The Effect of the EFL Learners' Background Knowledge on Their performance in Reading comprehension Tests.

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ABSTRACT

This study aims at measuring the amount of the effect of the readers' background knowledge on their performance in reading comprehension tests through the assessment of information gain in reading comprehension (RC) tests. This study involves the examinees in two types of tasks, i.e., pre-reading task and post-reading task.

 The researcher hypothesizes that there are no statistically significant differences between the pre-reading and post-reading performances of examinees on RC tests.

 The population of the study includes 467 students of English language and

translation at Al-Isra University. (154of them are majoring n English language and translation during in the summer semester of the academic year 2008-2009)

The sample of the study consists of 70 students who were registered for two reading courses.

To verify the validity of the research hypothesis, a number of statistical procedures were used such as arithmetical mean, t-test for tho control and experimental groups to analyze the performance of the examnees on two reading passages taken from TOFEL practice tests (2007).

The analysis of the data has shown the following results:

1. The background knowledge has an effect on the performance on RC tests.

2. There is a significant difference in students' performance on the pre-reading and post-reading tasks in favor of the latter.

3. The effect of background knowledge is inevitable on RC tests, but it can be identified or neutralized.

Based on these conclusions, a number of recommendations were suesgesteel .

Key words: knowledge, information ,Reading comprehension , Testing , Evaluation, TOEFL

Introduction

Reading specialists such as Goodman (1965,1967), Eskey (1971), Cziko (1980), Rumelhart (1980), Silberstein (1987) and Carrell et al (1988) Paul (2008) , George(2005 Dara.(2005).argue that reading is an interactive process between previously acquired knowledge and the content of what is read. The researchers believe that this interaction will enable them to hypothesize about the strategies FL readers try to use when they process the texts they read and investigate the role of BK in comprehension.

Despite the fact that there are many theories which explain the ways in which readers extract meaning from what they read, 'most of these theories can be conveniently classified into three major groups: bottom-up, top-down and interactive views of reading, (Cziko, 101, 1980).

Concerning the reader's BK, it is hypothesized that 'the greater background knowledge a reader has of a text's content area, the better the reader will comprehend that text (Carrell, 147, 1987). Such views, which stem from the schema theory, consider the background a determinant factor in the process of text comprehension and in the evaluation of reading comprehension ability.

According to Grabe (1988), no one can deny that the concept of Top-down processing has been considered a revolution which has resulted in exploring the reading process and the possibilities of promoting reading instruction in SL and FL situations and that it has led to a resurgent interest in reading as a

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whole

Authors may not state the main purpose of a piece of writing. It is for the reader to bring his background knowledge and thinking ability to get the main idea . " Readers who can only read facts and nothing more can never be called good readers " (ludo ,2008). On the other hand , readers who can get the facts seldom get subjective point (bizi). While teaching reading comprehension, the teacher must always keep in mind that the goal is to understand what the authors meant

The problem of the study

The problem of this study stems from the assumption that reading comprehension (RC) tests are both "contaminated" and 'biased' (Johnston, 1984). RC tests are contaminated because they do not test pure RC ability, but they test background knowledge and linguistic competence as well. They are biased because two readers equal in RC ability but differ in background would show different levels of comprehension of the same text. This difference is likely to show up in the assessment of RC ability.

The notion of information gain IG is used as a means of differentiating between the measurement of BKof the world and / or language competence of a reader before and after reading a passage. Tuinman (1974) reports that native speakers of English can score as high as 65% correct on a RC test without reading the passage on which the comprehension questions are based. Such findings pose a challenge to the construct validity of RC testing,

particularly in EFL situations where the chief aim of such tests is to measure the EFL learner's ability to read and understand various types of texts in English.

The aims of the study

The study aims at:

 Assessing IG in EFL RC tests and measuring the effect of background on answering reading comprehension tests

Hypotheses

 For the sake of investigation purposes, the researcher would like to propose the following null hypothesis:

1. There are no statistically significant differences between the pre - reading and post-reading subjects performances on RC tests

Significance of study

To the best of the researcher's knowledge, the application of the notion of IG to investigate the validity of EFL RC tests has not been considered in any reliable and empirical type of research in Jordan. Therefore, the implementation of the notion of IG in an empirical study on the extent of 'bias' in RC tests may help to fill the gap in our knowledge of constructing EFL RC tests.

Definitions of basic terms

1. Background knowledge (BK): This term refers to all the past experiences that are accumulated as a result of the interaction between the individual and

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his/her environment to help him/her to assimilate and accommodate new information.

2. Information, gain: It is the measure that determines the amount or extent of knowledge that the reader gains as a result of reading a certain text..

Limitations of the study

This study is limited to the assessment of IG and the investigation of the influence of the reader's BK on the validity of RC tests in EFL in Jordan at the advanced stages of learning.

Preview of related literature

Rumlhart (1977) dealt with an important type of the text processing, for him the notion of interactive processing (refers to how readers utilize and integrate their graphic, syntactic and semantic knowledge together with contextual information in extracting and constructing leaning from written texts.

Silberstein (1987: 31) treated the relation of BK to text processing and information recall. He argued that this relation had been studied under schema theory. which emphasizes the role of pre-existing knowledge structures (schemata) in providing the reader with the information that helps him understand what is implicit in a text

According to Singer and Donlan's (1982) studied the role of BK in comprehending texts under the rubric of schema theory. The basic tenet of this theory is that a text, be it spoken or written, does not by itself carry meaning. For the sake of

fall comprehension, it requires interaction between the reader's BK and the content of the text. This BK (schemata) is seen as providing the framework which enables readers not only to make predictions about what they read, but also to assimilate new information provided by the text (Beck, 1981). Schema, theorists believe that the process of text comprehension is guided by the principle that every input is mapped against some existing schema and all aspects of that schema must be compatible with the input information.

Ludo and Jan, (2008) studied specific effects of word decoding, vocabulary and listening comprehension abilities on the development of reading comprehension that were longitudinally examined for a representative sample of 2143 Dutch children throughout the elementary school period. An attempt was made to test two theoretical frameworks for the prediction of the development of reading comprehension: the lexical quality hypothesis in which word decoding and vocabulary are assumed to be critical determinants of reading comprehension, and the simple reading view in which reading comprehension is assumed to be the product of word decoding and listening comprehension. The results showed significant progress across grades on all of the predictor and criterion measures. The stability of the measures was also high across time, which shows the individual differences between students to remain across grades. Word decoding exerted a substantial effect on early reading comprehension and a small effect on later sixth grade reading comprehension. The data provide empirical support for the lexical

quality hypothesis as they show knowledge of word forms and word meanings (i.e. vocabulary) to predict the development of reading comprehension. Support for the simple reading view was also found in that word decoding and listening comprehension significantly predicted reading comprehension as well. A combined structural model with word decoding, vocabulary and listening comprehension as predictors of reading comprehension showed a substantial impact of the three predictors on reading comprehension at first grade. In subsequent grades, vocabulary is still predicting reading comprehension directly whereas listening comprehension shows a reciprocal relationship with vocabulary.

Arthur, (2008) presented data, theory and applications of the field of discourse processes. This commentary identifies some of the challenges this field has faced in its attempt to understand the mechanisms of discourse comprehension and production to scale up the research to applications. The prevailing models emphasize the interaction between data-driven and conceptually driven processes and the importance of representational constraints in guiding discourse processing. The field embraces a wide range of methodologies that are illustrated in this special issue, including brain imaging, eye tracking, think aloud protocols, reading times, recall, summarization, and question answering. The tasks include text comprehension, search through large repositories of electronic texts and learning from advanced multimedia environments. The major claim in the

commentary is that researchers need to conduct deeper analyses of the information in the materials (texts and tasks) and word knowledge before they can offer defensible generalizations about cognitive processes and real word applications.

Paul, (2008) investigated the effects of readers' incorrect knowledge on the on-line comprehension processes during reading of science texts, with an eye towards examining the conditions that encourage revision of such knowledge. He employed computational (Landscape Model) and empirical (think-aloud and reading times) methods to compare comprehension processes by readers with correct and incorrect background knowledge, respectively. Science texts were presented in either regular or refutation versions. Prior research using off line methods suggests that refutation versions promote revision in readers with incorrect knowledge. The results of that study indicate that incorrect knowledge systematically influences both type and content of processing. Moreover, simultaneous activation of correct and incorrect conceptions during reading plays an essential role in knowledge revision. The computational simulations show that refutation texts create optimal circumstances for co-activation of the incorrect and correct conceptions and the empirical data show that such a co-activation is associated with inconsistency detection and revision activities by the readers with incorrect knowledge. These findings provide insights in the effects of misconceptions on the on line text processing and have important

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implications for the development of methods for achieving revision during reading.

Gi-pyo (2008) compared L2 listening comprehension with L2 reading comprehension in terms of the roles of linguistic knowledge background knowledge, and question types among 168 university students learning English in Korea. The analyses of the data revealed that L2 listeners processed inferential information more easily than factual information, while the reverse was true for L2 readers. In addition, linguistic and background knowledge exerted significant effects on L2 listening comprehension. In L2 reading comprehension, however, linguistic knowledge played a significant role, while background knowledge played only a moderate role. In terms of the interaction among linguistic knowledge, background knowledge, and question types, only linguistic and background knowledge in L2 listening comprehension and linguistic knowledge and question types in L2 reading comprehension were significant. Third, linguistic knowledge and background knowledge combined explained a total variance of 14% in L2 listening comprehension and 20% in L2 reading comprehension. These findings show that L2 listening comprehension and L2 reading comprehension differ from each other and that the comprehension of an oral and written text is a more complex process than the interactive process model holds.

Diana, (2005) describes L2 vocabulary learning outcomes associated with

adult L2 reading comprehension processes, thus connecting L2 learning with the complex cognitive and linguistic processing involved in reading. The study aimed to determine whether BK moderated the relationship between passage comprehension and lexical input processing outcomes such as intake and receptive gain and retention of target-word meanings. The primary theoretical contribution concerns the nature of the relationships obtained between passage comprehension and lexical input processing. Overall, the results suggest that as learners become more efficient in engaging in the various processing activities required during L2 reading, they experience greater memory for linguistic elements encountered during reading such as orthographic forms and semantic aspects of new lexical items. The results support connectionist models of L2 reading and conclusions concerning efficiency in lower level text processing (e.g., see Nassaji,(2002); Koda, 2005). Reading is a complex cognitive activity, involving simultaneous linguistic processing such as pattern recognition, letter identification, lexical access, concept activation, syntactic analysis, propositional encoding, sentence comprehension, intersentence integration, the activation of prior knowledge, information storage, and comprehension monitoring. The prior knowledge that is accessed is largely determined by the quality of the text base constructed during reading, which is affected by the individual's efficiency in carrying out the various text-processing operations listed above.

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The finding that background knowledge did not moderate the relationship between comprehension and receptive retention of meaning provides further support for the robust role of text-processing efficiency in bootstrapping processes such as those involved in mapping new linguistic forms to familiar concepts already stored in memory. The secondary finding with regard to intake of the target words corroborates the main finding, demonstrating that efficient text processing skills are also essential to other aspects of lexical input processing such as establishing and retrieving the connections between new linguistic forms and the specific contexts in which they were encountered. The study also expands upon previous reading and research in the area of methodological innovations applied to incidental learning research paradigms, for instance, by measuring intake and episodic memory and the relationships between text processing and language learning outcomes. In addition, through the concurrent investigation of the impact of several factors on lexical input processing, the study sets the stage for more complex modeling of the processes that contribute to L2 developmen

George and Fong. (2006) investigated the effect of vocabulary glossing on recall and vocabulary learning, as well as learners' preferences as to glossing. Eighty-five native speakers of English studying Spanish at the university level participated in this study.Participants read a Spanish text under one of three treatment conditions: no gloss, English glosses, or Spanish glosses.

They then were asked to write what they recalled of the passage, translate a list of the glossed vocabulary, and complete a questionnaire. The translation task was repeated four weeks later.Results showed that glossing did not significantly affect recall for the participants overall, but that those with higher than average proficiency recalled more if they had read a glossed version of the text. Those who had glosses outperformed their peers on the translation task administered immediately after they had read the text. However, this difference disappeared on the retest. Participants expressed preference for glosses, wished that they be located in the margin and favoured Spanish glosses if they were comprehensible.

The population of the study

The population of this study consists of 467 students majoring in English language and translation at Al Isra University during the summer semester of the academic year (2008-2009)

The sample of the study

The sample of the study consists of70 students from the department of English at Al-Isra University . they belong to second ,third and fourth year. This variation in levels secures different language levels and different BK, which makes the sample a true representative of the real population of advanced learners of English. This also helps to generalize from the sample

data to the population of the study. It includes both sexes, and they are of different social classes.

Procedures

To achieve the aims of the study, the following procedures were   followed:

1. Two passages from TOEL practice Tests (2006) were selected for the purpose of testing the RC ability of the sample under study.

2 A representative sample of Jordanian learners of EFL from the Department of English at Al - Isra University were chosen to answer the tests under study.

3. Four testing techniques, i.e., (1) short-answer questions, (2)true/false items, (3) multiple-choice items, and (4) cloze test, were adopted in the assessment of IG and the effect of BK on answering RC tests.

4. In each testing technique, the following types of information were reported: (a) IG scores, and (b) BK scores.

Instrument of the study

In the selection of passages for RC tests, test designers are required to consider three criteria, i.e., length, difficulty level and subject matter. Length is associated with the standard of the examinees and the time allocated for answering the test. Difficulty level refers to the degree of complexity of structures, vocabulary items and style of the passage. All these aspects should not demand a higher proficiency level than that of the examinees. As for the subject matter of the passage, it should be clear, meaningful and interesting to motivate the examinee to do his/her best.

These three criteria have been strictly followed when the two test passages were selected. The two passages have been selected from the practice tests of Test of English as a Foreign Language (TOEFL, 2005).

Validity of the study

The researchers gave the final version of the test and the table of specifications to a jury of four EFL experts who are well-known for their long experience n the field of teaching EFL .

The jury members were asked to decide on :a) face and content validity of the test, and b) The suitability of the items to test the points and skills assigned to them "in the table of specifications.

All the jury members decided that the test had face and content validity , and the test items were suitable for testing the points and skills assigned to them in the table of specification . The research made some   changes on the test items following the suggestion of the four experts.

Level of difficulty and discrimination power

A sample of twenty subjects were chosen to try out the test items for difficulty level, discrimination power and reliability. Ten of these samples were third and fourth-year students and ten university teachers of English from other universities.

As a result of administrating the test to the twenty subjects, it were found that the items of the three sets (i.e., SAQs, TFIs and MCIs) had

an acceptable level of difficulty for both passages that ranges from 35-

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55% for SAQs; 40-60 % for TFIs; 40-55 % for MCIs concerning the first passage; 35-50% for SAQs; 35-60% for TFIs; and 35-60 % for MCIs for the second passage.

4) Evaluation of distracters

An additional item analysis were carried out to check the functioning of distracters for the MC set. Madsen (1983) points out that weak distracters often cause test questions to have poor discrimination or undesirable level of difficulty. No set percentage of responses were agreed upon, but examiners usually feel uneasy about a distracter that is not chosen by at least one or two examinees in a sample of 20 to 30 test papers. Building upon the views of Madsen (1983), the result of distracter evaluation resealed that all the distracters are functioning. Table 1 shows a detailed description of the results of destructors evaluation.

Table 1: Evaluation of Distracters / Correct Choices Are Underlined.

Item No.	First passage				Second passage			
	A	B	C	D	A	B	C	D
1	3	3	<u>10</u>	4	2	3	3	12
2	2	2	3	<u>13</u>	2	4	<u>12</u>	2
3	3	2	<u>12</u>	3	3	3	<u>10</u>	4
4	2	3	2	<u>13</u>	2	<u>11</u>	5	2
5	3	<u>13</u>	2	2	3	9	3	5
6	13	2	3	2	2	3	<u>12</u>	3
7	2	3	13	2	2	<u>14</u>	2	2
8	2	3	13	2	12	3	3	2
9	13	3	2	2	2	<u>14</u>	2	2
10	2	2	14	2	2	<u>13</u>	2	3

Reliability of the instruments

Reliability is a fundamental criterion against which any language test has to be judged (Anastasi, 1982). It is usually concerned with how far researchers depend on the results that a test produces. According to Weir (1988: 34), there are, 'three aspects of reliability that are usually taken into account.' The first is concerned with the consistency of scoring different markers, the second is concerned with parallel forms, and the third is concerned with test internal consistency. Of these three aspects, the researchers are going to concern themselves with the third aspect for two main reasons:

According to Oller (1979), the aspect of tests validity is also considered necessary to try and ensure that relevant subtests are internally consistent (Weir, 1988), and all the subtests presumably measure the same type of skills to be assessed (Oller, 1979).

This aspect of reliability cannot be measured by test-retest or split-half methods but by working out inter- correlations among those subtests because high correlations between diverse tests must be taken as evidence not only of reliability but also of substantial test validity (Oiler, 1979).

To calculate test reliability (internal consistency), statisticians usually use Kuder - Richardson formulae, a method which is not applicable to the type of reliability' required in this study because there are two variables (two subtests) instead of a set of items that belongs to one test. Therefore, the use

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of Pearson product-moment correlation coefficient is recommended here (see Oiler, I979). The formula for working out this kind of correlation coefficient reads:

$$R = \frac{\sum (X-X)(Y-Y)}{\sqrt{\sum (X-X)^2 \sum (Y-Y)^2}} = \frac{\sum X Y}{\sqrt{\sum X^2 \sum Y^2}}$$

Where r = stands for correlation coefficients.

The capital letters X and Y stand for the two variables (two subtests)

The small letters x and y represent the deviation from the mean X and Y respectively.

The calculation of (r) shows the following results for the two passages:

A- First passage:0.88

B - Second passage:0.86

It is important to note that the reliability coefficient would be sufficient if it is not less than 0.50 for the standardized tests (Nunnally, 1972). However, it is preferable if it reaches 0.68 in ustandardized-tests (Hedges, 1966:22f).

Data collection

When administrating the two parts of the test to the subjects, the following measures have been taken:

(1) Part one and two have been given on two successive days.

(2) Care has been taken to give clear instructions to avoid any misunderstanding or confusion. For the sake of motivation, the examinees have been told by their teachers that a good score on the test would be taken

into consideration in the assessment of the student's class effort.

(3) Suitable examination conditions have been provided for the subjects and complete control has been exercised to ensure that no external factor would interfere as a variable in the administration of the test

Statistical procedures

The researcher used the following statistical procedures to analyze the test results. Below is a detailed description of these procedures:

1- **Arithmetic mean:** It is used to indicate the general averages of thesubjects' scores on the pre-reading and post-reading tasks.

2- **T-value:** To find out the differences among the average scores on the pre-reading and pre-reading and post-reading tasks for students

Results of the study

The usual outcome from any RC test generally provides a quantitative assessment of how much a reader comprehends as a result of reading a passage or passages CF a particular RC test ; however, quantitative assessment by itself is not sufficient to give a very clear picture of the subject's performance on RC tests. There should also be room for some sort of qualitative assessment as well. Therefore, a quantitative assessment is made of the performance of the sample under this study on the pre-reading and post-reading tasks

The quantitative assessment were carried out through giving numerical indices of the subject's performance and then making multidimensional comparisons for that performance on both tasks.

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Discussion of the results

After analyzing the raw scores of examinees ' performances on the pre-reading and post-reading tests.

The analysis of the data shows the following results

1)   The mean of the performance scores on the pre-RT (30.31) represents the mean score of the amount of BK (TB) on the whole test.

2)   The mean of the performance scores on the post-reading test (75.28), represents the mean score of gross RC of the subjects ability. The difference between the two means (44.97) represents the mean of the IG scores.

3) To calculate the t-value of the difference between the pre-reading and the post-reading performance.

4) The observed t-value is 36.776 while the required t-value for significance is 2.635 at the $P< 0.01$ level and df = 69. Therefore, the difference between the pre-RT and post-RT performance is statistically significant. The null hypothesis is rejected. The alternative hypothesis should read *there are significant differences between the pre-R and post-R performance of the target group on RC tests*

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Table 4

A summary of all the Results of the Performance on the pre-reading and the post-reading at the Target group for the Two Passages.

Pre-R		Post – R		IG score	T-value
Bk (Tb) score		Gross RC Score			
Mean	SD	Mean	SD		
30.31	0.885	75.28	1.410	44.97	36.776

Required t-value for significance = 2.635 at P < 0.01, DF = 69

Conclusion

In view of the performance of the sample under this study on both the pre-RT and post-RT tasks, the following conclusions can be drawn:

1)   The overall performance of the whole sample on the test for both tasks has been of satisfactory level.

2)   RC tests are biased and contaminated because of the effect of BK on the subjects' performance. This has been exhibited in the significant differences .

3)   The effect of the reader's BK on performance on RC tests is inevitable, and it should be accepted as such because the role of BK in text processing and comprehension has been established in numerous studies,(Nassajl,2002 ; Paul ,2008; Gi –Pyo,2008) but this effect does not seriously affect the construct validity of those tests. This has been exhibited in inter-task comparisons.

4)   The information which is compatible with the reader's BK facilitates

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comprehension and consequently improves performance on RC tests. This has been manifested in the difference in performance on the two passages of the test. Most of the ideas presented in the first passage are compatible with what the students have already studied in their course of linguistics. Therefore, their performance on the first passage has been better than that on the second passage whose information is not so common to the students as the first passage. Success in RC in EFL is related to the level of proficiency in the language, the higher the level of proficiency, the better the chances that a reader will successfully comprehend the text. This has been evident in the difference in performance of the TGS and SGS on the test in this study.

Recommendations

In the light of the above-mentioned conclusions, the following views are recommended:

1) When preparing CTs, test designers should specify their aims clearly if they are after assessing general RC ability, they have to select texts that contain information which is compatible with the examinee's BK because compatibility of information facilitates comprehension, but they should select topics that are not quite familiar to the examinees if they are after measuring the extent of IG..

2) When developing or investigating RC skills, teachers and researchers should know that EFL readers should attain an acceptable level of

proficiency in the target language before giving them the tasks that require genuine interaction with the texts they read. This is why the researcher has chosen advanced learners of EFL as subjects for this study.

3) EFL readers should be introduced to all the problems that might hinder the comprehension of what they read such as the effect of cultural element or the recall of wrong schema on comprehension.When preparing exercises for teaching comprehension, authentic texts should be used because the real intentions or ideas of the original writer are marred by the process of simplification or modification.

4) EFL readers should be aware of the fact that effective reading calls for an efficient interaction of all types of text processing.

5) Pre-reading tasks are highly recommended in the teaching of RC because such tasks help readers to activate the right type of schemata which helps them to process and comprehend the text they read

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