

## Assessing Reading Comprehension Skills of The Tertiary Level Esl Engineering Students: An Experimental Study

\*D. Praveen Sam<sup>1</sup> & R. Shalini<sup>2</sup>

<sup>1</sup>Assistant Professor, Dept. of English, SSN College of Engineering, Kalavakkam-603 110, Tamil Nadu, India, email: [praveen.samphd@gmail.com](mailto:praveen.samphd@gmail.com), [praveensamd@ssn.edu.in](mailto:praveensamd@ssn.edu.in)

<sup>2</sup>Research Scholar, Dept. of English, SSN College of Engineering, Kalavakkam-603 110, Tamil Nadu, India email: [sharajan85@gmail.com](mailto:sharajan85@gmail.com)

### Abstract

*What happens when different reading skills are tested using the same content (Passage)? This paper deals with the above question in the context of English as a Second Language (ESL) at the tertiary level. The paper also deals with a case study on the research conducted by Davis (1944) in which he misappropriated and failed in obtaining the expected result by using a single passage for testing all the nine reading skills he classified, and he followed up his 1944 study in the year 1968 by using unique passages in which he embedded items measuring different skills. In the context of using content for testing reading skills, the researcher has conducted two tests (test 1 and test 2) to a group of 30 students. In the first test, the researcher used a single reading passage to test four reading skills namely, understanding author's purpose, identifying main idea, identifying supporting details and classifying fact and opinion. In the second test, the researcher used three different passages to test the same four reading skills. The statistical tool ANOVA was used to analyze the variance between test 1 and test 2. The analysis of the results of the two tests has proved testing reading strategies using a single reading comprehension passage is comparatively less effective than using unique passages for different reading strategies.*

**Keywords:** *reading comprehension skills; constructed responses; ESL; author's purpose; identifying the point of view; classifying fact and opinion; identifying main idea*

### 1. Introduction

English language, in the current day scenario, is assumed as a tool that helps people communicate globally. Also, it empowers people, enlightens them, and makes them aware of the developments and other political happenings across the world. Learning of four basic skills (LSRW) enables a person to acquire and use the language in an appropriate way. Reading is one of the four basic language skills and tested in almost all the assessments and examinations pertaining to language competence. Based on the finding of Davis (1944), materials used in the construct of an assessment play a vital role in the outcome. Testing reading competence of the students using passages with multiple-choice questions, yes/no questions, open-ended questions has a long history (Israel & Duffy 2009). Rahmani & Sadeghi (2011), define reading comprehension as a mental interaction between the students' prior knowledge of the text, ability to read and comprehend and ability to identify the idea conveyed in the text in the real world around them. Pearson and Hamm (2005) in their study have identified multiple components that are involved in the process of reading a text and comprehending it. Out of which format is one of

the components that facilitate the reader to approach the text to be read, and the other is how students are asked to specify their understanding of the text that is read. According to Isreal & Duffy (2009), the complementary relationship among the skills incorporated in comprehending a text is visually enlarged because the skills are depending on each other and also on the content of the text. Numbers of questions students answer based on their understanding of the text they read seems to be effective reading comprehension, but what and how much a student reads to answer questions is focused in this paper.

The universities and the colleges decide the format of question papers. They fix the number of questions and sections in a question paper. The teachers setting question papers based on the given structure results in the lack of focus on reading assessments. Most of the time they limit with one comprehension passage with 15 to 16 questions which dilutes the passage and every sentence of the passage turns out to be an answer. In this case, students directly lift information from the passage, and the act of reading, understand and comprehending is missed out.

## 2. Literature Review

Reading comprehension is one of the traditional concepts in English Language Teaching (ELT) for teaching and testing reading skills of EFL students. Studies on reading skills and comprehension are immense. These studies have dealt with concepts like how readers approach a reading task, what strategies they incorporate to decode the passages the read, what are appropriate strategies a reader can employ before, while and after reading a text and so on. In this paper, the content used for assessing reading skills has been dealt with, and literature associated with that has been reviewed under this section.

The comprehension ability of students has to be assessed not only with the comprehension-check questions normally used in reading comprehension tests but also with types of questions and texts that give a clear picture of the students' ability to comprehend reading texts (Fiene & McMahan 2007). Most of the reading assessments are focused on making the students read a text and answer questions based on the text, whereas what they read and comprehend is not focused. Moreover, teachers find it difficult to find effective ways to assess the students' reading ability (Israel, Bauserman, & Block 2005). Students sometimes answer the questions not based on the intensive reading of the texts, but by just skimming through them not because they don't want to read the texts completely but the texts provide the answers when students skim through them (Block & Pressley 2007). It is very important for the teachers to make a note of this and prepare texts that demand students to read, understand and then answer the questions. Questions designed for this purpose need to focus on the students' thinking, and texts used for this should supplement this idea (Oakley 2011). Oakley (2011) has investigated how teachers teach and test reading comprehension cognitive strategies (RCCS) such as summarising, visualising, questioning, making inferences and predicting and how confident they feel about their teaching and assessment practices in this area. He has concluded that a clear and effective assessment process is required to design an appropriate lesson plan.

Strategies in terms of reading comprehension can be broadly classified into two categories. One, the strategies students use for reading and understanding texts in a general context and two, the strategies students use in the context of assessments which are called test-taking strategies (TTS). Cohen & Upton (2006) defines TTS as techniques or methods that student incorporate in the process of comprehending passages to get correct answers in the reading comprehension part of language assessments. Further, Cohen (2014) has categorized TTS into two namely, test management strategies (TMS) and test-wiseness strategies (TWS). TMS refers to strategies used in the process of reading and understanding the text for comprehension and these strategies of logical and tells the reading competence of the test-takers, whereas, TWS are developed based on the technical aspects of the test to get the correct answer. In the case of TWS, students end up getting the correct answers by partially understanding the text or some times without understanding the text. Gilakjani & Sabouri (2016) have stated that effective reading strategies are considered as significant skills that have received a special focus on students' reading comprehension proficiency. This proficiency is tested using reading comprehension activities where students employ strategies in the process of comprehending a text. Wu, et.al (2015), in their study, have identified that students shift from TMS to TWS while comprehending a challenging reading task. This shift is due to their focus on scoring marks and not on the effective use of TMS.

Ideas on the type of question and content used for assessing reading comprehension are not very recently reviewed. Studies on these are being carried out for the past few decades. The objective of most of the texts and questions based on the texts students read while comprehension is to test the ability of the students in recalling information that is directly or explicitly stated in texts (Mohamed 1999). However, comprehension assessments do not go beyond this level of comprehension. The conception that students should be familiarized with how to comprehend texts and direct lifting of information from texts is a very basic level of comprehension has been around for a long time (Williams 2003). Assessing the reading skills of the students is a critical area and merely making them read a text and answer question will not reveal their reading competence. To cater to the specific and individual needs of students of various disciplines and also to bring structure into the EFL language courses, the texts and questions based on the texts assume great importance (Peretz & Shoham 1990). In the context of engineering colleges in Tamil Nadu, India, students of various departments study the English language. In the present scenario, across the departments, reading skills are tested using a single reading comprehension passage. The topic of the passage, in other words, the content, has an impact on the students. They read the passage completely and answer questions if the passage is on their area of interest. Peretz & Shoham (1990) have explored the effects of preference of topic of the reading comprehension passages on students in second and foreign language reading comprehension. They have concluded that the preference for the topic of the reading comprehension passages has had a significant effect on the result of the assessments.

In a study conducted by Francis et al. (2006) on issues related to the materials used in the testing of reading comprehension skills, they have considered three variables namely, decoding the reading material, linguistic competence of the reader and comprehension skills. They have concluded that the relation of decoding and linguistic competence of the students depends on how their comprehension skills are tested.

In a reading comprehension passage, questions are framed based on reading strategies such as understanding author’s purpose, identifying the point of view, classifying fact and opinion, identifying main idea, compare and contrast and so on. Reading comprehension passages could be designed in two ways: (i) one passage with many questions based on the reading strategies; (ii) many passages with questions based on the reading strategies. This paper deals with an experimental study to identify which out of the two ways mentioned above is effective for assessing the following four reading skills of the tertiary EFL students:

- (i) Understanding author’s purpose, (ii) identifying main idea, (iii) identifying supporting details and (iv) classifying fact and opinion.

### 3. Reading Strategies

The ability to understand and use the information from texts with various complexity levels is the expected outcome of any reading course. Successful students have a repertoire of strategies to draw upon and know how to use them in different contexts. To understand reading strategies, reading skills have to be defined. According to Robb (1995), reading skills may be defined as a set of helpful tools that students participate to improve reading. A skill becomes a strategy when a learner learns to use it independently when he/she reflect on and understand how it works and then apply it to new reading material. Robb (1995) has developed a three-part reading model where she classifies reading strategies into three parts namely; (i) Strategies to use before reading, (ii) strategies to use while reading, and (iii) Strategies to use after reading.

Strategies to use before reading	Strategies to use while reading	Strategies to use after reading
Brainstorming for ideas Skimming Predicting the text Browsing the web Framing questions Vocabulary prediction K-W-H-L	Predicting Rereading the text While reading questions Summarizing Visualizing the meaning Identify parts in a text that need to be researched New vocabulary Using context clues Making notes	Rereading confirming predictions Visualizing the ideas discussed Further reading Rereading the text Thinking aloud to get ideas beyond the text

Table 1: Reading strategies: before, while and after reading

While reading a text, students may not use a set of commonly used reading strategies. Successful readers share much in common even though each of them has unique characteristics, and derive more or less the same meaning from the same text as the teacher or researcher does (Abersold & Field 1997). The strategies that students use to comprehend expository texts are different from those they use for narrative text (Macceca 2007).

## 4. An Experimental Study

### 4.1 Participants

This study was carried out at an Engineering college where English is the medium of instruction. This Engineering College is situated in Tamil Nadu, India. This is an institution where the English language is taught under the courses Communicative English and Technical English in the first and second semester respectively for the B.E. and B. Tech students. Here, students are being taught reading skills to facilitate their reading. From one of the classes, thirty students were identified and assigned as the experimental group, and they were trained with four reading strategies: Understanding author's purpose, identifying the point of view, classifying fact and opinion & identifying main idea.

The intervention lasted for two weeks (10 sessions of 50 mins each). The number of students who were opted for intervention was thirty. During the experiment, students were trained in reading comprehension, and they were familiarized with the above four reading strategies.

### 4.2 Reading Materials

The reading materials used in the present study were obtained from the following sources:

- *Mindscape*, a book published specifically for language skills (LSRW) by the Dept. of English, Anna University Chennai.
- <http://www.learningupgrade.com/readup/index.htm>
- <http://www.teachervision.fen.com/>

The students were trained in both narrative and expository passages. The reading materials adopted for the study were classified based on the following parameters: (a) Variety of topics, (b) Complexity level and (c) Lexical count.

### 4.3 Instructional Procedure

In the initial stages of the study, the students were explained what strategies were and how they are applied to reading texts. The student learned to identify and to apply these strategies while reading passages. They applied these strategies before, while and after reading the texts. The objective of teaching reading skills is not to facilitate superficial retention of information for examinations, but to equip students with the skills to focus on the author's message, on the ideas he is trying to convey, the line of argument, and the structure of the argument. They are familiarised with making connections to already known concepts and principles and using this understanding for problem-solving in new contexts. Reading involves a series of structured steps where the material, reader and his flow of thought based on the background should be synchronized. Reading is a process shaped partly by the text, partly by the reader's background, and partly by the situation, the reading occurs in (Hunt 2004).

#### 4.4 Assessment Procedure

Post-test form a key aspect of any experiment which sheds light on the measurement of the outcome of the subjects after the experimental intervention. To measure the dependent variable before the experimental intervention, pre-tests are involved in any experiment (Rafael & Russell 2005). In this study, two tests (Test 1 and Test 2) were administered to the students. Reading comprehension tests have always been a difficult area for language learners. This difficulty may partly stem from a lack of effective strategies in dealing with reading comprehension questions at an effective time (Jalilifar, Hayati & Saki 2008). Therefore, in the assessment process, two tests were designed. In the first test (T1), the researcher used a single reading passage to test four reading strategies namely, understanding author's purpose, identifying main idea, identifying supporting details and classifying fact and opinion. In the second test (T2), the researcher used three different passages to test the same four reading skills. All thirty students were made to take both the tests. The variables in terms of the passages students read to comprehend in both the situations are as follows:

- The lexical density of the passages
- Type of the passages
- Number of questions

The lexical density of the passages used in both texts was similar. In T1, a single passage was used for testing the students in terms of their understanding of the reading strategies. The lexical density of the passage was 53.48%. In T2, three passages were used to test the students in terms of their understanding of the reading strategies. The lexical count of the passages, all put together, was 54.6%. Therefore, the lexical count of passages used for both the tests was almost similar. The statistical tool used for calculating the lexical density is <http://www.usingenglish.com/resources/text-statistics.php>. The following is a sample of the lexical density calculated for one of the passages used in the tests:

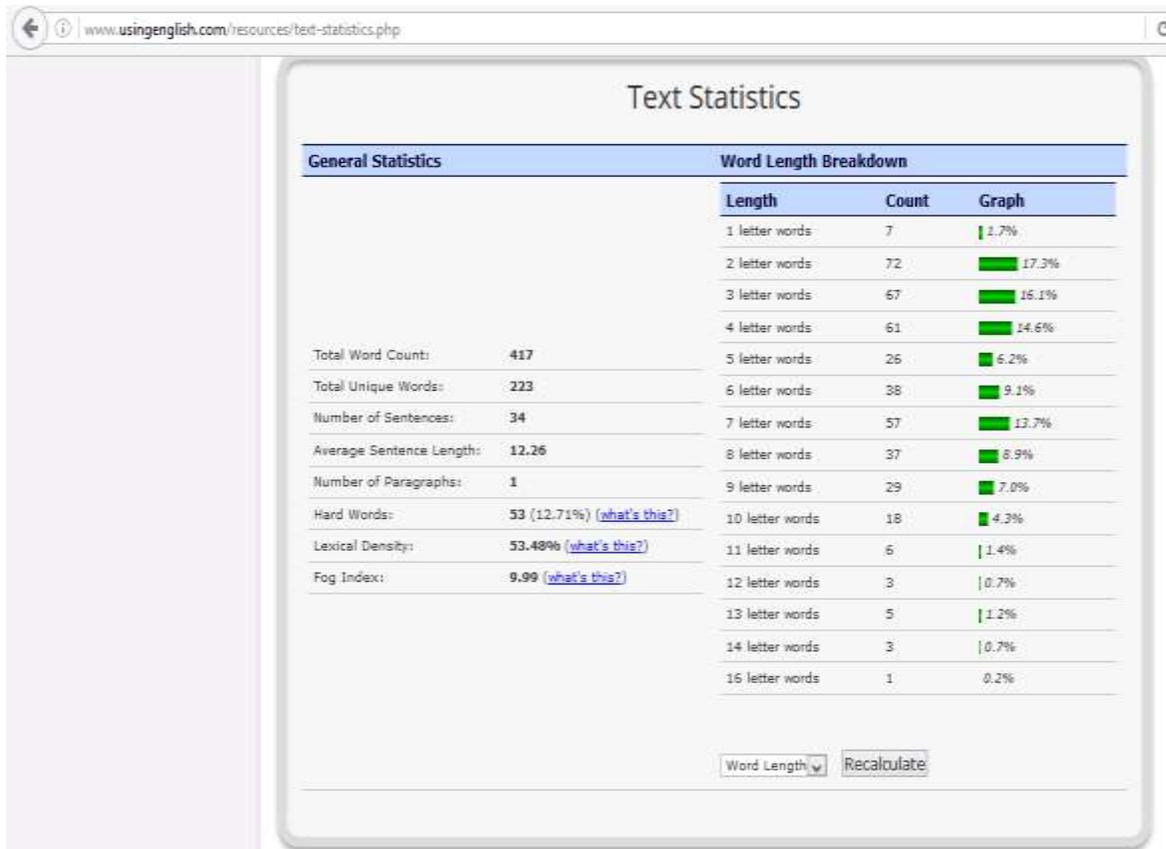


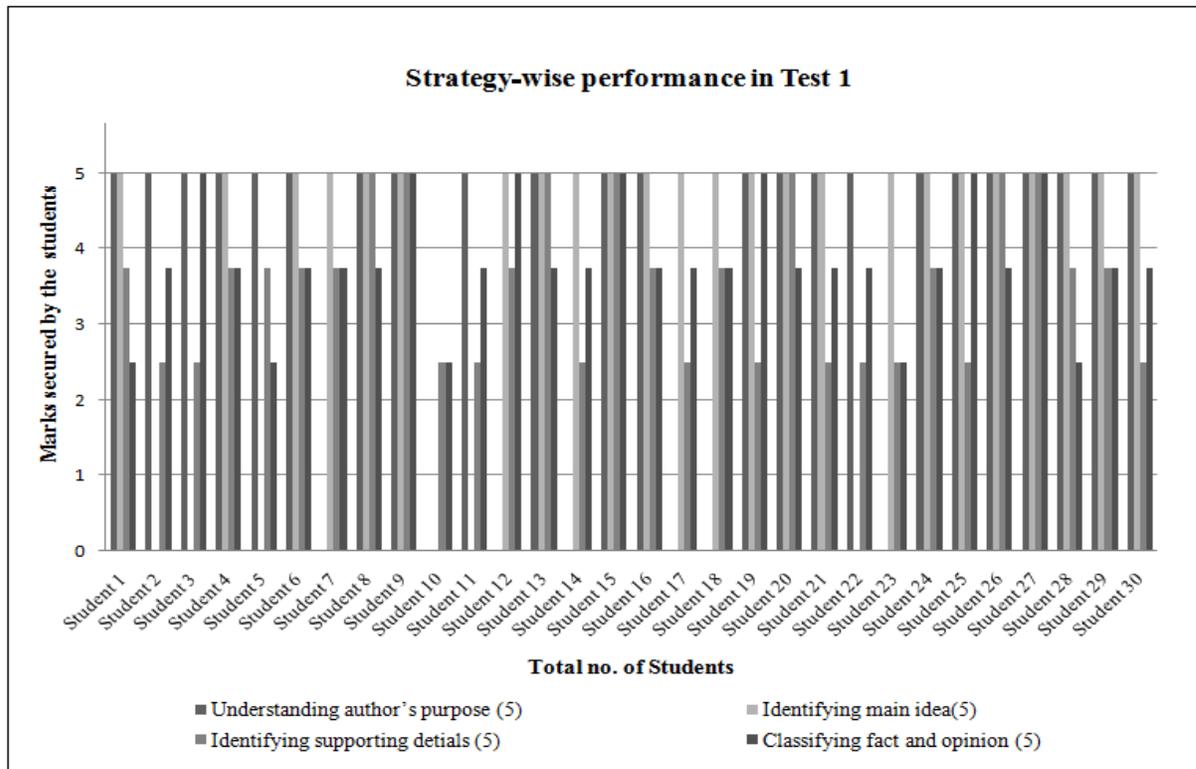
Fig 1: Sample page of the lexical density calculated for one of the passages

In both the tests, expository passages were administered. The expository essay is a genre of essay that requires the student to investigate an idea, evaluate evidence, expound on the idea, and set forth an argument concerning that idea clearly and concisely. Expository texts were used as the subjects were from an engineering background. Also, the syllabus they follow is focused on expository reading rather than narrative. Both T1 and T2 had 20 questions each, whereas the number of passages used differed between T1 and T2.

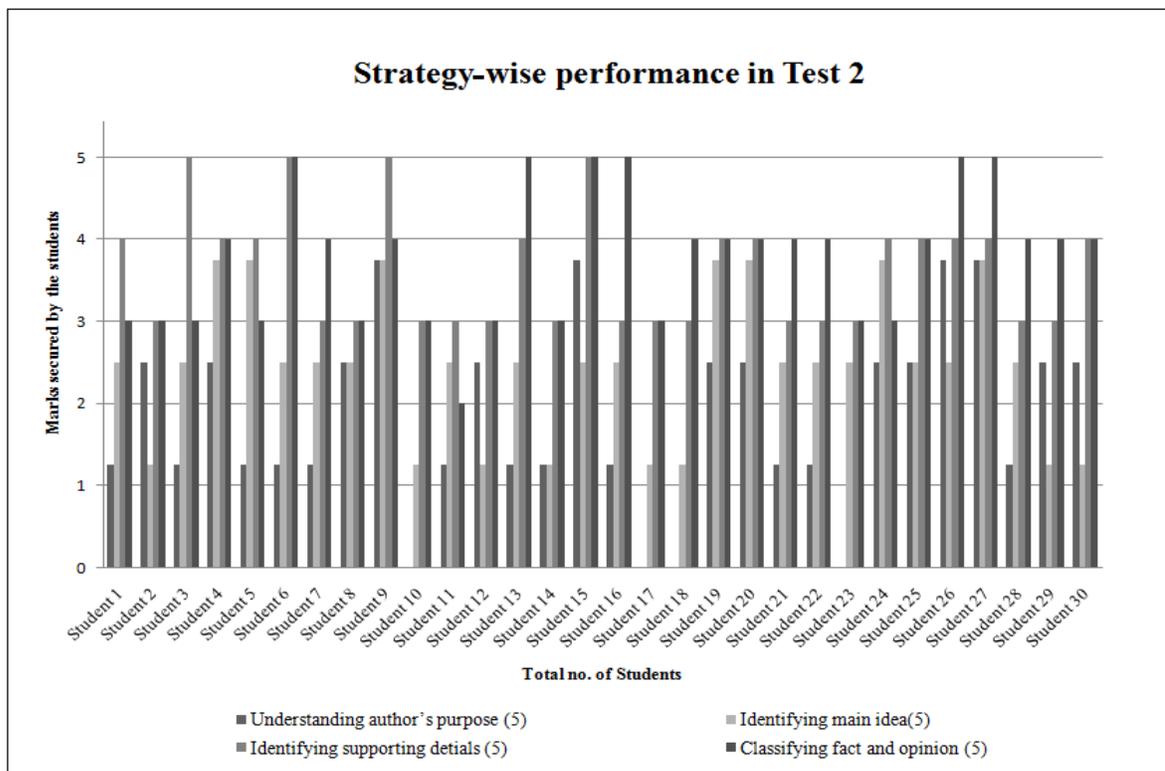
## 5. Results And Discussion

The performance of the students in test 1 and test 2 shows that there is a considerable difference in scores. i.e. In test 1, students were made to read a single passage to answer 10 questions based on the reading strategies; Understanding author's purpose, identifying main idea and supporting details, identifying supporting details and classifying fact and opinion. On the other hand, in the test 2 students were made to read 3 different passages to answer 20 questions based on the above reading strategies. In test 2, 20 questions were asked as three passages were used and the scope of asking varied questions increases as the number of passages used to assess increases. The analysis of the result of the two tests according to the data projected in Graph

1 and Graph 2 shows that testing reading strategies using a single reading comprehension passage is comparatively less effective than using unique passages for different reading strategies.



**Fig 2. Strategy-wise performance of students in Test 1**



**Fig 3. Strategy-wise performance of students in Test 2**

**Table 2: Test 1 and 2 Analysis (two-way ANOVA on types of comprehension questions)**

SUMMARY	Understanding author's purpose (5)	Identifying main idea(5)	Identifying supporting details (5)	Classifying fact and opinion (5)	Total
<i>Test 1</i>					
<b>Count</b>	30	30	30	30	120
<b>Sum</b>	115	120	106.25	115	456.25
<b>Average</b>	3.833333	4	3.541667	3.833333	3.802083
<b>Variance</b>	4.626437	4.137931	0.978807	0.639368	2.557664
<i>Test 2</i>					
<b>Count</b>	30	30	30	30	120
<b>Sum</b>	55	73.75	109	113	350.75
<b>Average</b>	1.833333	2.458333	3.633333	3.766667	2.922917
<b>Variance</b>	1.264368	0.806394	0.516092	0.667816	1.453567
<i>Total</i>					
<b>Count</b>	60	60	60	60	
<b>Sum</b>	170	193.75	215.25	228	
<b>Average</b>	2.833333	3.229167	3.5875	3.8	
<b>Variance</b>	3.912429	3.034516	0.736917	0.643644	

Source of Variation	SS	df	MS	F	P-value
<b>Sample</b>	46.37604	1	46.37604	27.20558	4.05E-07
<b>Columns</b>	32.38958	3	10.79653	6.333569	0.000381
<b>Interaction</b>	49.46771	3	16.48924	9.673083	4.85E-06
<b>Within</b>	395.4792	232	1.704652		
<b>Total</b>	523.7125	239			

Analysis of Variance (ANOVA) is the separation of variances ascribable to one group of the process from the variance ascribable to the other group. From the Two-Way Analysis of Variance, it is understood that there are significant changes between T1 and T2. The Two-way ANOVA has been performed considering the following three hypotheses:

1. H1 – The means of observations grouped by one factor are same. i.e. There is no difference between the two tests.
2. H2 – The means of observations grouped by the other factor are the same. i.e. there is no difference between the four factors.

3. H3 – There is no interaction between the two factors. i.e. Their effect of the factors do not depend on the tests.

Looking at the sample it could be observed that the value of F is much greater than the critical value. Hence, the hypothesis H1 may be rejected. i.e., there is a significant difference between the two tests. Similarly, in the columns the value of F is much greater than the critical value. Hence, hypothesis H2 could be rejected. i.e., there is a significant difference between the four factors. However, the results from interaction clearly shows that the value of F is greater than the critical value. Hence, it could be concluded that the hypothesis H3 can also be rejected. i.e., the effect of factors depend upon the test conducted.

The set of data for 30 students for two tests Test 1 and Test 2 with the above parameters 1, 2, 3 & 4 were considered for Analysis of Variance. As a first step, the Two-Way ANOVA was performed for all the types of questions together (Table 1). It was found that there was not much difference between the two tests. But the performance between the students and between the types of students in the two tests showed a significant difference. When the same ANOVA was done by taking a pair of types of questions, there were differences between them and between the students. When One-way ANOVA was done for Individual types, it is observed that there is a significant difference between the two Tests for the types 1 and 2 but not much of difference between the two tests for the other two types as mentioned in the 'Remarks' column.

## 6. Finding

The students were able to answer questions on the four reading strategies effectively when it is tested based on a single passage. The organization of the passage helps them to identify the correct answers. The question, whether they understand the strategy in terms of answering the questions, cannot be answered convincingly. Students, in the second test, could not answer questions pertaining to strategies which they have answered correctly in the first test. The pedagogical implication here is that testing reading skills/strategies is effective when multiple passages are employed during the test.

## 5. Conclusion And Implication Of The Study

Testing material designers cannot easily take the same content and make multiple choice and constructed response items designed to tap understanding of it. Rather, if deep cognitive engagement is the goal of standardized achievement testing, then the format of such an assessment will have to change. That is, they must require students to compare and contrast sections of the text or several texts and ask them to examine the texts using a variety of strategies as used in the study. It is believed that the progress in developing valid assessments of reading comprehension will require theoretical foundations (Davis 1968).

## Reference

- Aebersold, J. A. and Field, M. L. 1997. *From Reader to Reading Teacher: Issues and Strategies for Second Language Classroom*. New York: Cambridge University Press.
- Block, C.C., and Pressley, M. 2007. "Best practices in teaching comprehension." *Best practices in literacy instruction*. Eds. L.B. Gambrell, L. Morrow and M. Pressley. New York: The Guilford Press. 20–242
- Cohen, A. D. & Upton, T. A. 2006. *Strategies in responding to the New TOEFL reading tasks (TOEFL Monograph Series No. 33)*. Princeton, NJ: Educational Testing Service. Retrieved from <https://www.ets.org › Media › Research › pdf>.
- Cohen, A. D. 2014. *Strategies in learning and using a second language*, Routledge, NY: Longman Applied Linguistics.
- Davis, F. B. 1944. "Fundamental Factors of Comprehension in Reading." *Psychometrika* 9:185 – 197.
- Davis, F. B. 1968. "Research in Comprehension in Reading." *Reading Research Quarterly* 3:499 – 545.
- Fiene, J., and McMahon, S. 2007. "Assessing comprehension: A classroom based process." *The Reading Teacher* 60 (5): 406–417.
- Francis, D. J., Snow, C. E., August, D., Carlson, C.D., Miller, J., and Iglesias, A. 2006. "Measures of reading comprehension: A latent variable analysis of the diagnostic assessment of reading comprehension." *Scientific Studies of Reading* 10: 301–322.
- Gilakjani, A. P and Sabouri, N. B. 2016. "How Can Students Improve their Reading Comprehension Skills." *Journal of Studies in Education* 6 (2): 229-240.
- Hunt, R. A. 2004. "Reading and writing for real: Why it matters for learning." *Atlantic Universities' Teaching Showcase* 55: 137-146.
- Israel, S. and Duffy, G. 2009. *Handbook of research on reading comprehension*. New York: Routledge.
- Jalilifar, A., Hayati, M., and Saki, A. 2008. "Question strategies in testing reading comprehension: A comparative study of pre-questioning, post-questioning, and infixing." *Iranian Journal of Language Studies* 2(2): 215 – 236.
- Macceca, S. 2007. *Reading Strategies for Science*. USA: Shell Education.
- Pearson, P.D., and Hamm, D. N. 2005. "The assessment of reading comprehension: A review of practices—Past, present, and future." *Children's reading comprehension and assessment*. Eds. S.G. Paris and S. A. Stahl. Mahwah, NJ: Lawrence Erlbaum Associates, Inc. 13–69.
- Pennington, M. 2008. *Teaching Reading Strategies*. USA: Pennington Publishing.
- Peretz, A. S. and Shoham, M. 1990. "Testing Reading Comprehension in LSP: Does Topic Familiarity Affect Assessed Difficulty and Actual Performance?" *Reading in a Foreign Language* 7(1): 447 – 455.
- Robb, L. 1995. *Reading Strategies that Works: Teaching your Student to become Better Readers*. New York: Scholastic.
- Williams, J.P. 2003. "Study and organization skills: Practical suggestions and sensible plans." *Perspectives – International Dyslexia Society* 29 (1): 1-4.
- Mohamad, A. 1999. *What Do We Test When We Test Reading Comprehension?*, *The Internet TESL Journal* 5 (12). (DOI: <http://iteslj.org/Techniques/Mohamad-TestingReading.html>)
- Rahmani, M., and Sadeghi, K. 2011. "Effects of note-taking training on reading comprehension and recall." *Reading* 11(2): 116-128.
- Oakley, G. 2011. "The assessment of reading comprehension cognitive strategies: Practices and perceptions of Western Australian teachers." *Australian Journal of Language and Literacy* 34(3): 279–293.
- Israel, S.E., Bauserman, K.I., and Block, C.C. 2005. "Metacognitive assessment strategies." *Thinking Classroom* 6(2): 21–28.

*Wu, A.D., Chen, Y. M., and Stone, E. J. 2017. "Investigating how test takers change their strategies to handle difficulty in taking a reading comprehension test: Implications for score validation." International Journal of Testing 17 (4): 1-23.*