

Pictures Speak Louder than Words in ESP, Too!

Seyyed Mahdi Erfani¹

¹ English Department, Damghan University, Iran

Correspondence: Seyyed Mahdi Erfani, English Department, Damghan University, Saadi Sq., Damghan, Iran.
E-mail: smerfai@yahoo.com

Received: April 22, 2012 Accepted: May 23, 2012 Online Published: July 9, 2012

doi:10.5539/elt.v5n8p164 URL: <http://dx.doi.org/10.5539/elt.v5n8p164>

Abstract

While integrating visual features can be among the most important characteristics of English language textbooks, reviewing the current locally-produced English for Specific Purposes (ESP) ones reveals that they lack such a feature. Enjoying a rich theoretical background including Paivio's dual coding theory as well as Sert's educational semiotics, this research was done to investigate the probable effectiveness of using pictorial context in ESP reading comprehension ability of Iranian university students whose syllabus mostly focuses on this skill. To do so, this study was conducted on two groups of Iranian students majoring physics. Before the treatment, pretest was performed in both groups. The students in the experimental group were taught through passages furnished with different kinds of pictures while the ones in the control group were taught through the same passages without the pictorial context. At the end of the treatment which took twenty two sessions of two hours during twelve weeks, the posttest was administered to both groups. At the end, drawing on t-test at the significance level of 0.05, the students' performance was compared. The results revealed that there was a significant difference between the mean score of the two groups. Thus, it was concluded that using pictorial context improves the ESP reading comprehension of students.

Keywords: ESP, pictures, reading comprehension, textbook development

1. Introduction

English for specific purposes (ESP) as a growing trend in the framework of English language teaching (ELT) (Dudley-Evans and St. John, 1998) and as an exciting movement in language education (Chien and Hsu, 2010) is going to find an important stance in applied linguistic studies. The advent of increasing research on this emergent scope indicates that ESP is going to be well established as an important and distinctive part of ELT (Basturkmen, 2006; Dudley-Evans and St John, 1998; Hutchinson and Waters, 1987).

Enjoying an essential position in any ESP classroom, textbooks play a crucial role in meeting the learners' needs, increasing their motivations, facilitating their learning and recalling the information. In Dudley-Evans and St John's (1998) words, this role is more prominent in situations where English is a foreign language (EFL) and naturally the ESP classroom may be almost the only source of English in exposing learners to the language.

In this regard, as Erfani, et al. (2011) write, the essential position of reading comprehension in EFL settings has turned this skill to the most important one needed for learners' success in a way that it is often known as the main goal of English language learning in such contexts and undoubtedly ESP as a trend in ELT is not an exception to this rule. Studying the current ESP textbooks in Iranian academic context also shows that while the most significant skill which the students need for success is reading (Farhadi, 2006; Riazi, 2006), the lack of useful strategies and techniques in such textbooks development as well as the low face validity in such textbooks are obvious (Iranmehr, et al. (2010); Soleimani, 2006).

Conceiving the inadequacy of the current strategies in current ESP textbooks such as the necessity of integrating the efficient techniques in reading comprehension as well as understanding the role and importance of visual features as the most important characteristics of obtaining face validity, the researcher in this paper attempts to report the results of an explanatory action research of integrating pictorial context in ESP reading books as a probable efficient tool in enhancing the reading comprehension ability of students majoring physics in Damghan university, Iran.

2. Statement of the Problem

Reviewing the current locally-produced ESP textbooks reveals that while ESP courses favor a growing deal of

attention and emphasis among ELT practitioners and learners, the lack of applying various strategies and techniques in their development is undeniable. For instance, while visual features can be among the most important characteristics of such materials, according to many researchers including Dehnad (2006), Riazi (2006) and Soleimani (2006) their absence in current ESP textbooks is evident.

With respect to its importance, Dudley-Evans and St John (1998) maintain that key graphic representations such as lists, columns, tables, matrices, tree diagrams, charts and mind maps can be very helpful in extracting and reorganizing the information in ESP textbooks. Krug (2002) also introduces illustrations as well as physical appearance as important features of any ESP textbooks. According to Alemi and Ebadi (2010), illustrations can be an integral part of ESP courses and its justification is that they make ESP courses more tangible and understandable.

Contrary to these claims, findings of some researchers such as Lee (199.) reveals that illustrations does not play a role on global comprehension and detail recall of a technical text. Khoii and Foruzesh's (2010) findings also indicate that using reading passages with comic strips as a common visual feature does not have any significant effect on the learner's progress in reading comprehension.

Now as Anglin, et al. (2004) assert with the proliferation of illustrations in instructional materials, it becomes increasingly important to investigate their effects on student learning.

Encountering these findings and suggestions as well as referring to this fact that there is not a great deal of discussion based on experimental studies of this issue in the literature of ESP, this study was undertaken through action research to provide an answer to the following research question: Does pictorial context have any effect on reading comprehension ability of Iranian university students majoring physics?

3. Theoretical Background

The importance of using visual features in ELT textbooks has been discussed in a significant body of research such as Wright (1976,1989), Hill (1990, 2003), Wright and Haleem (1991), Brand (1997), Celce- Murcia (1991), Harmer (2001), Porcaro (2001), Liu (2004) and Shimada and Kitajima (2006).

Reviewing the literature on the topic, Pan and pan (2009) have suggested that the presence of visuals elicits improved comprehension. Bernhardt (1996) and Hibbing, Rankin-Erickson (2003) maintain that the supplementation of text with visuals provides readers with two sources of information from which to draw upon when reading the materials. In other words, when the readers cannot comprehend a particular passage, they may shift their attention from the text to the accompanying visual images. In return, the visuals, which they do comprehend, might lead them to notice the text's linguistic input and thus enable them to comprehend the text through matching and mapping among factors such as word recognition, syntax, intertextual perceptions, and background knowledge. The interaction between the text and visuals will accordingly facilitate reader comprehension.

Providing a model, Shimada and Kuitajima (2006) believe that illustrations promote text comprehension through increasing comprehension and deepening elaboration. Ellis (1993) also states that visual stimuli like verbal stimuli are organized in comprehension and memory. As Ridgeway (2003, p. 69) states, pictures, iconic images and the visualization of mnemonics, all of which promote interhemispheric communication, support vocabulary retention to a high degree.

Hall, et. al. (1997) and Gambrell and Jawitz (1993) are also among those studies within this framework demonstrating that the combination of text and visuals elicits beneficial effects in terms of comprehension of the materials.

Contrary to these stances, as noted some studies indicate different results. For instance, Fillipatou and Pumfrey (1996) found that pictures may be meaningless, or may even hinder comprehension. Schnotz and Bannert (2003) found that a text-only condition performed best compared to conditions with graph-based illustrations on test questions directly relevant to the text information. In addition, Pan and Pan (2009) maintain that the prevailing assumption is that pictures simply entertain and are thus an inappropriate tool for adult learning.

In Pan and Pan's (ibid) words, facing these claims, the proponents of the positive effects of using visuals on language learning in general and reading comprehension in particular have employed a number of theoretical frameworks to describe, explain and predict the effects of pictorial context on reading comprehension that the most important ones are the theory of mental models (Johnson-Laird, 1983), the transmediation theory (Siegle, 1995), the repetition hypothesis (Gyselinck and Tardiey, 1999) and the dual coding theory (Paivio, 1986; Sadosky and Paivio, 2001). In their terms perhaps the most comprehensive theory that elaborates upon the relationship between imagery and reading is the dual coding theory. Here this model as well as a newly emergent

one known as educational semantic approach is introduced in brief:

3.1 Dual Coding Theory

According to Paivio's dual coding theory (DCT), the human cognition consists of two systems that process knowledge simultaneously, one processing the nonverbal objects (Imagery) and one dealing with language (verbal). In this model, words and images have different cognitive representations; hence, the human brain uses separate systems for different types of information: the verbal system and the imagery system. The verbal system deals with linguistic codes, such as words, speech, or language; on the other hand, the imagery system primarily deals with visual codes, such as images, pictures, or concrete objects.

Enjoying this theory, Mayer (1994, p. 24) proposes that learners can construct three types of connections when they are presented with verbal and visual materials as follows:

- Representational connections between visual stimuli and mental representations of verbal material,
- Representational connections between visual stimuli and mental representations of visual material,
- Referential connections between visual and verbal representations.

3.2 Educational Semiotics

In Sert's (2006) words, semiotics is a progressing and promising discipline with its applications in many fields of study. As a bridge between semiotics and foreign language teaching (FLT), educational semiotics has started to attract attention of many scholars, ELT instructors and teachers all over the world.

Reviewing the three kinds of signs as symbol, icon and index, Sert (ibid.) asserts that icons (cartoons, pictures, etc.) play a vital role which may be a positive contribution if foreign language learning is considered. In his terms, when the teaching of specific language skills is considered, a semiotic perspective can adequately help in presenting new content to the students. For example, while teaching new vocabulary, if new words are reinforced with relevant pictures, the result will be the long term coding of this target language item. In this way, the meaningful contextualization will surely contribute positively to the learning process.

According to Sert, in ELT classes, the teacher's use of pictures in relation to target culture would obviously help students bridge the gap between their native culture and the target culture; therefore between the native language and foreign language. When these icons are combined with the presented content and the target language skill to be improved, this will obviously accelerate the foreign language awareness of the student both at conscious and sub-conscious levels.

Introducing these facts, Sert maintains that it is obvious that the consideration of semiotic approach in FLT has promising results and may lead to long-term success in learning a foreign language with its applicable and pertinent techniques that are learner-centered.

In spite of growing studies on this topic, reviewing the literature shows that there is not a great deal of discussion on the efficiency of pictures in the domain of ESP.

Providing a rationale for integrating picture in ESP textbooks, Soleimani (2006) writes that to satisfy the needs of young learners in terms of interest, face validity is the rule of thumb. In his terms, face validity is a matter of not only content but also extralinguistic features. Making a sense of relevance of materials in the eyes of learners as well as accounting for the emotional aspect of learning, it is believed that pictures can be an integral part of ESP textbooks.

In short, encountering these claims, the researcher attempted to integrate pictorial context as a probable efficient reading technique in ESP classes.

4. Methodology

In line with the attempt to determine whether pictorial context has any effect on improving ESP reading comprehension ability, a null hypothesis was formulated as: Pictorial context has no effect on the improvement of ESP reading comprehension of university students majoring physics.

4.1 Participants

This study involved 65 students majoring physics at Damghan University. They were randomly chosen to serve as experimental and control groups. To assess their language proficiency, a standard test of English was given to them and based on their scores they were categorized as intermediate.

4.2 Design

Based on the purpose of the study, it followed a quasi-experimental design displaying the following

characteristics: two homogeneous groups of intermediate level students served as control and experimental groups. A treatment, namely pictorial context was offered to experimental group and the text-only context to control group. Two tests as pretest and posttest were administered in each group.

4.3 Procedure

After randomly assigning the participants to two equal groups, the experimental group was encouraged to study the texts along with pictures. They were taught for twelve weeks and during this time and the participants of control group were taught through texts only. In a more precise word, this group was not asked or encouraged to apply this tool in the process of reading ESP passages. After instruction, a posttest was performed for both groups.

5. Results & Data Analysis

The effect of pictorial context on reading comprehension ability of university students was determined with the pretest-posttest equivalent group design. The pretest was given before students received reading instruction. To control for confounding variables, the control group were taught using the same instructional methods, except for enjoying pictorial context. At the end of the treatment, an independent sample t-test was used to analyze the data.

To answer the research question, after scoring the tests and tabulating the scores for each subject, the results were put under a series of statistical analyses. Next, an independent t-test was used to verify the pre-test results on both groups.

Table 1. T-test for the pretest scores

Groups	N	M	SD	t-observed= 1.16
EXP.	29	18.04	2.06	
Con.	32	17.91	2.18	
P<0.05	df= 59			t-critical= 2.00

At the end of the study, the posttest was given to the groups and to conform or reject the hypothesis, a t-test was used. See Table 2.

Table 2. T-test for posttest scores

Groups	N	M	SD	t-observed= 4.08
EXP.	29	25.58	1.90	
Con.	31	22.93	2.21	
P<0.05	df= 58			t-critical= 2.00

Considering ($t\text{-observed} = 1.16 < t\text{-critical} = 2.00$) at the pretest and ($t\text{-observed} = 4.08 > t\text{-critical} = 2.00$) at the posttest shows that a remarkable difference between the two groups at the posttest stage is obvious. After comparing the two mean scores through t-test calculations, the researcher felt justified that the null hypothesis could be rejected. While the two groups were not significantly different at the outset of the study, they scored differently on the posttest and the difference was statistically significant. Thus, the researcher is satisfied to claim that the final calculated t-test (4.08) at 0.05 level of probability is due to the independent variable i.e. pictures.

6. Conclusion and Pedagogical Implications

The present findings seem to lend support to most of the related available findings in the field of ELT. The present study, as an attempt to integrate pictorial context in ESP, has focused on the extent to which pictorial context can enhance ESP reading comprehension of university students. Finding revealed that it could be cogently argued that this strategy do aid ESP reading comprehension of university students.

Professionally speaking, based on the results of this research, the following pedagogical implications might be presented:

First, pictorial context can be an innovative alternative for most of the current ESP textbooks lacking this feature. In this regard, it is emphasized that such pictures must be educationally valid. In a more precise word, they should make a sense of relevance in the eyes of learners and are integrated purposefully into the text.

Second, effective strategies and techniques like furnishing ESP textbooks with different types of visual aids and

pictorial schemata might remove the strictness and inflexibility of the current ESP textbooks and allow students, as one important side of ESP instructional transition, to engage more actively.

Third, the instructor's observations indicated that the procedures used in the experimental group triggered off the students to participate more actively in discussions and classroom participations and devoted more attention and interest to the topic.

Last but not the least, although the lack of face validity in ESP textbooks is clearly felt, ESP teachers themselves can furnish the materials with this educational technique.

References

- Alemi, M., & Ebadi, S. (2010). The effects of pre-reading activities on ESP reading comprehension. *Journal of Language Teaching and Research*, 1(5), 569-577.
- Anglin, G. J., Vaez, H., & Cunningham, K. L. (2004). Visual representations and learning: The role of static and animated graphics. In D. H. Jonassen (Ed.), *Handbook of research for educational communications and technology* (2 ed., pp. 865-916). Mahwah, NJ, Lawrence Erlbaum Associates, Publishers.
- Basturkmen, H. (2006). *Ideas and Options in English for Specific Purposes*. London: Lawrence Erlbaum Associates.
- Brand, Q. (1997). Art and art galleries: resources for teachers. *English Teaching Professional*, 5, 34-5.
- Chien, Ch, & Hsu, M. (2010). A case study of incorporating ESP instruction into the university English course. *Procedia Social and Behavioral sciences*, 9, 1885-88.
- Dehnad, A. (2006). Graphic organizers as an effective study technique in an ESP class. In Kiani, & Khayamdar (Eds.), *Proceedings of the First National ESP/EAP Conference (Vol. 3)*. Tehran, SAMT Publication.
- Dudley-Evans, T., & St John, M. J. (1998). *Developments in English for Specific Purposes: A multi-disciplinary approach*. Cambridge University Press.
- Ellis, S. R. (1993). *Pictorial communication in virtual and real environment*. New York: Taylor and Francis.
- Erfani, S. M., Iranmehr, A., & Davari, H. (2011). Deepening ESP reading comprehension through visualization. *Journal of Language Teaching and Research*, 2(1), 270-273. <http://dx.doi.org/10.4304/jltr.2.1.270-273>
- Farhady, H. (2006). Reflections on and directions for ESP materials development in SAMT, in Kiani & Khayamdar (eds.), *Proceedings of the First National ESP/EAP Conference (Vol. 3)*. Tehran, SAMT Publication.
- Gyselinck, V., & Tardieu, H. (1999). The role of illustrations in text comprehension: what, when for whom, and why? In H. Vvan Oostendorp, & S. R. Goldman (Eds.), *The construction of mental representations during reading* (pp. 195-218). Mahwah, NJ: Lawrence Erlbaum.
- Harmer, J. (2001). *The Practice of English language Teaching*. Harlow: Longman.
- Hill, D. (1990). *Visual Impact*. Harlow: London.
- Hill, D. (2003). The visual element in EFL coursebooks. In B. Tomlinson (ed.), *Developing Materials for Language Teaching* (pp. 174-182). London: Continuum.
- Hutchinson, T., & Waters, A. (1987). *English for Specific Purposes*. Cambridge: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511733031>
- Iranmehr, A., Erfani, S. M., & Davari, H. (2010). A call for the reengineering of Iranian ESP textbooks. *Sino-US English Teaching*, 7(7), 23-30.
- Johnson-Laird, P. N. (1983). *Mental Models*. Cambridge, MA: Harvard University Press.
- Khoii, R., & Forouzesh, Z. (2010). Using comic strips with reading texts: are we making a mistake? *Literacy Information and Computer Educational Journal*, 1(3), 168-177.
- Liu, J. (2004). Effects of comic strips on L2 learners' reading comprehension. *TESOL Quarterly*, 38(2), 225-242. <http://dx.doi.org/10.2307/3588379>
- Mayer, R. E., & Sims, V. K. (1994). For Whom is a Picture worth a thousand words? Extension of a Dual-Coding Theory of Multimedia Learning. *Journal of Educational Psychology*, 86(3), 389-401.
- Murcia, M. C. (1991). *Teaching English as a Second or Foreign Language*. Boston: Heinle & Heinle Publishers.
- Paivio, A. (1986). *Mental representations: A dual coding approach*. New York: Oxford University Press.

- Pan, Y., & Pan, Y. (2009). The effect of pictures on the reading comprehension of low-proficiency Taiwanese English foreign language college students: An action research study. *VUN Journal of Science, Foreign Language*, 25, 186-198.
- Porcaro, J. W. (2001). Newspaper cartoons. *Modern English Teacher*, 10(2), 29-33.
- Riazi, A. (2005). Features of quality EAP textbooks: insights from literature and book reviews. In Kiani, G. R., & Khayamdar, M. (Eds.), *Proceedings of the First National ESP/EAP Conference (Vol. 1)*. Tehran, SAMT Publication.
- Ridgeway, C. (2003). Vocabulary for Tour Guiding through Readings. Unpublished PhD Dissertation. Ankara: Hacettepe University.
- Sadoski, M., & Paivio, A. (2001). *Imagery and text: A dual coding theory of reading and writing*. Mahwah, NJ: Laurence Erlbaum Associates, Inc.
- Schnotz, W., & Bannert, M. (2003). Construction and interference in learning from multiple representations. *Learning and Instruction*, 13, 141-156. [http://dx.doi.org/10.1016/S0959-4752\(02\)00017-8](http://dx.doi.org/10.1016/S0959-4752(02)00017-8)
- Sert, O. (2006). Semiotic approach and its contributions to English language learning and teaching. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 31, 106-114.
- Siegel, M. (1995). How picture books work: A semiotically framed theory of text-picture relationships. *Children's literature in education*, 29(2), 97.
- Shimada, H., & Kitajima, M. (2006). Why do illustrations promote text comprehension? Motivation effect and elaboration effect. *Proceedings of the 5th International Conference of the Cognitive Science* (pp. 185-188).
- Soleimani, H. (2006). EAP in Iran: Drawbacks of SAMT EAP Textbooks. In Kiani, G. R., & Khayamdar, M. (Eds.), *Proceedings of the First National ESP/EAP Conference (Vol. 3)*. Tehran, SAMT Publication.
- Wright, A. (1976). *Visual Materials for the Language Teacher*. Harlow: Longman.
- Wright, A. (1989). *Pictures for Language Learning*. Cambridge: Cambridge University Press.
- Wright, A., & Haleem, S. (1991). *Visuals for the Language classroom*. Harlow: Longman.