

Is Reading Comprehension of ESP Program Improved by Explicit Teaching of Grammar?

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Abstract

Researchers state that grammatical explanation in the classroom relies on the assumption that rules learnt consciously can be converted into unconscious process of comprehension and production. Little research, if any, has been carried out regarding the role of explicit teaching of grammar in enhancing reading comprehension of ESP students. To make up for the dearth of research in this area, the present study was conducted to investigate whether explicit teaching of grammatical structures enhances reading comprehension of ESP students or not. To achieve this goal, two groups of students were selected, one as the experimental group and the other as the control group. Through a pretest it was found out that the two groups were to a remarkable extent homogenous. The experimental group received explicit instruction of grammatical structures as well as general reading comprehension instruction, but the control group received only general reading comprehension instruction. After the treatment, both groups were post-tested through a reading comprehension test on computer science. The results demonstrated a positive effect of explicit teaching of grammatical structures on enhancing the reading comprehension of our ESP students.

Keywords: ESP students, reading comprehension, explicit grammar teaching

1. Introduction

Reading could be the most basic skill for second language learners, especially for EFL learners. This claim is best manifested in Chastain (1988), who states, "Reading is an important component of learning a second language for various reasons," (p. 219). Many language learners regard reading as the first skill that should be mastered among the academic skills (Grabe, 2001; Jalilifar, Hayati & Saki, 2002; Richard and Renandya, 2008). This comes from the growing number of countries moving toward giving English instruction from the early childhood (Ediger, 2000; Hinkel 2005; Jalilifar, Hayati & Saki, 2008). In recent years, there has been increased focus on the teaching of reading and other literacy skills to L2 learners. Part of this may relate to the recognition of the fact that reading is probably the most important skill for second language (L2) learners in educational contexts (Celce-Murcia, 2001; Grabe, 1991), and part of it may come from an increase in the number of learners worldwide who are learning English as a second or foreign language. The importance of reading for some researchers and methodologists is so obvious that they equal learning language to learning reading (Krashen, 1993 a & b); in other words, they claim that in order to learn (or acquire as they like to name it) a second language one has to read a lot. Krashen (1993b) maintains that reading in and of itself is almost powerful enough to result in language acquisition. He promotes the theory that reading is the foundation of language education and is the most powerful tool for increasing vocabulary and the abilities to read, write, spell, and comprehend. The approach teachers employ to teach reading to students depends on their functional definition of learning, language, and reading (Chastain, 1988). Nunan (2006) argues that, "reading is not something that every individual learns to do. An enormous amount of time, money and effort is spent on teaching reading in elementary and secondary schools around the world. In fact, it is probably true to say that more time is spent on teaching reading than any other skills." (p. 249).

Since the 1980s, reading skill has received increased attention in

terms of both research and its application to second language (L2) classrooms. Much of the study of L2 reading has concluded that readers only rely upon different sets of competencies while reading (Arens & Byrnes, 1991; Barnett, 1990; Brantmeier, 2002; Carrell, 1988; Hadley, 2001; Hosenfeld, 1984; Lee, 1997; Liontas, 2002; Omaggio Saricoban, 2002; Singhal, 2001; Scarcella & Oxford, 1992; Shrum & Glisan, 2000; Swaffar, as cited in Gascoigne, 2005). Learning to read in a second language (L2) is different from learning to read the first time around. Although people have a great deal of information about the processes involved when children learn to read in their native language (L1), we don't have adequate empirical data or well developed theoretical models to describe what kinds of skills are involved in good English second language reading (ESLR), particularly when this population is comprised of adults rather than children (August, 2002; Snow, 2002). Cook (2008) points out that "grammatical explanation in the classroom has thus relied on the assumption that rules that are learnt consciously can be converted into unconscious process of comprehension and production." (p. 41).

The effects of the knowledge of grammar and vocabulary on reading comprehension are all positive (Gelderen, et al., 2007). There are certain grammatical topics which particularly benefit from explicit, systematic instruction. To put it differently, there are some grammatical topics which particularly suffer if they merely receive fleeting mention as they arise in context, or indeed are not dealt with explicitly in instruction at all (Klapper, 2003). The grammar of a language is the description of the ways in which words can change their forms and can be combined into sentences in that language. If grammar rules are carelessly violated, communication may suffer although a good grammar rule is extremely difficult (Harmer, 2007). L2 readers may lack knowledge of English grammar and structure and, therefore, may read word by word. They may encounter a bulk of unfamiliar vocabulary so that they would be unable to grasp the overall concept conveyed in the sentence. L2 readers are also challenged when reading idiomatic expressions and unfamiliar grammatical constructions (Mora, 2001).

To explain the difficulties of L2 reading, it can be assumed that poor L2 lexical and grammatical knowledge prevents beginning L2 readers from applying reading strategies and metacognitive knowledge they use in L1 reading. Gelderen, et al. (2007) eloquently show this issue: "Metaphorically speaking, L2-specific linguistic knowledge constitutes a threshold that has to be surpassed before L1 skills transfer to L2 performance and L1 and L2 reading become similar. It follows that at the initial stages of L2 reading development, L2 vocabulary and grammar knowledge is more important than reading strategies and metacognitive knowledge (Gelderen, et al., p.47)". The research on syntactic processes in L2 reading raises issues germane to the assessment and diagnosis of syntactic-processing problems in L2 reading. Research points to the need to distinguish between two potential sources of difficulty in syntactic processing. One source is simply the lack of knowledge of the grammar (Carlo & Sylvester, 1996).

Atai (2003) argues that "in English for Specific Purposes (ESP) context, providing readers with some knowledge about structural patterns and grammatical features of the corresponding academic or occupational discourse may enhance comprehension of ESP texts." (p. 25).

Although a large number of studies have shown the positive effect of teaching explicit grammar on general reading comprehension (see for example Atai, 2003 or Jalilifar, Hayati & Saki 2008), regarding the effect of explicit teaching of grammar on reading comprehension of ESP text, to the best of researchers' knowledge, very little research has been conducted. Therefore the aim of this study is to examine whether or not there is a direct relationship between explicit grammar teaching and reading comprehension in ESP texts. So this study looks for an answer to the following question:

Does explicit teaching of grammar have any significant effect on second language reading comprehension of technical texts?

2. Method

2.1 Participants

The participants were selected from 100 students who study computer sciences at the SAMA Technical College of Islamic Azad University of Ilam. All of them passed a general course of English with the mean score of 16. The participants falling between $+1$ and -1 SD were selected ($n=80$). They were then randomly assigned to two groups. Group A was considered as the experimental group and received explicit grammatical instruction, and group B was considered as the control group and received no explicit grammatical instruction. The two groups included male students who had an age average of about 21 and they studied this course as a 2-unit compulsory course. In terms of background knowledge of English reading comprehension, all of the students had passed a general English course before registering for this course of instruction. They were almost at the same level and were homogenous.

2.2 Instrumentation

Two parallel reading comprehension tests, each consisting of 40 multiple-choice items, were constructed. One was given to both groups as a pre-test at the start of the course before giving any instruction. The other one was given to both groups as post-test at the end of the course of instruction. To determine the reliability of both pre-test and post-test, a pilot study was run with about 50 subjects whose characteristics were almost equal to those of the target subjects (the reliability obtained through Cronbach Alpha were reported to be .78 and .81, respectively) and to determine the content and face validity of both tests, a consensual validity was used; that is, the tests were reviewed by two experts to determine the face validity of the test. The pre-test aimed to determine the current level of the participants' reading comprehension and their homogeneity or heterogeneity in terms of reading comprehension ability. The post-test aimed to determine the degree of reading comprehension of both groups after they received different treatments in the course. To check the participants' reading comprehension ability, a pre-test

containing technical text of computer science information was constructed before starting the course. An attempt was made to construct the passages which included computer information that students had not encountered before by their own accounts. That is, the passages were constructed to include thoroughly new information of computer science. The pretest included 40 multiple-choice items.

2.3 Procedures

One week before commencing the treatment, the pre-test was administered to both groups and the results of the pre-test scores of both groups were recorded for later comparison with the post-test results. Both groups were taught for 13 weeks, each week contained one session and each session was 90 minutes long. Both groups were taught reading comprehension by the same teacher and in the same way except that in the control group no explicit teaching of grammar was done in the course of instruction whereas the experimental group was taught reading comprehension for one hour, and half an hour was devoted to grammatical structures employed in the text. The grammatical structures which were taught included various tenses, passive and active forms, application of parts of speech, and the like. The reason for teaching these grammatical structures simply was their employment in the texts. The students of both groups were asked to have a pre-reading on the content of the texts determined for teaching in the course before coming to the class and present a brief account of the reading materials. They were also asked to pay attention to the meaning of the sentences one by one when receiving instruction in the classroom and to make a relation between the individual sentences and the whole meaning of the given text. At the end of the course, both groups were post-tested simultaneously in the final session. The post-test was administrated and the students were asked to read the five given passages and answer the questions following them. The data were collected and then analyzed using statistical analysis. Firstly, at the beginning of the course an independent t-test was run to determine if there was a significant difference between the two groups or

not. Later on, at the end of the course another independent t-test was run to determine the effect of the treatment using pos-test scores of both groups.

3. Results and Discussion

The frequency and distribution of the scores of both experimental and control groups on the pre-test are represented in Table 1 and Figures 1 and 2, respectively.

Table 1. descriptive statistics for the results of the pre-test

PRETEST Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Range
Control group	38	11	17	13.26	1.72	6
Experimental group.	38	10	16	13.27	1.47	6
Valid N (list wise)	38					

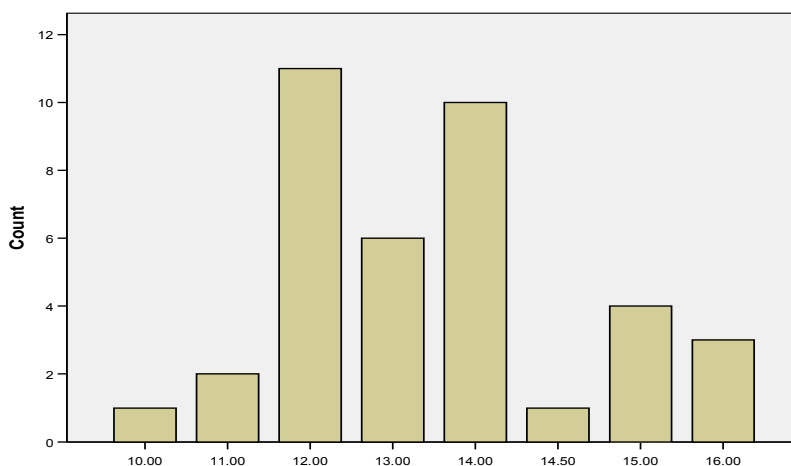


Figure 1: the frequency and distribution of the scores of exp. group on the pre-test

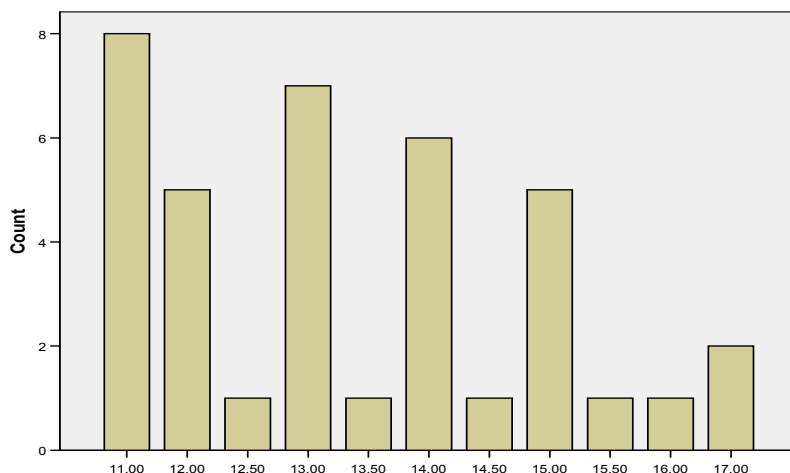


Figure 2: the frequency and distribution of the scores of Control group on the pre-test

The results of the pre-test on both experimental and control groups are represented in Table 2. As the results indicate there is no significant difference between the two groups in terms of background knowledge and their ability in reading comprehension. To check the participants' reading comprehension ability, a pre-test containing technical text of computer science information was constructed before starting the course. An attempt was made to construct the passages which included computer information that students had not encountered before by their own accounts. That is, the passages were constructed to include thoroughly new information of computer science. The pretest included 40 multiple-choice items.

Table 2. Independent samples t- test for pre-test

	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
score Equal variances assumed	.859	.357	-.036	74	.972	-.01316	.36830	-.74701	.72070
Equal variances not assumed			-.036	72.211	.972	-.01316	.36830	-.74731	.72100

Also, the frequency and distribution of the scores of both experimental and control groups on the post-test are represented in Table 3 and Figures 3 and 4, respectively.

Table 3. Descriptive statistics for the results of the post-test

POSTTEST Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Range
Control group	38	10	17	13.30	1.851	7
Experimental group	38	10	18	14.14	1.78	8
Valid N (list wise)	38					

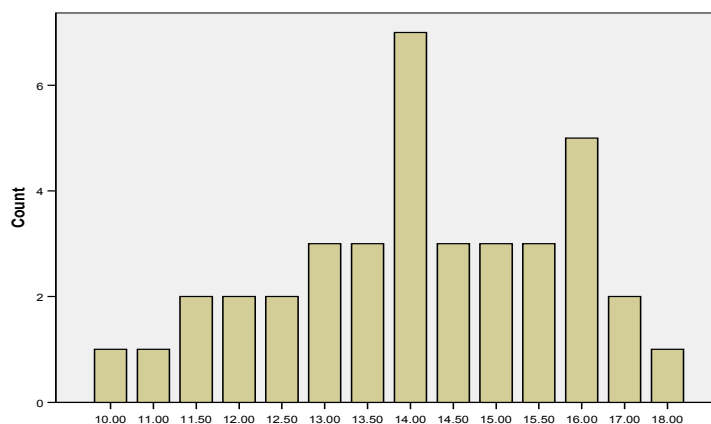


Figure 3: the frequency and distribution of the scores of Exp. group on the post-test

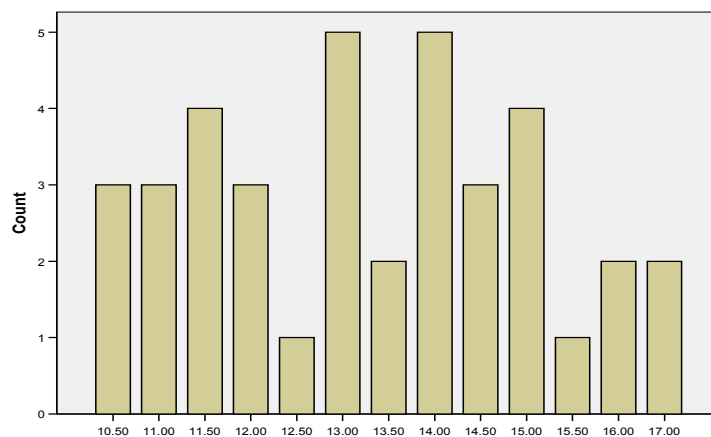


Figure 4: the frequency and distribution of the scores of Cont. group on the post-test

Regarding the post-test results as it can be seen from Table 4, the difference between the two groups is statistically significant; therefore, it can be concluded that explicit teaching of grammatical structure enhances reading comprehension of ESP students.

Table 4. Independent samples- test for post-test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
scores	Equal variances assumed	.300	.585	-2.002	74	.049	-.82895	.41416	-1.65417	-.00372	
	Equal variances not assumed			-2.002	73.950	.049	-.82895	.41416	-1.65418	-.00371	

The rationale for the application of explicit teaching of grammar draws on two major claims. The first is that explicit knowledge of grammar can function as a facilitator of implicit knowledge of grammar by helping learners to notice grammatical features in the input and to notice the gap between the input and their own interlanguages. The second claim is that explicit knowledge of grammar is needed by the monitor, which is activated when learners want to fine-tune formulations derived from their implicit knowledge or edit their own production. Since the 1980s, a burgeoning research base has investigated L2 reading. An outstanding conclusion gotten from this research base is that readers rely upon different sets of competencies while reading to understand the text, including knowledge of grammar. Researchers state that grammatical explanation in the classroom relies on the assumption that the rules learnt

consciously can be converted into unconscious process of comprehension and production. The result of this study is in agreement with that of Atai (2002). He claims that teaching grammar has a positive effect on the reading comprehension of ESP learners. The study also supports the results of the research conducted by Gelderen, et al. (2007). They argue that grammar and vocabulary are important in the development of second language reading comprehension. The findings of this study, more or less, indicate the positive role of teaching grammar on reading comprehension. As the results show, the experimental group had better scores on the reading comprehension texts. Although the difference between the two means is not so much, this difference shows the positive effect of the treatment. It is clear that just one piece of research cannot show a confirmed conclusion. Nonetheless, the result of this study is consistent with those of some ESP studies in relation to this topic. According to an analytic discussion it can be said that, particularly in relation to technical texts, the understanding of individual sentences one by one has an undeniable role on the understanding of the whole text, because a misunderstanding of the tense or the act of a verb in a sentence within a technical text may result in a complete inverse meaning of the message. Therefore, having a correct understanding of the structure of the sentences, which is obtained by having enough grammatical knowledge, helps the readers to get the idea correctly. A large number of students, despite knowing the words of a sentence one by one, do not express the correct purpose of that sentence mostly in terms of tenses, because of the lack of enough grammatical knowledge. Hence, a very significant pedagogical implication of this study is the recommendation that teaching reading comprehension should be mixed with explicit grammatical teaching; that is, in order to enhance reading comprehension of ESP students, it is recommended that the teachers and instructors provide students (especially ESP students) with explicit grammatical teaching.

4. Conclusion

Current research clearly indicates that grammar instruction is necessary in order for language learners to attain high levels of proficiency in the target language. However, traditional structure-based grammar teaching approaches have been replaced by treatments which may or may not include an explicit discussion of target forms and the rules for their use, but present the forms in numerous communicative contexts designed to promote learner awareness of meaning–form relationships and to permit processing of the form to occur over time (Ellis, 2010). The study reported in this research investigated the effect of explicit teaching of grammar on enhancing reading comprehension of ESP students. As the results indicated, explicit teaching of grammar improved the comprehension of reading ESP text. But caution must be exercised regarding this conclusion since the differences found between the two groups were not much significant. Besides, the effect may be short term rather than long term; that is, in the long run the effect of explicit teaching of grammar may be diminished and students no longer take resort from knowledge of grammar achieved via explicit teaching of grammar.

References

- Ary, D. Jacobs, L. C. & Razavieh, A. (2006). *Introduction to research in education*. (7th Ed.). New York: Harcourt Brace College publishers.
- Atai, M. R. (2003). The impact of the explicit instruction of the frequent grammatical patterns of ESM written discourse on ESP students reading comprehension. *Iranian Journal of Applied Linguistics*, 10 (1), 115-132.
- August, G. (2002). So, what's behind adult English second language reading? *Reading Matrix*. 7(2)101-1117.
- Brown, D. (2007). *Principles of language learning and teaching*. Cambridge: Cambridge University Press.
- Carlo, M. S. & Sylvester, E. S. (1996). Adult second-language reading research: How may it inform assessment and instruction? *Journal*

- of Educational Psychology*. 88(3)145-165. Cele-Murcia, M. (2001). *Teaching English as a second or foreign language*. Boston. MA: Heinle & Heinle.
- Chastain, K. (1988). *Developing second-language skills theory and practice* (3rd Ed.). New York: Harcourt Brace Jovanovich.
- Cook, V. (2008). *Second language learning and language teaching* (4th Ed.). New York: Arnold Publication.
- Doughty, C. & Long, M. (2003). *The hand book of second language acquisition*. Boston: Blackwell Publishing.
- Ediger, A. (2000). *Reading connections intermediate*. New York: Oxford: Oxford University Press.
- Ellis, R. (2008). *The study of second language acquisition* (2nd Ed.). Oxford: Oxford University Press.
- Ellis, R. (2010). *Second language acquisition research and language teaching materials* in Harwood, Nigel (2010) *English language teaching materials theory and practice*. Cambridge: Cambridge University Press.
- Hinkel, E. (2005). *The hand book of second language teaching and learning*. Oxford: Oxford University Press.
- Gascoigne, C. (2005). Toward an understanding of the relationship between L2 reading comprehension and grammatical competence. *Reading Matrix*. 5(2) 86-101.
- Gass, M. S. & Selinker, L. (2008). *Second Language Acquisition* (3rd Ed.). *An Introductory Course*. London: Routledge.
- Gass, M. S. & Mackey, A. (2005). *Second Language Research, Methodology and Design*. London: Lawrence Erlbaum Associates, Publishers.
- Gelderen, V.; Amos, S.; Rob, S.; Reinoud, D.; Glopper, D.; Kees, H.; and Jan, I. (2007). Development of adolescent reading comprehension in L1 and L2: A longitudinal analysis of constituent components. *Journal of Educational Psychology*. 99(3)125-145.
- Grabe, W. (1991). Current developments in second language reading research. *TESOL Quarterly*, 25(3), 375-406.

- Grabe, W. (2001). *Reading, writing relations: theoretical perspectives and instructional practices in reading, writing relations in second language context*. Michigan: Michigan University Press.
- Harmer, J. (2007). *The practice of English language teaching* (4th Ed.). New York: Longman.
- Jalilifar, A.; Hayati, A. & Saki, A. (2008). Question strategies in testing reading comprehension: A comparative study of pre-questioning, post-questioning, and infixing. *Iranian Journal of Language Studies*. 2(2), 115-132.
- Kaplan, R. (2002). *The hand book of applied linguistics*. Oxford: Oxford University Press.
- Klapper, J. & Rees, J. (2003). Reviewing the case for explicit grammar instruction in the university foreign language learning context. *Language Teaching Research*. 2(2), 285–314.
- Krashen, S. (1993a). The effect of grammar teaching: Still peripheral. *TESOL Quarterly*. 27, 717-725.
- Krashen, S. (1993b). *The power of reading*. Englewood: Colo libraries unlimited.
- Mora, J. K. (2001). Reading comprehension an analysis of processes and subprocesses in second language reading. *Journal of Educational Psychology*. 100(2)135-155.
- Nation, I. S.P. and Macalister, J. (2010). *Language Curriculum Design*. Newyurke: Routledge publication
- Nunan, D. (2006). *Second language teaching and learning*. Boston. M.A: Heinle & Heinle.
- Richard, J. C. & Renandya, W. A. (2002). *Methodology in language teaching: An anthology of current practice*. Cambridge: Cambridge University Press.
- Snow, M. (2002). *Reading for understanding. Toward an R & D program in reading: The report of the Rand*. Washington, DC: Rand.