The Impact of Schema Theory on Reading Comprehension

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1-Preliminary Remarks

The global importance of the effects of language complexity and the background Knowledge of a text on reading comprehension have always been recognized as elements of concern in the selection of reading materials for foreign language learners and in the evaluation of their reading comprehension . The purpose of this study is to examine experimentally the effects of providing background information on students' comprehension . There are, in fact, other cause of difficulties concerning language complexity : syntactic, semantic and discoursal , tense, aspect, modality ,grammatical and lexical cohesion ,correlatives ,and range of technical and sub technical vocabulary. Because of their importance, these causes of difficulties will be dealt with in future research .

Rumelhart (1980;34) suggests that " a Schema theory is basically a theory about knowledge . It is a theory about how knowledge is represented" . According to the Schema theories , all knowledge is packaged in to units. These units are the Schemata. English foreign language (EFL) methodology shows that the role of cultural knowledge as a factor in reading comprehension has been an issue for sometime. Fries (1963) talks about meaning at the social –cultural level. He suggests that the meaning which goes beyond the language code be related to the background knowledge of the native speakers of that code .Reading comprehension occurs when the total meaning of a passage is fitted in to this network of information .

Beck and Carpenter (1986: 1098-1105) point out that the impact of Schema theory on our understanding of the comprehension process has been tremendous .A reader ,according to Schema theory ,plays an active role in meaning ,and comprehending a text is an interactive process which involves the reader's existing schemata and the text. Anderson and Pearson (1984:255-291) explain that the meaning of the text is not found in the material itself ,but in the interaction that takes place between the reader and the text. The most important thing in this process is the reader's ability to organize information and relate new knowledge to the knowledge the reader already possesses .

Most discussions of Schema theory provide evidence of the great importance of background knowledge in reading comprehension . The use of background knowledge becomes an important variable when we observe that students with Western background of some kind learn English faster than those without such a background (Coady, 1979; 5-12). Besides , Widdowson (1978:6) observes that

"the learner may simply not feel himself in any way engaged by the text being presented to him " . This means that linking the gists of the passages to 'real-world' language gist can of course provide a sense of purpose.

2-Review of Literature

Literature shows the significance of culture in language learning for the achievement of meaningful communication and the understanding of a particular language .Swinney and Hakes (1976) find support for the model of sentence processing in English by native language readers in which a prior disambiguating context serves to restrict access of interpretations for an ambiguous word. As a general observation, a foreign language learner may draw incorrect assumptions which are due to cultural misunderstanding when reading unfamiliar texts. In some instances ,the cultural Schemata needed are not supplied by the text because the author assumes that the reader already has them. Steffenson etal (1978:10-29) find out that reading becomes rather impossible when there is a gap between the author and the reader.

Selinker etal (1976) and Seliinker etal (1973) study the problems of the non-native reader with the use of presupposition in Scientific and technical English passages .Gatbonton and Tucker (1971) ,and Kujoory (1978) identify similar problems in understanding implicit presuppositional cultural information when reading literature of a foreign cultural background . In research on readers' recall of stories and texts , Bartlett (1932) and Steffensen etal ,and Anderson (1978) find cross-cultural differences in reading comprehension .

Several LI studies demonstrate that providing background information facilitates understanding of unfamiliar texts . For example ,Row and Rayford (1987:160-176) use purpose questions as cues to activate background knowledge . Based on the same Schema theoretic view, a few studies which provide cultural background for readers also bring about significant results .A number of empirical investigations produces findings that appear to support this theory .

Hudson (1987:1-31) indicates that "much of the research in to LI effects of Schemata and context is applicable to L2 reading". For instance ,Johnson (1982:502-516) involves advanced foreign students from 23 countries in a Halloween Celebration before they read a passage on the topic of Halloween . Floyed and Carrell (1987:89-109) teach intermediate level foreign students appropriate background information about atypical Fourth of July celebrating before they read a passage on the Fourth of July .

The results of the above studies confirm that background knowledge plays an important role in learning and remembering text information .These findings provide convincing evidence for generalizing that students with well developed background knowledge comprehened text better than those with weakly developed background knowledge.

The hypothesis investigated in this study is: Do students ,who receive the background knowledge treatment, comprehened better than those who do not receive this treatment ?

3-Method

3-1 Subjects of the study

The sample of the study is 20 students from the Department of English ,College of Arts ,University of Basrah. They are students of First and Second year . They are chosen because they are required to take reading comprehension passages related to the difficult syntax ,sophisticated vocabulary, cultural barriers ,and lack of an English social context . Such materials are challenging to students

3.2 Materials

The two passages are chosen from <u>Multiple choice English</u> by A.F.Bolt (1975:11-21). The two selections are "Cakes and Ale" by W.Somerest , and "Darkness at Noon" by A.Koeslter . These two texts are authentic texts with include many events that cannot be comprehend without a reasonable level of syntax ,vocabulary ,and background knowledge .Thus, to fully understand and appreciate these events ,students need a background knowledge about such matters. These two texts are relatively unfamiliar to most of the students. Students need to know that "Cakes and Ale" has been written by a popular English dramatist who tries to achieve his sociological purpose .To better understand "Darkness at Noon" ,students need to know it is a novel dramatizing the plight of an old Bolshevik who is arrested by the secret police and made to confess to crimes against the state ,of which he is innocent .

3.3 Background knowledge Passages

Each background knowledge passage beings with the controlling idea, the author, and the year of publication .Next a paragraph provides the background knowledge of the main events and ideas which are relevant to each one. Then a paragraph provides the unfamiliar words and phrases used in each passage . Finally ,the last paragraph encourages students to read the passage carefully and to draw their attention that a test would follow the reading .

3.4 Treatment Procedures

The procedures for the presentation of the two treatments are different : the background knowledge treatment ,and the control treatment. In this treatment the researcher asks the students to read the passage silently and take the test without giving them any specific preparation But regarding the background knowledge treatment, the instructor reads the first few sentences of the treatment script , then motivate students to engage in a brief discussion prompted by relevant questions . Finally , the instructor reads the reminder of the treatment script ,and explains the unfamiliar words.

3.5 Design and Analysis

Students are randomly assigned to four groups, all of which are exposed to one treatment condition . The treatment spans two days : I day for each reading passage .The control treatment is presented during Week I. The provision of background knowledge treatment is presented during Week 2.The dependent measures used to asses students' comprehension are scores on the multiple – choice tests. The scores on multiple choice test are analysed using a one –way repeated measures ANOVA .The following null hypotheses are tested at the .05 level of significance ;one way of analysis of variance (ANOVA) allows us to compare Second group means simultaneously.

1-There is no difference between the scores obtained in the two passages for those who benefit from the treatment.

2-There is no difference between the score obtained in the two passages for those who do not benefit from the treatment .

3-The performance of the students is not different from one another regardless of the treatment .

4-Results

The analysis of variance on the multiple –choice test scores is shown in table 1 and 2 .As can be seen (Lapin ,1980) the main effects of treatment for first year are significant .Since F=13.5 and 3.23 , the value of F.50 for 1 and 9 degree of freedom, the three null hypotheses can be safely rejected at the 0.05 of significance (see Appendix 2).

Table 1
Analysis of Variance on the Multiple –Choice Test
Scores foe First Year Students

Source	DF	S.S	M.S	F
A	1	1620	1620	13.5
B	9	3480	387	3.23
Error	9	80.10	120	___
Total	19	61.80	___	___

As can be seen from tables 5 and 6 First Year students, score higher on the Second passage than on the first year .Similarly, the same applies to Second Year students .

Table 2.
Analysis of Variance on the Multiple –Choice Test
Scores for Second Year Students

Source	DF	S.S	M.S	F
A	1	24.20	24.20	22.20
3	9	57.80	6.42	5.89
Error	9	980	109	___
Total	19	9180	___	___

The analysis of variance on the multiple –choice test scores is shown in tables 1 and 2 . As can be seen , the main effects of treatment for Second Year students are significant . Since F=22.20 and 5.90 , the value of Fo .05 for 1 and9 degrees of freedom, the three null hypotheses can be safely rejected at the 0.05 of significance.

Table 3.
Corr . Coeff. X First Year Passage 1 Score
Y:Passage 2 Score

Count	Correlation	R-squared
10	0.571	.326

Table 3 shows the correlation coefficient between the Scores obtained for the two passages for the First Year students is a positive correlation coefficient which may be Scaled as fairly considerable . However , table 4 shows the correlation coefficient for Second Year students is positive .

Table 4.

Count	Correlation	R-squared
10	0.758	.575

Table 5.
Means and Standard Deviation for Main Effects of Treatment on Multiple-choice Text for First Year Students –I passage.

Count	Mean	Standard .DEV	Se Mean
10	42.00	18.74	5.93
10	60.00	12.47	3.94

Continuous 5.

Variance	Min	Max	Range	Sun	S.S
351.111	20	70	50	420	20.800
155.556	40	80	40	600	37.400

First Year Passage Score 2 Passage.

Mean	Std.Dev.	Std.Error	Variance	Coef.Var	Count
46.5	15.985	3.574	255.526	34.377	___

Table 6.
Means and Standard Deviation for Main Effects of Treatment on Multiple –choice Text for Second Year

Count	Mean	Std.Dev	Se Mean
10	38.00	22.51	7.12
10	60.00	15.63	4.94

Variance	Min	Max	Range	Sun	S.S
506.667	10	70	60	380	19.000
244.444	30	80	50	600	38.200

5-Conclusion

The basic question in this study is how background knowledge affects students' comprehension of reading comprehension passage . The result give a limited support for the background knowledge treatment .As can be seen from tables 1 and 2, there is a difference between the Scores obtained in the two texts of the condition and experimental treatments . Therefore , the text, which is provided with background knowledge , become a little bit easier than the text which is administered without background information. On the other hand, the students' performance in the two texts with either background knowledge or without it are relatively low. The mean both texts for for the condition groups is 32.5 and 44 respectively ; where as the mean for both texts for the experimental groups is 46.5 and 63.5 respectively.

The difference in test scores among the four groups indicate that those who receive the background knowledge treatment and then read the passage comprehend better than the students in the controlling group . First Year students score 14% higher than those who are not provided with background information ; where as Second Year students score 19.5 better than those who are not provided with background information . The most likely explanations of this result are that multiple –choice items require more language skills . Thus background information is one among many factors that are involved in facilitating reading and understanding .

Given the limitation of the present investigation , the following are some of the implications that can be drawn from this study for foreign language learning :

1-The provision of background knowledge offers a promising option for EFL teachers . And this corroborates , for example , to use in assisting students to read English texts . Since it is relatively easy to prepare background information on each text , teachers should be encouraged to provide it to help learners in reading .

2-Taken for granted, teaching methods should be carefully chosen to fit particular situations . Whether to provide background knowledge or give some other sort of prereading assistance in a particular situation depends on the text to be read, the students who will read it, and the purpose behind reading it. Also , teachers need to be aware of their students' needs and the sort of texts students are reading well. Then construct some prereading activities that will work for their students .

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تأشير نظرية البنى على الاستيعاب المقروء

علي قاسم علي

المستخلص

تبين أن التأشيرات المهمة العولية لتركية اللغة والمعرفة المسبقة للنص على الاستيعاب المقروء هي عناصر مهمة في اختيار مواد القراءة لمتعلمي اللغة الأجنبية الثانية وكذا في تقييم استيعابهم القرائي. تهدف هذه الدراسة إلى تحليل تأشيرات توفير المعلومات المسبقة للنصوص على مدى استيعاب الطلبة تجريبيا . في الحقيقة هنالك سبباً للصعوبات فيما يتعلق بالتعقيد اللغوي سواء اكان تركيبياً او معنوياً او خطابياً الخ .

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Appendix
Raw Scores

Ist.passage	2nd .passage		Ist .passage	2nd .passage	
No.S	A	B	No.S	A	B
1.	10	30	1.	40	50
2.	50	60	2.	20	70
3.	70	70	3.	70	70
4.	10	50	4.	30	40
5.	60	80	5.	40	70
6.	50	60	6.	40	60
7.	20	50	7.	70	80
8.	30	50	8.	30	50
9	60	80	9	20	50
10.	20	70	10.	60	60