The Effects of Gender Differences and Schema-Based Pre-reading Activities on Reading Comprehension Skill

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Abstract: *This study was designed to investigate the effects of gender and Schema-based pre-reading activities on the Iranian EFL learners' reading comprehension. The sample consisted of 60 male and female students studying at second-grade high school in Abhar city. Two reading passages ("Charles Dickens and the Little Children", and "Hic, Hic, Hic") were randomly selected from second-grade English textbook. The subjects were assigned randomly into four groups of fifteen based on school ordering. Then the researcher administrated reading comprehension pre-test in order to know if they were at the same background knowledge. Four groups were exposed to different treatments. Group A and group C (EG) received SBPRA (PTV and PRQ). The subject in group B and group D (CG) received GTM. The subjects were taught for a week and then took reading comprehension Multiple-choice items post-test. The results first showed that there was a significant difference between the two groups (EG and CG). Groups A and C which used SBPRAs comprehended passages better than groups B and D who did not use them. Second, gender did not affect reading comprehension ability so male and female use learning strategies equally. The findings of this study recommended that teachers can use SBPRA as a useful tool for facilitating students' reading comprehension.*

Keywords: *Gender Difference, Reading Comprehension, Reading Activities, Schema Theory.*

Introduction

Nowadays in Iran, it is important to learn English because it is not only stated as education curriculum but also as the international communication language. Medgyes (1994) points out that "language is necessary for different activities, including education, politics, and socio-economics" (p. 26). In fact, reading skill is the most important skill in second or foreign language learning because there is a need for curriculum and teaching process in order to prepare EFL/ESL students to utilize real life application. Kennedy (1994) defined reading as, *"The ability of an individual to recognize a visual form, associate the form with a sound or meaning he/she has learned in the past, that is basis on the past experience, understand and interpret its meaning". (p.3).* from this definition, reading is not a passive activity. In other words, the reader must make an active contribution to acquiring the available information. As the matter of fact, as Carrell and Eisterhold (1983) stated, background knowledge is very important in reading comprehension, so schema theory comes to be known as the importance of background knowledge within a psycholinguistic model of reading. (p.554) According to schema theory, readers interact with the text in order to recreate meaning through reading comprehension, which is an interactive process between the text and the reader's background knowledge. Also, by activating the appropriate schemata, reader can comprehend the incoming data. In order to facilitate reading comprehension, readers should activate their background knowledge. Widmayer (2003) said, "The learner in schema theory actively builds schemata and revises them in light of new information" (Widmayer, 2003 cited in http://www.ukessays.com).

Problem Statement

In Iran, English is learned as a foreign language, and learners are interested in learning it proficiently. As the researcher observed male and female's participants in English classes had problems in reading comprehension. So there was a need to do more research on reading comprehension in such contexts and present appropriate teaching methodology to solve their problems. In this study, the researcher selected teaching methodology (SBPRA) and applied it to both male and female's groups with two aims; the first was to investigate the effect of applying

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SBPRAs on students' reading comprehension. The second aim was to investigate the effect of students' gender on the reading comprehension ability.

Research Questions

1. Is there any statistically significant difference in teaching methods between male students who receive PTV and PRQ and male students who do not?
2. Is there any statistically significant difference between groups who receive and do not receive SBPRA (PTV and PRQ) in their reading skill?

Review of Related Literature

Gender Difference

Oxford and Nyikos (1989) concluded "gender differences had a profound influence on strategy use, and that female used strategy more repeatedly than male" (p. 294). For instance, in relation to male and female self-conceptualization, Marsh, Byrne and Shavelson (1988) demonstrated that "female had a high self-concept of verbal skills and high achievement in terms of verbal skills, while male had only a high self-concept of mathematical skills but low achievement" (p. 369).

Reading Comprehension

Reading was seen as a very complex process that requires many different skills. Hancock (1998) believes that, "reading comprehension involves understanding the vocabulary, seeing relationships among words and concepts, organizing ideas, recognizing the author's purpose, evaluating the context, and making judgments" (p. 69). According to Heather (2013), "reading comprehension is the act of understanding what you are reading". There are three key components of the cognitive-constructivist model included: the cognitive orientation, schemata, and construct. Since the 1970s, three approaches have been dominant in the history of English as a foreign language. These approaches are the bottom-up processing, the top-down data processing, and the interactive models. Richards (2008) defined bottom-up processing as "using the incoming input as the basis for understanding the message" (p.7). Moreover, he defined top-down processing as "using background knowledge in understanding the meaning of a message". Alderson (2000) declared, "Neither the bottom-up nor the top-down approach is an adequate characterization of the reading process" (p.3).

Reading Activities

Karakas (2002) have been suggested reading activities "as devices to support the reader's interpretation of text and to prevent any possible failure in reading process". Ajideh (2006) maintains that "PRAs can be helpful in three ways: by building new schemata, by activating existing schemata, and by informing the teacher what the students know" (p.5). Lazer (1993) classifies "PRAs used to activate appropriate knowledge structures or provide knowledge that the reader lacks as: previewing, pre-questioning, and brainstorming". (p. 83) According to Chia (2001), the aim of previewing is, *To help readers predict or make some educated guesses about what is in the text and thus activate effective top-down processing for reading comprehension. (p.22)* Johnson (1981) has stated, *Pre-questioning is taught by having the instructor ask questions about a passage and the students answer the questions, through pre-questioning students set purposes for reading. (p.90)*

Schema Theory

Anderson and Pearson (1984), Sir Frederic Bartlett (1932) were the first psychologist that used the term "schema". Bartlett (1932) said "schema is an active organization of past reactions, or past experience" (p. 201). Anderson and Pearson (1984) focus on the issue of, *how the reader's schemata, or knowledge, already stored in memory, function in the process of interpreting new information and allowing it to enter and become a part of the knowledge store. In summary, Anderson and Pearson's Schema-Theoretic Model of the reading process addresses the interaction between old and new information.*

Method and Design of the Study

The present study comprised two distinct pretest-posttest control group experimental designs with utilization of randomization for each four groups of participants. The independent variable in this study is teaching reading

comprehension with two methods, SBPRA and GTM. The dependent variables in this study consisted of scores sought from two types of PRAs (PTVs and PRQs).

Participants

The participants of this study were included 60 male and female second-grade high school students and their age ranged from 16 to 17. The participants were selected randomly among three levels (first, second, third) in high school.

Table (1): Groups Description

	Gender	Number	Total
Experimental group	Male	15	
	Female	15	30
Control group	Male	15	
	Female	15	30
Total			60

Instrumentation

Two reading comprehension passages and lesson plans were constructed and divided into two sets. Set one, consisted of PTVs and set two was PRQs. In implementing the SBPRA, first, students in groups A and C (male and female EGs) took pre-test. Second, the researcher gave treatments to students which planned 2 lists of treatments for each passage before. In implementing the GTM, first students in groups B and D (male and female CGs) took pre-test; second, the researcher gave translation of reading passages to them. Students in four groups opened their books and the researcher taught them separately in one hour. Finally, the same post-tests were applied to four groups. The reading comprehension test consisted of 20 multiple-choice test items. For each test item, four choices were given. The test items were written based on two reading passages (Charles Dickens and the Little Children & Hic, Hic, Hic). The test was administered to measure the students' reading comprehension ability before and after the treatment. The participants had to finish the tests within 60 minutes.

Procedure

The present study was an experimental research. Two reading passages were selected from student's English book 2 for comparing the effect of two teaching methods (SBPRA and GTM) on reading comprehension. Then the pre-test was administrated to 60 male and female students in four groups. The participants attended classes in a week for an hour each day. The EGs received lists of PTVs and PRQs instruction and teacher asked them to read the activities before reading passages and learn new words in order to comprehend passages successfully. Teacher trained reading passages and asked students new vocabularies and questions. In CGs participants neither received PTVs nor PRQs while the EGs received. For CGs teacher read the passages and translated them line by line. Students learned passages just by translational method. The same post-test was applied in four groups for 40 minutes. The tests were evaluated by three raters and compared with each other. The validity was shown when the individual ratings were compared and the numbers were consistent among the raters. Finally, the data were collected and statistically analyzed following by reporting the research results, writing the summary of the findings and discussion.

Data Analysis

The data collected quantitatively. The results of students' scores discovered before and after the treatment evaluated by the Kolmogorov-Smirnov test. In order to comparing and evaluating the hypotheses, co-variance analysis, *Levene's Test of Equality of Variances*, and *ANCOVA* were used. The scores in four groups were calculated and separated for the data analysis using Statistical Package for Social Sciences (SPSS 21).

Results

One of the assumptions of normal distribution is using parametric data. This condition may be evaluated by the Kolmogorov-Smirnov test. The results of students' scores before and after treatment were given in the following

table determined, Sig. for both variables were higher than p<0.05. As a result, the distribution of students' scores before and after treatment was normal and parametric method permitted.

Table (2): One-Sample Kolmogorov-Smirnov Test

		Pre-test	Post-test
N		60	60
Normal Parameters[a,b]	Mean	5.0833	7.9667
	Std. Deviation	2.43764	2.60356
Most Extreme Differences	Absolute	.122	.145
	Positive	.122	.145
	Negative	-.080	-.083
Kolmogorov-Smirnov Z		.942	1.122
Asymp. Sig. (2-tailed)		.337	.162

a. Test distribution is Normal.

b. Calculated from data.

Hypothesis 1

To evaluate the effect of applying PTVs and PRQs on male students, and also to adjust the scores of pre-test the covariance analysis method has been used. Results of these tests was shown in table 4.2 that the mean scores of group A (experimental group) is 9.2 which is higher than the mean scores of group B (control group) which is 6.66.

Table (2): Descriptive statistics of discriminant scores for the two groups of males

method	Mean	Std. Deviation	N
SBPRA	9.2000	2.42605	15
none	6.6667	2.28869	15
Total	7.9333	2.65139	30

One of the assumptions of the ANOVA is the homogeneity of variances. This assumption is checked by testing Levene. Based on the results displayed in table 4.3, It can be concluded that there is a significance level equal to 0.562 and the test Levene is higher than 0.05. Consequently, the assumptions of homogeneity of variances in the two groups were accepted and using of ANCOVA test was permitted.

Table (3): Levene's Test of Equality of Variances

F	df1	df2	Sig.
.344	1	28	.562

As the result in table 4.4 was shown, there is a significant level for variable method which is 0.003, and it is less than the 0.05.

Table (4): Results of ANCOVA adjusting for the effects of pretest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	130.213[a]	2	65.106	23.867	.000
Intercept	158.476	1	158.476	58.094	.000
Pre-test	82.079	1	82.079	30.089	.000
Method	28.631	1	28.631	10.495	.003
Error	73.654	27	2.728		

Total	2092.000	30
Corrected Total	203.867	29
a. R Squared = .639 (Adjusted R Squared = .612)		

Thus, the null hypothesis as there is not any statistically significant difference in teaching methods between male students who have applied PTVs and PRQs and male students who have not applied **was rejected**.

Hypothesis 2

As the data in table 4.5 determines the mean score of students in the experimental group is 9.2, which is higher than mean score of students in the control group 6.7.

Table (5): Descriptive statistics to separate the student of two groups

method	Mean	Std. Deviation	N
SBPRA	9.2333	2.35889	30
None	6.7000	2.21515	30
Total	7.9667	2.60356	60

To check the assumption of homogeneity, Levene test of Equality of Variances is given below. Based on the results displayed in table 4.6, it can be concluded that there is a significance level equal to .412 and the test Levene is higher than 0.05. Consequently, the assumption of homogeneity of variances in the two groups are accepted and using of ANCOVA test is permitted.

Table (6): Levene's Test of Equality of Variances

Levene's Test of Equality of Variances

F	df1	df2	Sig.
0.684	1	58	.412

The results in table 4.7 there is a significant level for variable method which is 0.000 and it is less than the 0.05.

Table 4.7 Results of ANCOVA adjusting for the effects of pretest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	205.470ᵃ	3	68.490	19.723	.000
Intercept	92.635	1	92.635	26.676	.000
Pre_test	109.137	1	109.137	31.428	.000
gender	.582	1	.582	.168	.684
method	83.605	1	83.605	24.076	.000
Error	194.463	56	3.473		
Total	4208.000	60			
Corrected Total	399.933	59			

a. R Squared = .514 (Adjusted R Squared = .488)

Thus, the null hypothesis as there is not any statistically significant difference between groups who have applied or have not applied PTV and PRQ **was rejected.**

Conclusion

The results obtained in this study showed that there was a significant difference between the learners in the male experimental group (M= 9.2, SD= 2.4) and male control group (M= 6.6, SD= 2.2). It can be concluded that there was a significance level equal to 0.562 and the test Levene is higher than 0.05. And there was a significant level for variable method which was 0.003 and it was less than the 0.05. This result was in line with Jecksembievva (1993 cited in Karakas 2002) concluded that "PRAs contributed to comprehension of the texts. Ajideh (2003) claimed that, *whenever teachers preparing PRQ which to be answered by students. These questions will activate students' prior knowledge as they complete their reading assignment. These questions are purposeful for reading, teacher can also help students develop their own questions which will help them establish purpose and focus attention. (Cited in Parviz Ajideh 2003, p. 9)*

According to these findings, the proposed null hypothesis for the first research question was rejected. The results obtained in this study showed the mean score of male and female students in experimental group was 9.2, which was higher than the mean score of male and female students in the control group 6.7. It can be concluded that there was a significance level equal to .412 and the test Levene was higher than 0.05. This result was in line with Graves, Watts and Graves, (1994) stated that "PRAs help learners have background knowledge about the reading text because the schema would help the reader get better comprehension". And Karakas said "reading activities have been suggested as devices to support reader's interpretation of text and prevent any possible failure in reading process".

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