Effects of Previewing and Providing Background Knowledge on EFL Reading Comprehension of American Documentary Narratives

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Introduction

The schema-theoretic models of the reading process heavily influences the orientation of educators who deal with acquisition of reading in both first and second language. (Beck & Carpenter, 1986; Bernhardt, 1991; Rowe & Rayford, 1987). According to the Schema-theoretic view, a reader plays a very active role in reading (Adams & Collins, 1979; Anderson & Pearson, 1984), and comprehending a text is an interactive process of how the reader's Schemata, or knowledge already stored in memory, function in the process of interpreting new information. The meaning of the text does not reside in the material itself but in the interaction that takes place between the reader and the text (Anderson & Pearson, 1984; Carrell, 1984). In China, it is not rare phenomenon students know every word in sentences, passages and texts, yet have no access to the meanings. To put it bluntly, they can not understand the seemingly understood language forms. Thus, experiencing frustrating difficulties in comprehension. The reason for this is that there is mismatch between the background knowledge presupposed by the writer and the background knowledge possessed by the reader (Carrell & Eisterhold, 1983), and this mismatch may elicit misunderstanding and distortion of the meaning of the text for the readers, especially for ESL/EFL readers. Research by Anderson (1978), Steffensen, Joag-Dev & Anderson (1979), Carrell (1987) and Kang (1992) has shown that because of differences in culture or expertise, EFL students experience comprehension difficulty. However, when provided with prereading activities, their comprehension improves considerably (Carrell, 1983; Taglieber, Johnson & Yarbrough, 1988; Chen & Graves, 1995; Zhaojin, 2003). Research has shown that prereading activities such as pictorial context, vocabulary preteaching, text previewing, preteaching unfamiliar vocabulary are effective for both L1 and L2 readers (Pearson, Hansen & Gordon, 1979; Grabe, 1991; Chen & Graves, 1995; Zhaojin, 2003). This study focuses on two prereading activities—previewing and providing background knowledge. Several L1 studies

demonstrate that providing background knowledge facilitates understanding and learning unfamiliar materials (Rowe & Rayford, 1987; Hayes & Tierney, 1982). A few L2 studies which provided cultural background knowledge for readers also brought about significant results. Previewing is another prereading activity likely to appropriate for situations in which texts are difficult and may contain culturally unfamiliar material. Previews are introductory materials presented to students before reading to provide specific information about the contents of the reading materials. Over the past 20 years, the L1 studies were consistent in demonstrating that previews can be effective in facilitating comprehension of short stories and expository passages for elementary, junior high school, and high school students of low, average and high ability (McCormick, 1989; Dole, Valencia, Greer & Wardrop, 1991). The studies by Chen & Graves (1995) and Zhaojin (2003), which investigated effects of previewing short stories provides supportive information on using previews with ESL/EFL students. The use of previews is also supported by related cognitive theories. According to Stanovich's (1980) interactive compensatory model, Reading is an interactive process in which the reader uses both bottom-up and top-down processing of the text. McCormick (1989) argues that previews are helpful because the questions or directions in previews imply what is significant and can elicit predictions and help students relate text information to prior knowledge.

To summarize, previous research suggests that providing background knowledge and previewing are effective for both L1 and L2 readers. The recent research by Chen & Graves (1995) and Zhaojin (2003) shows that previewing was significantly superior to background knowledge in helping EFL students' understanding of American short stories. Because of these positive evidences, providing background knowledge and previewing formed the focus in this study. Specifically, this study investigated the effects of providing background knowledge and previewing American documentary narratives containing uniquely American cultural content since so far, no comparable research has been carried out to examine whether preview and background knowledge differ in their effectiveness for promoting ESL/EFL reading comprehension in documentary narratives. The specific research questions asked in the study are listed below.

1. Did students who received the background knowledge or the previewing treatment comprehend better than those who did not receive these treatment?

2. Is previewing superior to background knowledge for documentary narratives other than stories?

3. Is the facilitative effect of schemata on reading comprehension increased when schemata are enriched?

Method

Research Design

In this study, I used randomized experimental, control groups design as set out in Table 1. By "randomized experimental, control" groups, I mean I randomly selected and grouped 26 students from each of three intact classes into 3 groups (A, B & C). Groups A and B were experimental groups; Group C was a control group. The two experimental groups received prereading treatments before the test, (experimental group A received preview treatment, experimental group B received background knowledge treatment). The control group C did not receive any prereading treatment before the test.

Table 1

Research Design

Groups	Experimental Group	Experimental Group	Control Group
	A	B	C
Prereading Activities	Preview	Background Knowledge	No Activities
Reading	Text	Text	Text
Comprehension Measurement	Test	Test	Test

Hypotheses

Hypothesis 1

The two experimental groups (Preview Group, Background Knowledge Group) will perform significantly better than the control group in the comprehension test due to the immediate schema-enriching effects of the prereading activities of preview and background knowledge.

Hypothesis 2

Group A (Preview Group) will perform significantly better than Group C (Control Group) in the comprehension test due to the immediate schema-enriching effects of previewing.

Hypothesis 3

Group B (Background Knowledge Group) will perform significantly better than Group C (Control Group) in the comprehension test due to the immediate schema-enriching effects of background knowledge.

Subjects

For this study 78 students were randomly selected from three intact classes of second year non-English majors attending the Agriculture College of Yangzhou University. In order to minimize the priority of background knowledge of majors, care was taken to make sure that the subjects would not be selected from history or geography majors. The English level of selected students is at Band 3 in terms of the National English Proficiency Unified Examination for College non-English majors Syllabus (1991). All students participants have passed Band 3 mimic test.

Materials

Reading Selection

The selected text, which was written by American author, Leo Huberman, was taken from his book *We, the People*, a collection of historical stories on immigration to America. The book was published in 1947. The text "Here They Come" describes the difficulties and dangers of the early immigration of people to America.

As in the research of Chen & Graves (1995) and Zhoujin (2003) care was taken to select texts on a topic unfamiliar to most Chinese students, and one which presupposes culture-specific information that most Chinese students lack, even during the minimal "training" they received as part of the study.

Instrument

The purpose of this study is to investigate the value of providing background knowledge and previewing as an aid in building schemata to improve EFL reading comprehension. Bearing this purpose in mind, I avoided questions for which answers were directly stated in the text when I constructed multiple-choice questions and true or false questions. The reading comprehension questions were intended to encourage students to make inferences both from the text and from their background knowledge re-lating to the text. Therefore, I distinguished between 2 types of reading comprehension questions: textually inferred (bottom-up) and interactively-inferred.

Textually-inferred questions require answers that can be inferred from the text only; interactively-inferred questions require answers that can be inferred from an interaction between the text and previously acquired knowledge.

Procedures

Preview and Background Knowledge were the introductory approaches presented to readers before reading. Preview focused on providing general information about the content of the upcoming text while Background Knowledge focused on providing detailed information about the content of the upcoming text.

Preview Treatment

1. An interest-building part designed to motivate students by making a connection between a familiar topic "the discovery of America" and the topic of the story of immigration during the 18th century.

2. A topic question to provide students with the opportunity to activate what they knew about the early immigrants' journey in the 18th century. This was intended to help students to activate relevant historical knowledge of which they might have been unaware and relate it to the target text.

3. A brief description of the story with purpose-setting questions to help students comprehend the text and avoid undue difficulty when they read.

Background Knowledge Treatment

1. Part one was designed to motivate students' interest and build up their background knowledge by locating some of the most important harbors in west Europe and America on a map of the world so as to provide students with an opportunity to appreciate the distance of early immigrants' voyage to America and to develop initial associations about the difficulties of early immigrants.

2. In the second part, ten words and phrases from the text were classified into three groups to construct background knowledge: (a) key concept expressions, (b) difficult words and phrases, (c) geographic words.

3. Part three was designed to encourage students to evaluate the usefulness of their own ideas by providing suggestive answers to the three groups of words discussed above.

Data Collection

On the day of the test (Dec 29, 2003), the three groups (A, B & C) of subjects were randomly assigned to three different rooms. Next, each group was randomly assigned to three different conditions.

In the Preview condition, according to the directions for administering the previewing in the preview material, the English teacher first gave students introductory information about the upcoming test by posing purpose-setting questions and then guiding students in a discussion.

In the Background Knowledge condition, the English teacher first hung a map of the world on the blackboard and located the Netherlands, England and France for students, pointed out the important harbors of these countries, and finally gave students an opportunity to write down what they knew about four key concept expressions, three difficult phrases, and three geographic words which were important in understanding the text.

In the control condition, there was no prereading treatment before the reading comprehension test.

Data Analysis

Answers to the multiple-choices questions and true or false questions in the test were scored as correct or incorrect. The maximum score for multiple-choice was 5 points (5x1), and the maximum score for true or false was 5 points (5x1). Therefore, in the test, the total score for multiple-choice and true or false questions was 10 points (10x1).

I chose Kruskal-Wallis to test hypothesis 1, hypothesis 2 and hypothesis 3. My reasons for choosing this statistical procedure were: 1) the data are independent because they were collected from three separate groups, 2) I am not confident that the data are parametric since the scores taken from multiple choice questions and true or false questions can not be measured using interval scale due to the possibly varying degrees of difficulties among the items. In such cases, a nonparametric comparison of the data seems more appropriate. Therefore, in my study, I used nonparametric statistics (Kruskal-Wallis Test) to test differences and compare the means of three independent groups.

Results

Analysis of data relevent to research hypotheses 1, 2 and 3 is presented in Tables 2 and 3. The Kruskal-Wallis Test was used to test hypothesis 1, hypothesis 2 and hypothesis 3 to determine whether there were significant differences among the three groups. The Kruskal-Wallis Test showed that there were significant differences among the three groups, as H=8.043, p=0.018 (significant), df=2, p=0.05, the observed value 8.043 is greater than the critical p value 5.991.

Table 2

The Mean Ranks of the Three Groups (A, B & C) in Test

Groups	Number of subjects	Mean Rank
Group A (Preview)	26	42.46
Group B (Background Knowledge)	26	46.27
Group C (Control)	26	29.77
Total	78	

The post hoc test *Ryan Procedure* was used as a follow-up to ascertain whether the two experimental groups (A&B) were significantly better than the control group (C).

Table 3

Ryan Procedure: Comparison of Critical Values and Z Values of the Three Groups in Test

Groups	Group B	Group C
Group A	c.v.=2.13; Z= 0.538	c.v.=2.13; Z=1.990
Group B		c.v.=2.40; Z= 2.805*

Note: c.v. = critical value *= significant

Table 3 shows that a comparison of Group A and Group C indicates a small advantage for Group A over Group C; the difference however, is not statistically significant as the Z value (1.990) is smaller than the critical value (2.13). Therefore, hypothesis 2 is rejected.

Table 3 however, shows a significant difference between Group B and Group C as the Z value (2.805) is larger than the critical value (2.40). Therefore, hypothesis 3 is supported.

Overall, the data in Table 2 and 3 show a statistically significant superior performance by the background knowledge group over the control group, while there was no statistically significant difference in subjects' performance between the preview group and the control group, although the preview group was still ahead of the control group. Therefore, hypothesis 1 is only partially supported.

Discussion

In contrast to the findings of Chen & Grave (1995) and Zhaojin (2003), who found that the preview group, but not the background knowledge group, had a significantly superior performance over the control group, the results in this study show that the background knowledge group had a significantly superior performance over the control group, but not the preview group. Several explanations could account for this unexpected result:

1. First, the background knowledge treatment provided the students with a map of the world which gave them a geographic visual display of the distance traveled to America by the early immigrants, and helped them to develop an initial association with the difficulties of the early immigrants, which was the key to understanding the upcoming text. Kolers (1973) has proposed that pictures are better than words at depicting spatial configurations. Graphs, maps, diagrams, and flow charts are often particularly effective in conveying the spatial and temporal relationships among concepts.

2. Second, the background knowledge treatment focused students' attention on detailed information which is the key to understanding the upcoming text. However, giving students a global idea to understand the upcoming text was also covered in the preview treatment through the preliminary outline. It could be that in my study, providing more detailed information relevant to test item demands for comprehension favored the background knowledge group.

3. Interesting was the fact that significantly superior performance was achieved when the definition of geographic words such as 'important harbors' and the maps were presented together in the background knowledge treatment. It is possible that the reciprocal relationship between print and pictorial components through highlighting important harbors on the map of the world and providing the definitions of the important harbors in the background knowledge treatment facilitated students' understanding of the location of the important harbors which is actually impossible to state clearly in a verbal definition. My finding also supports the arguments by Mayer & Sims (1994) and Read & Barnsley's (1977) that the contiguous presentation of visual and verbal material made it more likely for the learners to build referential

connections between the visual representation and the verbal representation in short-term memory which resulted in better performance.

4. Last but not least, it could be argued that the preview used in this study was not an optimal one for facilitating students' comprehension. In relation to the contrary findings of Chen & Graves (1995), what can we conclude from this result? Which prereading activity is best for maximizing students' comprehension of a text? A well-known Chinese saying is "we need to get beyond the horse-race mentality" Thus, the question is not which activity is better, but which activity is most suitable for which type of reading. In Chen & Graves (1995) study, the reading passage used by them is the story of O. Henry. O. Henry was famous for inventing plots that build up to sharp, unexpected endings. Therefore, in this case, the preview treatment proved to be more effective due to its role in providing a description of the characters, which made it easier for students to follow the plot and organize information into a coherent mental structure. In my study, the text is documentary narrative and has no clear plot. For this type of text, understanding some key words, concept words and geographic words is more important to gain an understanding of the text. Therefore, the background knowledge, which was constructed in my study to focus on explaining concrete information and visual representations of geographic places, proved to be more effective in facilitating students' understanding of the upcoming text.

Implications and Applications for ESL/EFL Reading Classrooms

Materials Selection and Reading Programs

In my study, the results, in conjunction with Stanovich's findings (1998), demonstrate that the more students know about a topic, the more they get out of a text and therefore, the more motivated they are to learn. Stanovich (1998) calls this the Matthew effect, after a passage in the New Testament that essentially says that "the rich get richer and the poor get poorer." In other words, students with a rich base of domain knowledge do better in reading comprehension. In addition, according to Carrell & Eisterhold (1988) schemata which are repeatedly accessed and expanded, result in increased comprehension. Thus, research suggests that teachers of ESL/EFL select reading materials on the same topic. According to Krashen (1981), any text comprehension depends on some relevant prior knowledge. To some degree, well-chosen texts, can, in themselves, build readers' knowledge base. In China, the important role played by background knowledge of discipline-specific content domains is being increasingly recognized by those involved in teaching English for Special Purposes (ESP). Therefore, another way to organize a second/foreign language reading program is through content-centered instruction. Such instruction would involve a conscious

effort to set up basic theme-English for specific purposes courses for particular academic or occupational groups (e.g., courses for nurses, courses for tax majors).

Key Vocabulary Instruction

Preteaching vocabulary, which is key to understanding a text, has proven effective in background knowledge in the short term context. My finding supports the suggestions of Carrell (1988), that an important part of teaching background knowledge is teaching the vocabulary related to it, and conversely, teaching vocabulary may mean teaching new concepts, new knowledge. Knowledge of vocabulary entails knowledge of schemata in which a concept participates.

However, merely presenting a list of new or unfamiliar vocabulary items to be encountered in a text, even with definitions appropriate to their use in that text, does not guarantee the induction of new schemata (Carrell 1988, p. 243). In the Zhaojin (2003) study, the prereading vocabulary activity was the least effective of all three types of reading activities at all proficiency levels for inducing appropriate schemata. In comparison with the preteaching vocabulary used by Zhaojin (2003), in my study, selecting key concept words and difficult words and phrases has proven an effective means of preteaching vocabulary. Key concept words refer to the words that carry key cultural meanings. For example, if a student does not understand that "passage money" refers to the cost of a long journey by ship, then he/she will find the later discussion of the story about the passengers being bought totally incomprehensible. In this case, preteaching of culture-specific phrases like "passage money" before reading comprehension is absolutely necessary and effective. In my study, difficult words and phrases refers to vocabulary and phrases that I predicted would cause difficulties because of the Chinese students' limited understanding of more archaic English.

Therefore, a related suggestion in preteaching vocabulary in reading pedagogy is that vocabulary preteaching should not be based on lexical difficulty or frequency, as is often the case in China. Instead, vocabulary items selected for preteaching instruction should be specialized vocabulary which teachers predict will cause difficulties for most students, or words that carry cultural meanings relatively unfamiliar to most Chinese students.

Prereading Activities

The existing reading materials for College non-English majors in China include plenty of prereading exercises, usually in the form of prefacing the reading text with information-seeking, or prediction questions for the reader to keep in mind while reading. These prereading activities are intended to motivate students to read for a purpose what follows; for example, to gain the information necessary to answer

questions. These are also intended to get the student to predict what the text will be about. However, even if the prereading exercises perform these two functions, in many reading situations they are too limited to suffice as the only type of prereading activities, and they will not do much toward building background knowledge in the reader.

My findings show the value of background knowledge in the comprehension test when it provides a combination of concrete information and visual representations of geographic places. ESL/EFL teachers are therefore encouraged to design instructional multimedia materials to aid in text comprehension. The instructional multimedia materials could be presented in textual form, visual form, auditory form, or in any combination of presentation modes to build "external connections" (Mayer, 1989). For example, for vocabulary acquisition a picture may be a good choice in depicting an individual word that represents an object mentioned in the text.

Conclusion

In this study, the superiority of providing background knowledge over previewing suggests that background knowledge is better for maximizing students' comprehension of documentary narrative. Further research should explore the differential effectiveness of previewing and providing background knowledge for specific text types (genres of expository or narrative or combination of two). Only through more research that considers different genres covering different contents will we gain a clearer understanding of the effects of previewing and background knowledge on reading comprehension. Nevertheless, a study such as this one both contributes and acts as a stimulus to further exploration of these related topics. My greatest wish is that this study will inspire Chinese EFL teachers to help students to build their background knowledge by providing prereading activities in consideration of different genres of selections to be read. At the same time, I hope this study will remind them to be more sensitive to their students' reading problems arising from a lack of cultural background knowledge and expertise, and more willing to develop their students' content schemata which will benefit them not only while they are in their charge, but long after their scholastic education ends.

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