, G. (1985). **The study of language.** Cambridge: Cambridge University

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feel that they are doing something which will be of later use; consequently, better retention takes place. Since the above activity proved helpful in the study, the results of this study can be a supporting basis for such activities in task-based language learning.

It was already mentioned that students in technical institutes do not usually have the expected language proficiency of university students. Therefore, it may also be concluded that illustrations can best furnish students whose language proficiency is low with information and details which they may not extract from texts. The fact that the control group did not receive the same scores on the posttest verified the above claim. However, the experimental group, which had access both to texts and pictures, did much better on the same test.

## Pedagogical implication

At the first glance, it may be concluded that the importance of pictures is already known; however, Mayer (1994) asserte. "although the potential advantages of visuals have been extolled by instructional designers, research on illustrations and animations is far from complete" (p. 135). The present study may provide some support for the idea that visual aids can have powerful effects on learning under certain circumstances. Illustrations can boost the students' interest and help them construct mental models for the concrete words in question. Nevertheless, pictures should be drawn upon with some cautions.

First, pictures can be effective only when the material itself is potentially understandable. Second, illustrations are effective when they allow the students to build a coherent model of the device or system in question. This goal can be achieved when the students are provided

with multi-frame illustrations. Finally, pictures are most effective when the goal of instruction is meaningful learning. such as task-based learning or problem-solving activity.

## Implications for teaching and syllabus design

Not only may designers and teachers benefit from the results of this study, but also it may clear the misbelief that words can be learned only through word lists and passages. The results of this study may furnish teachers and students with empirical evidence that pictorial context can be of tantamount significance in the process of vocabulary learning and teaching.

Another advantage is still envisaged for this study. For the time being, no ESP book is designed for Machine Tools students in Iran. The results of this study may justify textbook developers to include as many pictorial contexts as possible in would-be books, and hereby ensure a longer retention of words. Besides, as it was discussed before, the sense of reality that Machine Tools students receive from visual context cannot be underestimated.

## REFERENCES

Allen, F.V. (1983). **Techniques in teaching vocabulary**. Oxford: Oxford University Press.

Brown, H.D. (1987). **Principle of language learning and teaching**. Englewood Cliffs, NJ: Prentice Hall.

Carter, R., & McCarthy, M. (1988). Word list and learning words: Some foundations. In R. Carter, & M. McCrth (Eds.), **Vocabulary and language teaching**. Essex: Longman Group.

Davies, D., Bathurst, D., & Bathurst, R. (1990).

otherwise, it might be contributed to many other factors.

According to the following Table, for control group, the calculated mean and standard deviation were respectively 30.61 and 5.51, and for the experimental group, they were respectively 35.5 and 5.52. The t-observed was 3.44.

| The t-test for posttest scores | | | | |
|---|---|---|---|---|
| Group | N | X | SD | t-observed |
| Ge | 30 | 35.5 | 5.52 | |
| Gc | 30 | 30.61 | 5.51 | 3.44 |
| P<0.05 | | d.f.=58 | | t-critical = 2.00 |

$$t = \frac{M_e - M_c}{\sqrt{\frac{S_e^2}{N} + \frac{S_c^2}{N}}} = \frac{35.5 - 30.69}{\sqrt{\frac{30.53}{30} + \frac{30.45}{30}}} = 3.44$$

Considering (t-observed = 0.61 < T-critical = 2.00) at the pretest stage and (T-observed = 3.44 > t-critical = 2.00) 3, a remarkable difference came about between the two groups at the posttest stage.

After comparing the two mean scores through t-test calculations, the researchers felt justified and safe that the null hypothesis could be rejected; the two groups scored differently on the posttest, and the difference was statistically significant. The researchers' interpretation was that the treatment that the experimental group recieved during the term had proved effective. The two group were not significantly different at the outset of the study; however, they behaved differently on the final test. Therefore, it seems justifying to hold the idea that the treatment has served the intended purpose. The researchers are satisfied to claim that the final calculated t-test (3.44) at 0.05 level of probability is due to the independent variable (visual aids).

## Conclusions

The present study has focused on the extent to which pictures can enhance recall of words textually presented in conjunction with synchronous pictures. Since the t-observed was greater than the t-critical, the null hypothesis could be rejected. Therefore, it could be cogently argued that pictorial contexts do aid vocabulary learning of Iranian EST students. Furthermore, it may be safely concluded that pictures enable the extraction and retention of information that students under ordinary situations do not encode effectively.

Of course, it seems necessary to reiterate that the scope of this study covered only concrete words related to different parts and operations of machine tools; consequently, the above conclusion is valid as far as the abovementioned situation is provided.

It was also concluded that providing students with coherent verbal material and well-designed visual material and establishing referential connections between verbal and visual representation can foster better retention of words. The results, in addition, verified the dual-coding model proposed by Paivio (1971). In other words, effective visual aids help students construct mental models for simple devices and systems.

One of the activities students were supposed to do in the class was to write the names of different parts of a machinery on the picture of the machine discussed in the classroom. This activity was designed on the basis of the principle of task-based learning. Wilson (1986) suggested this as a motivating and problem-solving activity. She believed that if students are involved in the process of learning, they

Furthermore, the two classes were homogeneous as far as general knowledge of English was concerned. The age range of the subjects was from 19 to 22.

**Instrumentation and materials**

First of all, in order to form two homogeneous groups, a Nelson test (150 D) was given to a number of students who were taking their English courses at Mofateh Institute. The students in technical institutes do not usually enjoy the expected language proficiency. Therefore, although the participants in this study were college students, their language knowledge was low. That is why a Nelson test (150 D) was used for the purpose of achieving homogeneity. It should be mentioned that such a level was selected after different levels of Nelson test were tried on similar groups.

At the end of the study a teacher-made test was given to the control and experimental groups in order to find out the probable differences between the performances of the two groups.

**Design**

The design of this study was "pretest posttest control group design." Sixty college students took part as subjects in two groups of thirty

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

R = Randorm;  G = group  T₁=Pretest
X = Instruction  T₂=Posttest

**Classroom procedure**

The two classes were conducted two hours a week, and the study lasted for a term. Since the purpose of this study was to compare teaching concrete words related to machine tools through texts, along with pictures and through texts only, the two groups were treated differently.

In each session, the control group studied a passage about machine tools, but they did not have access to any pictorial context. Therefore, the instruction that they received about machine tools was merely on the basis of the written corpus. The experimental group however, not only received passages about machine tools, but also had access to visual aids. Magnified pictures of each machine tools were explained on the pictures. In other words, written context was accompanied by visual context. At the end of each session, copies of the same machine were given to the students, and they were asked to write the names of the parts indicated by arrows or the actions illustrated in the pictures. It should be mentioned that since no ESP textbook was available the students of Machine Tools, the researchers had to prepare texts, pictures for class activity, and exercises for each text.

**Data Analysis**

*Research question*: Does pictorial context aid vocabulary learning for Iranian EST sutdents?

*Null hypothesis*: Pictorial context does not aid vocabulary learning of Iranian EST students.

Because of the fact that the mere quantitative superiority of the experimental group mean score over the control group mean score is not a definite proof of its superiority and is not due to sampling error or chance, another t-test was run at the end of the study. In other words, if the calculated t-test exceeded the critical value (2.00) at 0.05 level of probability for d.f. = 58, the null hypothesis might be rejected;

task. One of the advantage of the so-called task-based language learning is that students are involved in the process of learning, and as far as words are concerned, they would be acquired as part of task fulfillment. The labelling of simple tables, charts, or diagrams by reference to the text or an illustration are examples of this kind of learning. When the student is required to label a diagram accompanied with a text, the student has to find the relevant information in the textbook, to interpret the diagram, and then to transfer information from the text to the diagram.

It has also been indicated that success in learning often depends on the number of senses which are involved in the learning process. Therefore, hearing and seeing provide a better chance to learn (Allen, 1983).

Ellis (1993) stated, "visual stimuli, like verbal stimuli, are organized in comprehension and memory" (p. 26). He further added that the organization for visual stimuli is a consequence of perceptual processing, which is bottom-up, or data driven, in its earlier stage, but top-down processing is affected by conceptual knowledge later on.

As a supporting basis for teaching through illustrations, Paivio (1971) proposed the dual-coding theory of learning from words and pictures. The theory proposes that learners can construct three types of connections when they are presented with verbal and visual material. Mayer (19994) listed the conections:

(a) representational connections between visual stimuli and mental representations of verbal material

(b) representational connections between visual stimuli and mental representations of visual material

(c) referential connections between visual and verbal representations (p. 127)

In addition to the abovementioned theory, on the basis of the available literature concerning pictorial context, at least two advantages are envisaged for vocabulary learning through pictures:

*(a) the impact of picutres on recall*

*(b) the motivating influence of pictures* (Allen, 1983).

In 1994, McDaniel and Waddill conducted a research to find out the extent to which pictures can enhance recall of textually presented information, particularly item-specific (detailed) information and relational information. They concluded that providing readers with the requisite comprehension abilities to begin with, pictures enable the extraction and retention of information that readers under ordinary circumstances do not encode effectively.

In short, for the purpose of teaching and learning concrete words, many experts agree upon the preference of textual context accompanied by pictorial aids over a mere textual context. The sense of reality, centering of attention, stimulating aspect and effectiveness of communication, fostering better understanding, building a more complete mental repressentation, and enhancing memborization and recall are among the main reasons for such a preference.

## Method
### Subjects

Sixty male students participated as subjects in two groups of thirty in this study. The participants were selected on the basis of the principle of random sampling from among the students of Machine Tools at Mofateh Technical Institute in Hammadan. The subjects, in the form of two thiry-student classes, had all passed more or less the same courses.

## Introduction

In most existing methodologies, vocbulary learning has been the center of attention. But this component of language has been treated in various ways. In Grammar Translation Method "much vocabulary is taught in the form of lists of isolated words" (Brown, 1987, p.75). Other methods favor a context-bound vocabulary learning. However, in recent years, authorities in the field of teaching English have rejected the idea of learning vocabulary out of context. Richards (1985) stated that words are organized into an intricate, interlocking system; therefore, they cannot be learned in isolation without considering their related context.

Now this question arises: What kind of context is apporopriate for vocabulary learning? Carter and McCarthy (1988) stated that one cannot pin-point a certain treatment or approach to be the best for all situations and for every level of language knowledge. The student's proficiency level and the nature of the course inevitably demand a certain way of treating this component of language.

The students at technical and vocational institutes do not usually enjoy a high level of language proficiency. On the other hand, Machine Tools students have to learn a lot of concrete words related to different machinery in their field; consequently, relying merely on texts for learning and retention of vocabulary does not seem adequate.

Keeping in mind that it is already known that pictures may be used as instruction aids, one may raise: Why another research? it can be argued that in General English (GE) courses, where mainly abstract words are concerned, the use of pictorial context may just add to the motivating factor of the course, and there is little scope for pictorial expression (Davies et al., 1990). Furthermore, GE students need to learn both abstract and concrete words. Concrete words are easy to depict, but abstract words are not. Take "jealousy" and "drilling machine" as examples of abstract and concrete words. However, the purpose of the researchers in using pictures for EST students was quite different. The researchers' intention was to teach concrete words about machine tools, which certainly, may not have more than one interpretation, through pictures which were totally different from those of general courses.

## Review of the Related Literature

In the literature concerning vocabulary learning and teaching, some advantages are enumerated for the use of visuals. To begin with, it can be said that the appearance of the first drawings dates back to cave drawings which were made at least 20,000 years ago (Yule, 1985). It is believed that pictures and drawings were used for communication. Later, different methodologies more or less focused on the importance of visual aids.

Illustrations can also be an integral part of EST courses. The justification is that they make EST courses more tangible and understandable. Robinson (1991) asserted, "as well as print material... one would expect that for teaching ESP there would be a rich supply of authentic visual and mechanical material" (p. 62); however, he believed that there is not a great deal of discussion of this in the literature.

In this regard, Wilson (1986) refered to visual support for the avoidance of problems in the comprehension and used of new items as one of the aspects of classroom methodology. She also suggested that visual aids may be exploited as a kind of elicitation strategy. Furthermore, she favored a classroom in which students use illustrations to fulfill a specific

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Dr. Parviz Maftoon,Ph.D. in TEFL,
Iran University of Science and Technology &
Majid Hokmi, Islamic Azad University

چکیده

هدف مقاله‌ٔ حاضر، بررسی تأثیر تصویر بر فراگیری واژگان عینی به وسیله دانشجویان رشته ماشین‌ابزار می‌باشد. برای نیل به این هدف، آزمودنی‌هایی که از لحاظ سطح مهارت زبانی همگن بـودند به دو گروه کنترل و آزمایش تقسیم شدند. به آزمودنی‌های گروه کنترل، متون ماشین‌ابزار بدون تصویر ارائه شد و حال آن که همان متون با تصویر در اختیار آزمودنی‌های گروه آزمایش قرار گرفت. نتیجهٔ تحقیق حاکی از این بود که تصویر نقش بسزایی در فراگیری واژگان عینی ایفا می‌کند.

کلیدواژگان: تصویر، متن، یادگیری واژگان انگلیسی برای اهداف ویژه

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## Abstract

This research attempts to investigate the impact of pictorial context on vocabulary learning of Iranian EST student, whose syllabus heavily focuses on the familiarity with the concrete words about machine tools in their profession. The study intended to find out the probable advantage of using a pictorial context for vocabulary learning. Two homogeneous groups of students, who were taking their ESP courses, served as the subjects in two groups of thirty, a control group and an experimental group. The subjects, Machine Tools students, were all studying at Mofateh Technical and Vocational Institute in Hammadan. They were male and their age range was 19-22.

In order to achieve homogeneity between the two groups, a Nelson test was given to a number of students, and two groups of thirty were selected from among these students. The subjects in the control group were offered passages about machine tools with no pictures; however, the subjects in the experimental group were given the same passages accompanied with different types of visual aids. At the end of the term, a teacher - made test was given to the students to determine the influence of treatment on the experimental group.

Drawing on the t-test, the researchers came up with the t-observed value that was much greater than the t-critical value at the .05 level of significance. Therefore, the null hupothesis stating that pictorial context does not aid vocabulary of Iranian EST students was rejected

**Key Words:** pictorial, context, vocabulary learning, ESP