

Assessment of Reading Comprehension Skills in University Students

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Abstract

This study examines the development of reading comprehension in university level students in Taiwan. Reading is a skill that, unfortunately, many students lack. This deficiency makes students depressed and frustrated, and overwhelmed by the act of reading. However, research suggests that repeated reading may help students to improve their fluency and understanding to a certain extent; but a closer examination reveals that they do not really understand what the text is about. Comprehension skills are essential if the learner is to assimilate the meaning of the text and thereby understand the content. Comprehension forms the basis of learning. Comprehension skills can be aided in a number of ways, including the development of background knowledge, asking questions, making predictions, looking at charts and other illustrations where textual content is explained, as well as the way in which language is used in the text. In this research, students are divided into two groups (experimental group and control group) and tested on reading material as a pre-test. The experimental group, after a treatment period of three months, with their comprehension skills having also developed, is given a post-test. A second group (the control group) is taught with the same material and in a routine way without emphasis on the development of comprehension skills. The results are analyzed using statistical techniques of two-tailed test and represented graphically.

Keywords: reading comprehension, reading fluency, comprehension skills,
university students

I. Introduction

Reading comprehension requires complex thinking, specific strategies, and motivated reading. Just like other reading skills, comprehension takes years to become fluent and automatic. Teachers can assess students' comprehension with questions, tests, writings and discussions to diagnose their strengths and weaknesses of comprehension. Research has shown that when teachers provide instruction with specific strategies to monitor and repair comprehension, it improves students reading achievement (Carlisle & Rice, 2002). University teachers embed strategy instruction in guided readings, informal assessments, and discussions about content so that students learn to construct, analyze, and extend the meaning of texts whenever they read.

Reading comprehension is the ability to understand what we read in which words have context and texts have meaning. Reading comprehension skills allow us to read proficiently, learn effectively and conceptualize easily. These skills are essentially based on earlier stages of reading development, including oral reading and reading fluently. Without developing these earlier reading skills, students must continually focus on decoding letters and words rather than pursuing the progression to meaning and understanding. The key to developing proficient reading skills in the early years of education is an even earlier foundation in underlying language learning skills. Therefore, strong reading comprehension skills are viewed as being dependent on the strength of the cognitive strategies established in the early years

II. Literature Review

Reading is an important skill for the EFL learner. EFL research in Taiwan has demonstrated that reading is an effective method of increasing the English ability of students in Taiwan. Research has shown that teachers who model and explain effective comprehension strategies help students become strategic readers (Almasi, 2003; Pressley, 2002). The National Reading Panel (2000) identified many important strategies including: monitoring comprehension, using graphic organizers, answering questions, generating questions, recognizing text structures, and summarizing. Strategies are especially important for struggling students who may recruit and apply strategies effectively (Gerston, Fuchs, Williams & Baker, 2001).

Concepts of reading comprehension have changed dramatically over the decades. Theories and language learning have again shifted dramatically during the 20th century. We have moved from a behavioral perspective, which dominated the field from the turn of the century to the seventies and eighties to a holistic or interactive

approach, which began in the late eighties, and continue to shape our thinking about reading as a cognitive, developmental, and socially constructed task that gives beyond understanding the words on a page (Hedgcock & Ferris, 2009). In the past, reading was considered a relatively static activity. General meaning was imbedded in the text and the reader's job was to understand what was being transmitted via the words on the page. Current research views reading as a more dynamic process in which the reader "constructs" meaning based on information s/he gathers from the text. Katherine Maria (1990) defines reading comprehension as: "... holistic process of constructing meaning from written text through the interaction of (1) the knowledge the reader brings to the text, i.e. word recognition ability, word knowledge, and knowledge of linguistic convention; (2) the reader's interpretation of the language that the writer used in constructing the text; and (3) the situation in which the text is read" (p. 14-15).

Hedge (2003) states the importance of teaching reading component of an English language may include a set of learning goals for (1) the ability to adapt reading style according to reading purpose (i.e. skimming, scanning); (2) building a knowledge of language will facilitate reading ability; (3) building schematic knowledge; (4) developing an awareness of the structure of written texts in English; and (5) taking a critical stance to the contents of the texts.

The key to reading comprehension for most researchers focus on the effective reading strategies that increase students' comprehension. Guthrie (2004) argues that most researchers study a single cognitive strategy, rather than constructing a long-term study of multiple strategies. Besides, few studies have addressed the issues related to "motivation" and "engagement." As Guthrie puts it: "Engaged reading is based on motivational and cognitive characteristics of the reader... who is intrinsically motivated, builds knowledge, uses cognitive strategies and interacts socially to learn from text. These engagement processes can be observed in students' cognitive effort, perseverance, and self-direction in reading" (p. 404).

The purpose of while-reading stage or interactive process is to develop students' ability in tackling texts by developing their linguistic and schematic knowledge. Hedge (2003) argues that although some oppose the activities carried during the while-reading phase, there are only few research studies that show "effect of intervention and their outcomes." Moreover, "many students report positively on the usefulness of while-reading activities" (ibid, p. 210). On the contrary, Paran (1996) states that modern interactive reading models enable SL readers to be "less reliant on top-down processing" and enable themselves to achieve "greater reliance on bottom-up strategies as they become more proficient" (p. 29). It seems that teachers can use a balanced approach to teaching reading by incorporating both top-down and

bottom-up processes, provided they are given flexibility in choosing the reading tasks.

Haller (2000, p. 21-24) modeled a number of school-based post-reading activities which enhance learning comprehension through the use of matching exercises, cloze exercises, cut-up sentences, and comprehension questions. For the cloze activity, the teacher puts blanks in the story in place of some words, usually every fifth word but not the first or the last words in the text. A cut-up sentence activity uses sentences from the given text and helps learners to gain confidence by manipulating the texts in various ways.

As how to teach reading, Gabb (2000) poses a very important question why learners face difficulties in moving into fluency stage although they have had basic decoding skills. She identifies a number of “barriers” which we believe the most important ones are limited vocabulary and lack of background knowledge (schematic knowledge). Orasanu (1986) states that “the knowledge a reader brings to a text is a principal determiner of how that text will be comprehended, and what may be learned and remembered” (p. 32). The key aspect to reading fluency is the expansion of vocabulary through the use of word play, puzzles, etc. The authors believe that beginning readers can expand and increase their vocabulary sizes through phonics, which will at the end help them to become fluent, skillful readers of English texts. As Spencer and Hay (1998) put it: “Word recognition is an essential component in the mastery of reading ... and considerable evidence suggests that the major difficulty confronting the beginning reader is the development of rapid, automatic word recognition skills ... Efficient readers use a variety of orthographic data to recognize word units, such as individual letters, letter clusters, morphemes, word stems, and word patterns” (p. 222).

III. Methodology

To understand whether reading skills are helpful for improving students’ overall reading comprehension ability, two different groups of students (the experimental group and the control group) are involved in the investigation process. To enable a comparison of the two groups hypothesis testing is used to tell whether the two groups have experienced a highly significant difference after applying reading treatment to the experimental group as well as seeing the efficiency of such treatment. The hypothesis testing is a formal statistical procedure used to indicate acceptance or rejection of statistical hypothesis.

Participants

The research participants are members of two classes of first-year students at a general university located in the northern part of Taiwan. Class A is the experimental group and Class B is the control group. Both classes are at the same university and both classes consist of 61 students.

Procedure

The pre-test was carried out in February 2015 with the post-test being carried out in May 2015. The pre-test and the post-test were identical and were carried out without pre-informing the students and without any specific preparation. Both groups were tested at the same time.

This particular test was used as it contains a variety of question types. The theory behind using such a test is that different question types required different reasoning skills.

The students were asked to read the text and to answer the questions. They were forbidden to talk or to use dictionaries or other aids. They were given 90 minutes to complete the test. The same procedure was followed for both the pre-test and the post-test.

Data analysis

Using the hypothesis testing the final average difference between the two populations is obtained from calculating the pertinent average scores of both groups. For the present study, the authors hypothesized that the scores follow a normal distribution and large samples are adopted since both groups consist of 61 students; therefore, Z-test is adopted and Z value is used to evaluate and compare students' performance.

Moreover, subscripts are used for the statistical representation of the Z-test where *E* means experimental group, *C* stands for control group, 1 for pre-test, and 2 for post-test.

Below are the figures and values obtained using the Z-test:

The sample number of the experimental group and the control group:

$$n_E = 61, n_C = 61.$$

The average scores of the pre-test for both groups:

$$\bar{x}_{E1} = 71.89, \bar{x}_{C1} = 64.08$$

The average scores of the post-test for both groups:

$$\bar{x}_{E2} = 76.02, \bar{x}_{C2} = 69.84$$

The standard deviation of the pre-test for both groups:

$$S_{E1} = 8.98, S_{C1} = 9.76$$

The standard deviation of the post-test for both groups:

$$S_{E2} = 8.61, S_{C2} = 9.91$$

The Z-value of the average pre-test scores:

$$z_{Pre} = 4.59$$

The Z-value of the average post-test scores:

$$z_{Post} = 3.68$$

The Z-value of the improvement score:

$$z_{Imp} = -1.05$$

The level of significance is set at 0.05 and to confirm the effectiveness of the treatment given to the experimental group, the authors assume that there is no significant difference between the students' reading comprehension ability in both groups. In other words, the experimental group and the control group should **perform equally or similarly in the pre-test**. Since the nature of the assumption is a two-tailed test of significance, the values are represented statistically as follows:

$$(\bar{x}_{E2} - \bar{x}_{C2} = 0)$$

Left-tailed critical value: $z_{0.025} = -1.96$

Right-tailed critical value: $z_{0.975} = 1.96$

And the acceptance region will be: $-1.96 \leq z \leq 1.96$

For the assumption to be accepted, the Z-value obtained should fall in between the acceptance region of ± 1.96 . However, the Z-value of the average pre-test score at 4.59 ($4.59 > 1.96$) **rejects** the assumption that both the experimental group and the control group had same or similar reading comprehension ability. The outcome of the data analysis shows that the experimental group **performed better than** the control group in the pre-test, as shown in Figure 1.

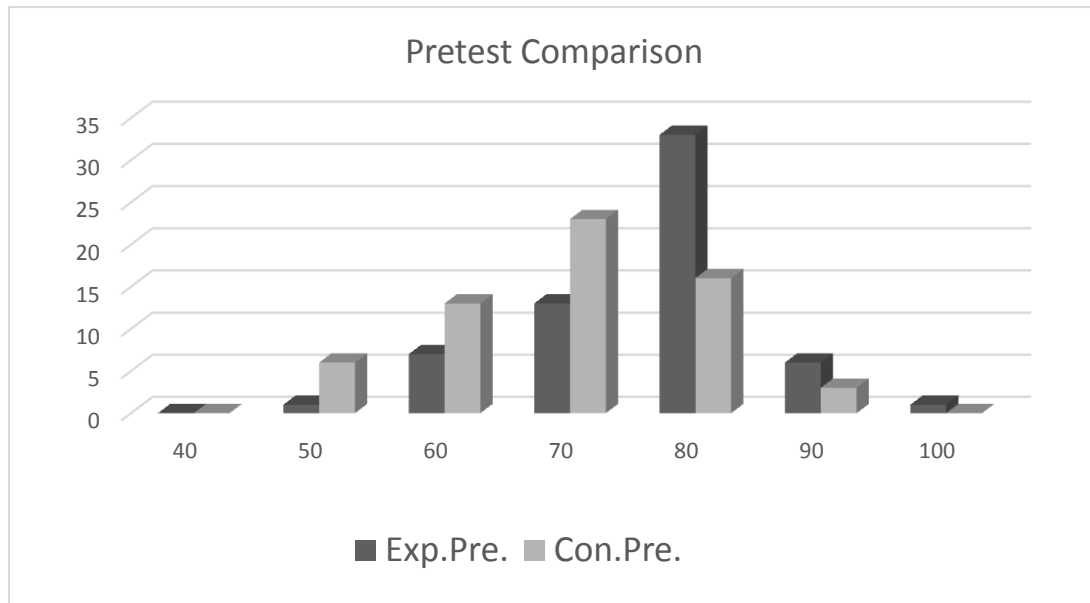


Fig. 1 Comparison of pretest between the experimental group and the control group

Since the assumption is rejected, the authors thereby suppose that the average score of the experimental group in the post-test is higher than the control group. Therefore, the authors assume that after giving treatment to the experimental group their test scores **are not higher** than those of the control group. Under this assumption, the reject region falls into the right tail and statistically represented: $z_{0.95} = 1.64$

The Z-value of the average post-test scores is 3.68 ($3.68 > 1.64$) which fall in the region of rejection. As a result, the Z-value **rejects** the hypothesis that the test scores of the experimental group are not higher than those of the control group. In other words, the experimental group performed **better than** the control group in the post-test, as shown in Figure 2.

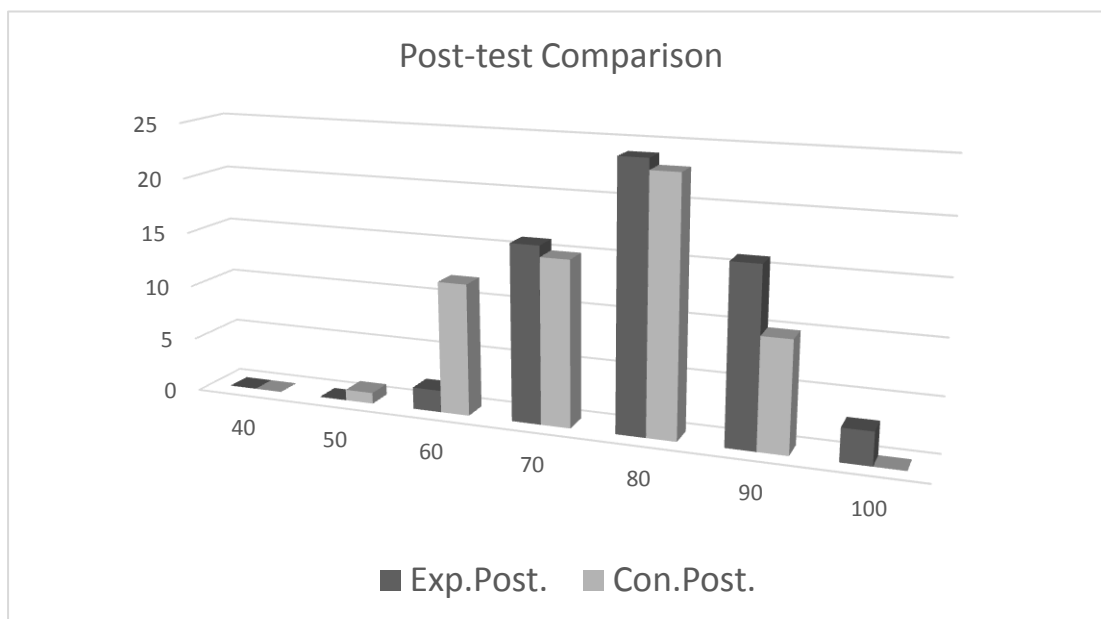


Fig. 2 Comparison of posttest between the experimental group and the control group

At this stage, based on the data analysis there is a clear indication that the experimental group always outperformed the control group in both the pre-test and the post-test; therefore, the outperformance of the experimental group cannot be attributed to the treatment applied to this particular (experimental) group along the course of the teaching. Given this unexpected outcome, the authors proceed to analyze whether the improvement score of the experimental group is greater than that of the control group. Based on this new outcome, the assumption made is that at the level of significance of 0.05 the improvement score of the experimental group is **not greater than** the improvement score of the control group. Since this is a one-tailed test, the reject region falls into the right tail and statistically represented: $z_{0.95} = 1.64$.

The Z-value of the improvement score is -1.05 which is smaller than 1.64 ($-1.05 < 1.64$) and falls into the left region of the right critical value meaning that the assumption is well founded and **cannot be rejected**. In other words, the treatment applied did not raise significantly the overall reading comprehension ability of the experimental group thus resulting in their inconspicuous improvement, as shown in Figure 3.¹

¹ Seeing from different perspectives, there might be different interpretations about the outcomes of Figures 1, 2, and 3. Statistical techniques can help minimize differences in interpretation by referring to the “level of significance” when analyzing collected data.

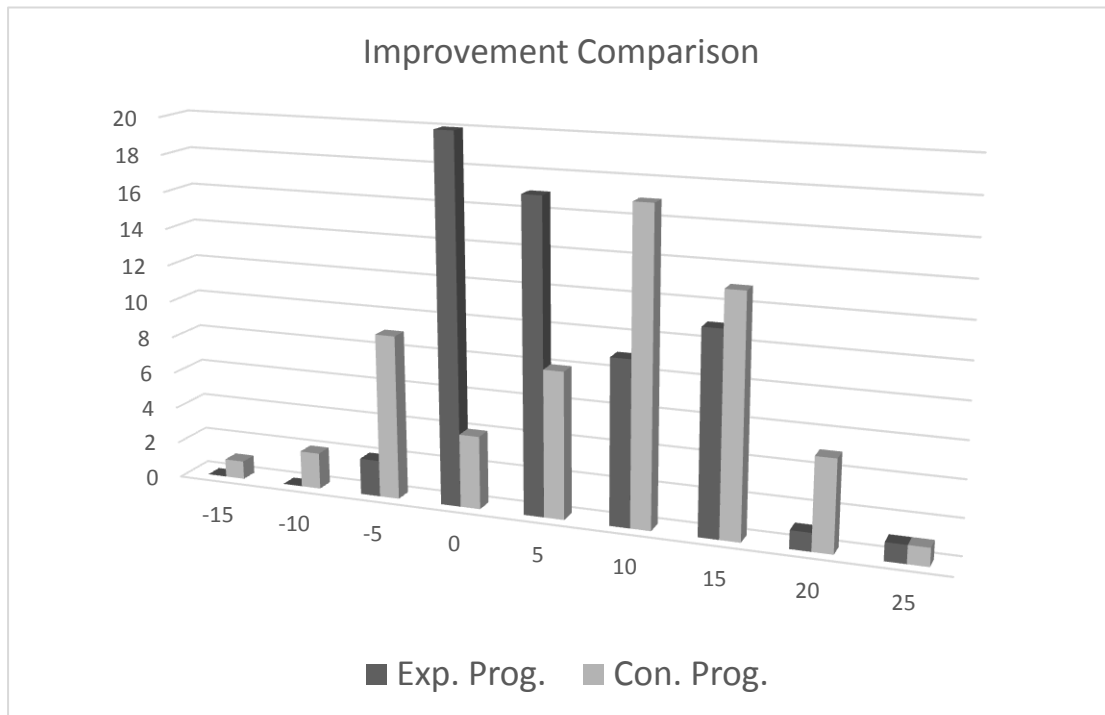


Fig. 3 Comparison of improvement achieved by the experimental group and the control group

IV. Findings and recommendations

As stated in the previous section of data analysis the hypothesis testing is used to see if the correlation between the experimental group and the control group is significant. The scores, as shown by the Z-values, indicate no significant correlation could be obtained between the experimental group and the control group. It is apparent that from the onset the experimental group, without treatment, performed better than the control group in the pre-test. Although, the experimental group, after treatment, still outperformed the control group in the post-test, the average improvement level was not as obvious as the control group, who did not receive any type of reading strategy. Generally speaking, most of the studies of this nature tend to confirm the effectiveness of the treatment methods used to enhance students' reading comprehension ability. Nevertheless, in the present study reading strategies like skimming, scanning, understanding key words, rewriting, etc. prove to be less effective and indicate that the methods used by the authors in the experimental group might not have actually benefited substantially the students.

It is suggested that further research is necessary to see why the experimental group did not improve their reading skills upon treatment and why the control group made remarkable advance without injecting them the needed reading strategies.

V. Conclusions

Concerning reading skills, the university students should be helped to improve their skills in understanding details and specific information. Reading activities at different level of language proficiency in English language classroom can increase learners' current level of thinking and simultaneously grasp the main meaning of the text (Waters, 2006).

During the pre-test and post-test, since students were given a time limit they had to work as quickly and efficiently as possible. Students in the treatment group, who had been taught using reading comprehension skills, supposedly should be more able to read and work efficiently than students in the control group, who were not taught using such skills. As shown in the previous sections although the average score of the experimental group in the post-test is higher than that of the control group it's also evident that its average score in the pre-test is also higher than that of the control group. This outcome somewhat suggests that the reading comprehension ability of both groups is not on an equal footing since the very beginning; therefore, the score difference shown in the post-test cannot be attributed to the different teaching techniques and methods applied to both groups. In addition, seeing from the perspective of improvement level, the Z-value obtained cannot convince that the experimental group had progressed considerably than the control group. Based on the above analysis, the authors can conclude that the teaching methods did not improve significantly the students' overall performance in reading.

It is obvious that being able to grasp and comprehend the meaning of a text involves a number of reading skills, including prediction and schema (McNeil, 1992). Moreover, being able to infer and predict is also essential in enabling university students to develop their understanding of the target language. From the present study, the students in the experimental group did not show a clear-cut improvement over the control group as the authors expected to happen.

Last but not the least, further research is necessary to show why the treatment group did not show significant improvement over the control group, given that the same test was administered to both groups in the pre-test and the post-test. Thus, it is necessary to research on how learning and teaching can be executed more effectively to prepare students to become proficient readers.

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大學學生閱讀能力之評估

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摘要

本研究主要在探討台灣大學生的閱讀理解能力。遺憾地是，由於許多學生缺乏閱讀的能力，以致於在閱讀的過程當中無法理解閱讀的內容而產生挫折感，甚至排斥閱讀。然而，研究顯示，重複閱讀在一定程度上可以幫助學生提高閱讀的流暢程度和理解能力；但如果仔細觀察，則發現事實上學生並不真正理解課文的內容。如果學習者要吸收課文的意思並了解課文內容，閱讀的理解能力是不可或缺的要素。理解能力是學習的基礎。理解能力可以輔助許多活動，例如發展背景知識、提出問題、進行預測、查看文章的說明圖表或者其他的插圖等等；另外，理解能力也讓學習者可以了解如何使用語言。在此研究中，學生被分成兩組（實驗組與控制組）針對相同的文章進行閱讀前測。實驗組的學生在為期三個月的閱讀能力加強與訓練之後，再進行閱讀後測。控制組的學生也是在三個月的時間裡學習同樣的文章內容，但不特別加強訓練的方式進行後測。本研究使用統計的左右尾檢定來分析測試結果。

關鍵詞：閱讀理解、閱讀流暢度、理解能力、大學學生