The Effect of Using Metacognitive Strategies on the Reading Comprehension of Field Dependent/ Independent Iranian Intermediate EFL Learners

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چکیده

هدف از این پژوهش، بررسی تأثیر استفاده از راهبردهای فراشناختی بر درک مطلب روخوانی زبان‌آموزان کلی‌نگر و جزئی‌نگر ایرانی بوده است. جمعیت مورد آزمایش ابتدا ۱۲۸ نفر دانشجوی دانشگاه آزاد اسلامی گرمسار بودند که پس از انجام آزمون توانش زبانی تافل، تعداد ۸۰ نفر آن‌ها «زبان‌آموز همگن» تعیین و به دو گروه آزمایش و شاهد تقسیم شدند. آن‌گاه هر دو گروه به پرسش‌نامه‌ی «GEFT» پاسخ دادند تا نوع شخصیت آن‌ها (کلی‌گرایی یا جزئی‌گرایی) تعیین گردد. سپس از هر دو گروه یک پیش‌آزمون روخوانی شامل ۲۵ پرسش چهارجوابی درک مطلب، که اعتبار و روائی آن از پیش مشخص شده بود، به عمل آمد. پس از آن به گروه آزمایش ۱۰ جلسه‌ی ۱۲۰ دقیقه‌ای استفاده از راهبردهای فراشناختی درک مطلب روخوانی آموزش داده شد، در حالی‌که به گروه شاهد به روش متداول تدریس گردید. آن‌گاه هر دو گروه به پرسش‌نامه‌ی SILL پاسخ دادند تا میزان استفاده از راهبردهای فراشناختی در آن‌ها معین شود. در پایان دوره‌ی آموزش، به منظور بررسی تأثیر این روش تدریس خاص، از هر دو گروه یک آزمون نهایی که مشابه آزمون مقدماتی بود، به عمل آمد و میانگین نمرات آن‌ها با استفاده از روش آماری t-test مورد مقایسه قرار گرفت. نتایج آماری نشان داد که اختلاف معناداری بین زبان‌آموزان دو گروه وجود دارد.

کلیدواژه‌ها: راهبردهای فراشناختی، خواندن و درک مطلب، کلی‌نگری، جزئی‌نگری.

Abstract

This study was an attempt to investigate the effect of using metacognitive strategies on the reading comprehension of field dependent/ field independent Iranian intermediate EFL learners. To find the homogeneity of the subjects, a TOEFL test (2005 version) was administered to 128 students, studying at Garmsar Azad University, and 80 subjects whosescores were within the range of one standard deviation above and below the mean were selected as homogeneous and were divided into two groups: experimental and control. The researchers gave all the subjects Group Embedded Figure Test (GEFT) to find out their types of personality as field dependent and field independent. Then they received a piloted multiple-choice test of reading

comprehension which had been developed by the researchers as pre-test. The students in the experimental group received ten sessions of 120-minute classes, one session a week, on reading comprehension instruction plus metacognitive strategies, while the control group followed the conventional method for reading. Then both groups received Strategy Inventory for Language Learning (SILL) Questionnaire in order to reveal their use of metacognitive strategies and finally both groups received a post-test which was the same as the pr-etest.
The results of the t-test showed a significant difference between the two groups in favour of the experimental one.
Key Words: metacognitive strategies, reading comprehension, field dependent, field independent.

Introduction

Reading is a vital cultural tool in modern societies. The ability to read and understand continuous texts is crucial to success in educational, professional, and everyday settings. Proficiency in reading is a key target of schooling and a major prerequisite for learning, both within and beyond the context of formal education (Boulware- Gooden et al. 2007, p: 70).

Block & Pressley (2002) and Sweet & Snow (2003) believe that for students to adequately comprehend a text, an awareness of print is needed, which can be obtained through multiple channels to facilitate word recognition. In order to read for success, students must be able to extract and construct meaning through interaction with texts. Comprehension results from an ongoing interplay between the text, the reader, and the context of the reading event (cited in Boulware- Gooden et al. 2007, p: 73).

In recent years, metacognition has been proposed as a promising perspective in the field of education, since it suggests a pedagogical approach aimed at inducing students to self-regulate their learning in order to become autonomous and critical knowledge constructors (Boekaerts, Pintrich, & Zeidner, 2000). Usually metacognition is defined as the awareness, the knowledge and the control of cognitive processes. Historically, the notion of learners thinking about their own thinking dates back to, as least, Plato and Aristotle (Brown, 1987), but the first attempts to define and classify the domain of metacognition was made by Flavell (1979) who proposed a model of metacognition whose key concept is "metacognitive knowledge", which refers to that part of personal knowledge which deals with how the mind works when engaged in perceiving, comprehending, memorizing, and re-elaborating notions.

Flavell (1987: 22) argued for a synthetic view, which considers metacognitive knowledge to be constituted of intra-individual, inter-individual and universal knowledge.

While unskilled readers who often focus on decoding single words, fail to adjust their reading for different texts or purposes, and cannot make use of the

strategies adequately; skilled readers use rapid decoding, large vocabulary, phonemic awareness, knowledge about text features, and a variety of strategies to aid comprehension and memory. Good readers sometimes make notes, predict, paraphrase, and back up when confused. They try to make inferences to fill in the gaps in text and in their understanding of what they have read (Carrell, Pharis, & Liberto 1989, pp: 463-494).

Recent research on self-directed or independent language learning has focused on the kind of support provided, that can be used in the form of materials, tasks, interaction, strategies, technology or language advising. However, regardless of the nature and quantity of support provided, one of the key findings of recent studies is that students are often "lacking in the metacognitive skills needed in order for the independent learning to be carried out successfully" (Fisher et al., 2007, p: 47).

Rigney (1978) suggests that learners use a variety of strategies to assist them with the acquisition, storage and retrieval of information (Cited in Singhal, 2001: 1). When readers encounter comprehension problems they use strategies to overcome their difficulties; different learners seem to approach reading tasks in different ways, and some of these ways appear to lead to better comprehension. Research has shown that learners can be instructed to use appropriate reading strategies to help them improve comprehension and recall (Carrell et al. 1989, 463-494).

On the other hand, research on the effectiveness of metacognitive instruction to improve students' reading comprehension ability has shown that this type of instruction does lead to significantly strengthened reading comprehension ability. However, to the researchers' knowledge, no research study has investigated the effect of metacognitive instruction in reading comprehension of field dependent/ field independent learners. With regard to the purpose mentioned above, the following questions seem crucial:

"Does metacognitive strategy instruction have any significant effect on reading comprehension of Iranian intermediate EFL learners"?

"Is there any significant difference between field dependent/ independent learners' performance in using metacognitive strategies in reading comprehension?"

To find the most reasonable answer to the above-mentioned research questions, the researchers proposed the following Null-Hypotheses:

H01: There is no significant difference between field dependent/ independent learners' performance in using metacognitive strategies in reading comprehension.

H02: Metacognitive strategy instruction does not have any significant effect on reading comprehension of Iranian Intermediate EFL learners.

METHOD

To accomplish the purpose of the

study, two classes of Iranian junior students at Garmsar Azad University were selected. The subjects were male and female majoring in teaching English. The age of the participants ranged from 21 to 29.

Four insruments were used in this study. First a TOEFL Reading Proficiency test was administered to find out the homogeneity of the groups. Then, both classes received Group Embedded Figure Test (GEFT) questionnaire in order to find out their types of personality (field - dependent and field-independent). The third test was Strategy Inventory for Language Learning (SILL) questionnaire to find out the use of metacognitive strategies. The last instrument was a reading comprehension test which included 25 items. It was developed by the researchers and piloted before it was used as the assessment tool in the pret-est and the post-test phases of the study.

In order to conduct the research and to verify the research hypotheses the following steps were taken:

Two classes of 59 and 69 Iranian junior students at Garmsar Azad University were selected; then, a TOEFL Reading Proficiency test, (2005 version) was administered to both groups to find the homogenity of the groups. After analyzing the data, the participants whose scores fell one standard deviation above or below the mean were selected. At last, the researchers chose 80 students from amongst the subjects who had answered all tests and questionnaires in this study. The researchers assigned the homogenized subjects into two groups of 40; one experimontal and one control. The researchers then gave the GEFT questionnaire to the participants in order to find out their types of personality traits as field dependent and field independent, then they were given a piloted multiple-choice test of reading comprehension. To construct the reading comprehension test which was developed by the researchers and used as pre-test and post-test, the researchers found the readability of the texts to be included in the test through Flesch readability formula. It was done with the Word 2007 software and the mean score was calculated. The readability of the texts, was between 51.5 and 71.5 In order to pilot the test, the researchers administered it to a parallel group of 20. The results were then correlated with the TOEFL scores, using Pearson Product Moment Correlation Coefficient.

The students in the experimental group received 10 sessions of 120-minute classes, on session a week of reading comprehension instruction plus metacognitive strategies, while the control group followed the conventional method for reading. The passages were taken from the reading comprehension book "Mosaic 1", 4th edition. In the experimental class, the students were taught three matacognitive strategies and they applied them to the passages. The strategies which were taught were as follows:

- **Inferring meaning (through word analysis):** While I am reading, I try to determine the meaning of unknown

words that seem critical to the meaning of the text.

- **Using background information:** While I am reading, I reconsider and revise my background knowledge about the topic, based on the text's content.
- **Guessing the later topics:** I anticipate information that will be presented later in the text.

After the treatment period, both groups received SILL Questionnaire in order to find out the use of metacognitive strategies and finally both groups received a post-test which was the same as pre-test. Then the means obtained from the groups were compared through a t-test.

Results

The mean of the control group was 28.05, while the mean of the experimental group was 34.20. Table 1 presents the results of the t-test run on the means of the groups on the post-test. As the P value is lower than 0.05 we can conclude the control group has significantly exceeded the control group.

To find out the use of metacognitive strategies, the participants received SILL questionnaire in both groups. Here the purpose was to find out the correlation of SILL questionnaire (the use of strategies) and reading comprehension of the groups. As tables 2 and 3 show the correlation values in both groups are significant; however, the size of the correlation in the experimental group is much higher than the control group.

In order to find out the subjects' types of personality (field-dependent and field-

Table 1: T-test between Control and Experimental group in post test

	Paired Differences							
				95% Confidence Interval of the Differences				
Post-test (C-group) - (E-group)	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
	-6.15000	11.66751	1.84480	-9.88145	-2.41855	-3.334	78	0.002

Table 2: Correlation SILL and reading Comprehension of the experimental group

	SILL Q	Reading
SILL Pearson Correlation	1	0.840**
Sig (2-tailed)		0.000
N	40	40

**. Correlation is significant at the 0.01 level (2-tailed)

Table 3: Correlation SILL and the reading Comprehension of the control group

	SILL Q	Reading
SILL Pearson Correlation	1	0.359*
Sig (2-tailed)		0.023
N	40	40

*. Correlation is significant at the 0.05 level (2-tailed)

Table 4: T-test for pretest

	Paired Differences							
				95% Confidence Interval of the Differences				
Pre-test (C-group) (E-group)	Mean	std. Deviation	std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
	-2.37500	12.09087	1.91173	-6.24185	24.00	-1.242	39	0.222

independent), the researchers administered the GEFT Questionnaire.

The numbers of field dependent/ field independent participants were 15 and 16 in the control group while in the experimental group the numbers were 16 and 17 respectively. For this study the participants who were of medium type were not included in the analysis. To make sure that the groups are of the same type the researchers chose 15 participants of each type in both groups.

To test the second hypothesis; the researchers divided the field dependent/ field independent participants' reading comprehension scores in both groups. Therefore, the control group consisted of two subgroups: field dependent and field independent and the experimental group also consisted of two subgroups. Tables 5 and 6 show the descriptive statistics of the sub-groups of the control group and experimental group in the pre-test.

As table 5 and 6 indicate the mean score of the field dependent in the control group is 25.40 while in the experimental group it is 27.06, and the mean score of the field independent in the control group is

Table 5: Descriptive statistics of field dependent/ independent's pretest in C-Group

	Number	Mean	Std. Deviation	Variance	Range	Min	Max
Field dependent	15	25.4000	5.42218	29.400	17.00	17.00	34.00
Field independent	15	27.8000	7.49476	56.171	24.00	16.00	40.00

Table 6: Descriptive statistics of field dependent/ independent's pretest in E-Group

	Number	Mean	Std. Deviation	Variance	Range	Min	Max
Field dependent	15	27.0667	7.35300	54.067	24.00	16.00	40.00
Field independent	15	28.2000	6.57050	43.171	21.00	18.00	39.00

Table 7: T-test between pretest of field dependent in C and E group

Pre-test Field dependent (C-group) - (E-group)	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Differences				
				Lower	Upper			
	-1.66667	10.04751	2.59425	-7.23079	3.89746	-.642	14	0.531

Table 8: T-test between pretest of field Independent in C and E group

Pre-test Field independent (C-group) - (E-group)	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Differences				
				Lower	Upper			
	-0.40000	10.02711	2.58899	-5.95283	2.15283	-0.155	14	0.879

Table 9: Descriptive statistics of field dependent/ independent's post test in C-Group

	Number	Mean	Std. Deviation	Variance	Range	Min	Max
Field dependent	15	29.4667	4.98378	24.838	19.00	21.00	40.00
Field independent	15	29.6667	8.17371	66.810	28.00	18.00	46.00

27.80 while in the experimental group it is 28.20. To examine the differences and see whether they were significant, the researchers applied t-test to the means.

In tables 7 and 8, the P value of both groups are higher than the level of significance which means there is no significant difference between the sub-groups in the control and experimental group in the pre-test.

Tables 9 and 10 show the results of the post-test of the sub-groups.

As the above tables indicate, the mean score of field dependents, in the control group is 29.46 while that of the experimental group is 32.26 and the mean score of the field independents in the control group is 29.66 while that of the experimental group is 36.80. To check the significance of the differense t-test was used.

The results in tables 11 and 12 show no significant difference between the sub-groups, though a trend in the direction of significance can be seen so the second null hypothesis was confirmed.

Conclusion and Implications

The main concern of this study was to find out whether or not using metacognitive strategies can have any effect on reading comprehension of intermediate EFL learners, and whether this effect would be equal on field dependent and field independent learners.

The result revealed a significant increase in the performance of subjects in the experimental group which means the subjects in the group benefited

Table 10: Descriptive statistics of field dependent/ independent's post test in E-group

	Number	Mean	Std. Deviation	Variance	Range	Min	Max
Field dependent	15	32.2667	6.74502	45.495	22.00	22.00	44.00
Field independent	15	36.8000	7.57062	57.314	25.00	22.00	47.00

Table 11: T-test between pretest of field dependent in C- and E- groups

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Differences				
				Lower	Upper			
Post-test Field independent (C-group) - (E-group)	-2.80000	10.09385	2.60622	-8.38797	2.78979	-1.074	14	0.301

Table 12: T-test between post test of field Independent in C- and E- groups

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Differences				
				Lower	Upper			
Post-test Field independent (C-group) - (E-group)	-7.13333	11.96941	3.09049	-13.7618	-0.50490	-2.308	14	0.037

> **When readers encounter comprehension problems they use strategies to overcome their difficulties; different learners seem to approach reading tasks in different ways, and some of these ways appear to lead to better comprehension**

significantly from the treatment which was conducted. The t-test between scores of field dependents and field independents revealed no significant difference between the participants who were field-independent and thase who were field-dependent.

As the results of this study show that strategy instruction has an impact on the desirable noticing of strategy use in terms of awareness- raising, it is worth implementing metacognitive strategy instruction to help L2 speakers to cope with ESL oral tasks, thereby providing a means to help students improve their language ability and facilitate task completion. It may also be desirable to plan for strategy instruction with a view to promote the effective use of metacognitive strategy instruction in the language classroom. The provision of time and space for students to practice metacognitive strategies prior to task implementation can enhance the students' performance achievement.

Based on insights from the previous researchers, we can assume that metacognitive strategy use leads to better comprehension and more successful reading. The findings of this study support this assumption and imply more careful planning in reading strategy instruction. The findings imply that at the imtermediate level explicit metacognitive strategy instruction is necessary for both field dependent and field independent readers; and all readers should be given edequate opportunities to practice all sorts of metacognitive strategies.

Refrences

Block, C. C., & Pressley, M. (2002). *Comprehension Instruction: Research-Based best Practices.* New York: Guilford Press

Boekaerts, M., Pintrich, P. R., & Zeidner, M. (2000). Self-regulation on Introductor Overveiw. In M. Boekearts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of Self-Regulation* (pp. 1-9). San Diego, CA: Academic Press.

Boulware-Gooden, R., Carreker, S., Thornhill, A., Joshi, R. M. (2007). Instruction of Metacognitive Strategies Enhances Reading Comprehension and Vocabulary Achievement of Third-Grade Students. The Reading Teacher, 61(1), pp. 70-77.

Brown, A. (1987). Metacognition, Executive Control, Self-regulation, and Other More Mysterious Mechanisms. In F. E. Weinert & R. J. Kluwe (Eds.). *Metacognition, Motivation, and Understanding.* Hillsdale NJ: Lawrence Erlbaum Associates.

Fisher, D., Hafner, C., Young, J., (2007). *Intergrating Independent Learning: Lessons Learned and Implications for the Classroom.* In: Gardner, D. (Ed.), *Integration and Support. Authentik, Dublin, pp. 33-55.*

Flavell, J. H. (1979). Metacognition and Cognitive Monitoring: A New Area of Cognitive-developmental Inquiry. American Psychologist, 34, 906-911.

Flavell, J. H. (1987). *Speculations About the Nature and Development of Metacognition.* In F. E. Weinert & R. H.

Singhall M. (2001). *Reading Proficiency, Reading Strategies, Metacognitive Awareness and L2 Readers. The Reading Matrix, 1/1.* Retrieved February 12, 2006, Pp. 1-23 from http://www.readingmatrix.com/atricles/singhal/article.pdf

Sweet, C.E., & Snow, A.P. Reading for Comprehension. In C.E. Sweet & A.P. Snow, *Rethinking Reading Comprehension.* New York: Guilford Press..