

# **A Pilot Study of Technique and Skills In Testing Reading Comprehension**

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## **I. Why and What We Test in Reading Comprehension**

Teachers need to be aware that there are actually three main levels or strands of reading comprehension--literal, interpretive and critical comprehension.

### **1.1 The first level--literal comprehension**

At this level, teachers focus on asking students to find information and ideas that are clearly stated in the text. Karlin (1971) noted that for readers, being able to read for literal meanings requires fluency and mastery of word meanings in context. In other words, this level involves comprehension of the surface meanings within the context that readers are reading.

### **1.2 The second level--interpretive or referential**

The difference between this level and the first level is that students in this level go beyond what is stated, and read for deeper meanings. Students need to be able to see relationships among ideas, so they must know how ideas go together and also see the implied meanings of these ideas. They are required to draw conclusions, make generalizations and predict outcomes. At this level, teachers can ask more challenging questions.

- ◆ Re-arrange the ideas or topics discussed in the text.
- ◆ Explain the author's purpose in writing the text.
- ◆ Summarize the main idea when this is not explicitly stated in the text.
- ◆ Select conclusions which can be deduced from the text they have read.

### **1.3 The third level of comprehension--critical reading**

Critical evaluation occurs only after the readers have understood the ideas and information that the writer has presented. At this level, students are supposed to have these abilities.

- ◆ The ability to recognize persuasive statements
- ◆ The ability to differentiate between facts and opinions
- ◆ The ability to judge the accuracy of the information given in the text

Although comprehension takes place at several levels, EFL/ESL teachers also need to keep in mind that the three levels are not distinct. Dividing comprehension into literal, referential and critical strands is only intended as a guide for teachers when preparing reading assessments. Studies have shown that teachers tend to ask their students mainly literal comprehension questions. Therefore, teachers need to be aware that there is more to reading than just the basic skills of reading and recalling information.

In the teaching of English reading, because of differences in culture, linguistic competence and common knowledge between writers and students, it is very important to train students' ability to react to and reconstruct context. Hence, in teaching reading, teachers may use the following methods:

- ◆ Choose suitable teaching materials and strengthen the students' consciousness of context. After reading, the teacher should make the students judge the <sup>1</sup>registers--the field of discourse, tenor of discourse, mode of discourse and the main situations set up in the text. After some time, the students' consciousness of context will be raised.
- ◆ Train the students' ability to reconstruct the context set up by the writer and their reactive ability, to stimulate the activation of common knowledge quickly. The teacher can ask some questions connected with these abilities. It does not matter if the students give wrong answers.
- ◆ Train the students' ability to predict the following text quickly. To make correct predictions, the students should construct the relevant contextual factors first. .
- ◆ Enlarge the students' world knowledge. Students should be encouraged to read books in different fields. Through this, their common knowledge will be enlarged.

Therefore, in setting multiple choice questions for reading comprehension, teachers should pay attention to questions concerning the students' sensitivity to context.

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<sup>1</sup> Language varies according to the situation in which it is used, and these varieties of language can be referred to as **registers**. If we examine a text, we can make guesses about the situation; on the other hand, if we are in a particular situation, we make certain linguistic choices based on that situation. In other words, the language we use needs to be appropriate to the situation in which we use it.

Reading comprehension tests can check the students' ability to understand the language, and the effect of this understanding. In this kind of test, the students should show they understand the context that the writer has constructed and can construct a context that helps them understand the text. This will greatly affect the students' accuracy and speed in the test. Many students only notice the surface meanings of words and sentences. They do not enter the context positively and do not activate the common knowledge they share with the writer. When these students meet unknown words, they will generally feel quite helpless. Now let us look at the following reading comprehension test questions and analyze how to get correct answers to these questions.

Andrew Carnegie, once the world's richest person, was born in 1835 to a **weaver's** family in Scotland. As a child, he was expected to follow his father's profession. But the **industrial** revolution destroyed the weavers' craft, and the family had to leave for new possibilities in America.

In 1848 the Carnegies arrived in Pittsburgh, then the iron-manufacturing center of the country. Young Carnegie took odd jobs at a cotton factory and later worked as a messenger boy in the telegraph office. He was often asked to deliver messages to the city theater, where he would stay to watch plays by great playwrights. He also spent most of his leisure hours in a small library that a local **benefactor** made available to working boys.

After the Civil War, Carnegie saw great potential in the iron industry. He devoted himself to the **replacement** of wooden bridges with stronger iron ones and earned a fortune. He further introduced a new steel refining process to convert iron into steel. By 1900, Carnegie Steel produced more of the metal than all of Great Britain.

However, Carnegie often expressed his uneasiness with the businessman's life. Wishing to spend more time receiving instruction and reading systematically, he once wrote, "To continue much longer overwhelmed by business cares and with most of my thoughts wholly upon the way to make more money in the shortest time, must degrade me beyond hope of permanent recovery." The strong desire for intellectual pursuit led him to sell his company and retire at 64.

Fond of saying that "the man who dies rich dies **disgraced**," Carnegie then turned his attention to giving away his fortune. He **abhorred** charity; instead, he used his money to help others help themselves. He established over 2,500 public libraries, and sponsored numerous cultural, educational and scientific institutions. By the time he died in 1919, he had given away 350 million dollars. (<sup>2</sup>Readability: 10.9, Words: 314)

Question 1: Why did Andrew Carnegie move to the United States?

(A) Because his father was offered a good job in Pittsburgh.

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<sup>2</sup> Readability is commonly defined as **reading ease**-- the ease of comprehension because of the style of writing. 10.9 means the article is suitable for Grader 10 to read.

- (B) Because he did not want to follow his father’s profession.
- (C) Because there were serious political problems in Scotland.
- (D) Because his family could not make a good living in their hometown.

Question 2: When did Carnegie begin to show his interest in artistic and intellectual pursuits?

- (A) After he retired from his business.
- (B) When he was a young boy back in Scotland.
- (C) After he earned his fortune from his iron business.
- (D) When he worked as a messenger boy in Pittsburgh.

Question 3: Which of the following best characterizes how Carnegie managed his business?

- (A) He was willing to make new changes.
- (B) He set out to beat all the other competitors.
- (C) He was happy to make more money in the shortest time.
- (D) He did not hesitate in making investments in his hometown.

Question 4: How did Carnegie handle his fortune after his retirement?

- (A) He left it to his family and friends after he died.
- (B) He gave it to poor people and charity organizations.
- (C) He used it to support organizations of higher learning.
- (D) He invested it in developing new technology in steel refinement.

According to the theory of “register”, field of discourse is used to predict experiential meaning, tenor of discourse is used to predict interpersonal meaning, and mode of discourse is used to predict textual meaning.

Unfamiliar words do affect readers’ comprehension ability. But reading strategies can help students get through difficulties if the test is controlled in readability from level 9 to 11, and the discourse is well-organized.

In this passage, there are some words not included in the critical standard 7000 words for graduates of senior high, e.g. **weaver**, **industrial**, **benefactor**, **replacement**, **disgraced**, **abhor**, etc. in the text. Will the students be puzzled by the unknown words and spend a lot of time guessing? The answer is yes, if the teacher pays little attention to the role of context in everyday teaching.

However, if the teacher knows how to teach students to understand the mode of discourse, it will be easy for the students to catch the meaning.

In Q1, even though the readers may not understand the word--“**weaver**”, It is easy for them to find the clue word “*but*” as an indicator as well as the following phrase—***new possibilities***. So, it won't be a difficult question to deal with. This is a question that asks for local information.

Q2 has two key words—“**artistic**” and “**intellectual**”. To get the right answer, the students must understand what contextual words are associated with the key points mentioned in the question. In this case, *play*, *playwright* and *library* are key words for arriving at the right choice. In addition, students can refer to the time when Carnegie worked as a messenger boy in Pittsburgh. This looks like a simple local question but actually it is used for testing readers' referential ability.

In Q3, after the students read the text and do the comprehension question, they have to make a synthesis of the whole paragraph; then they might be able to figure out the meaning in the third paragraph. The students need to be able to see relationships among ideas, know how ideas go together and also see the implied meanings of these ideas. As a matter of fact, this question is used to test readers' interpretive ability.

Moving to Q4, even if the readers do not understand the words “**abhor**” and “**sponsor**.” which appear in the last paragraph, they can find the clue line—“Instead, he used his money to help others help themselves, He established... libraries, and sponsored numerous cultural, educational and scientific institutions.” Afterwards, the student is required to make a judgment of the accuracy of the information given in the text. Thus, the speed of comprehension will not be affected and the students can get the answers to the questions within a limited time. In contrast, if the students do not get training in this aspect in their study, their comprehension will be affected by the unknown words.

Therefore, in setting multiple choice questions for reading comprehension, teachers should pay attention to the questions concerning the students' sensitivity to context in their every-day teaching. Besides contextual knowledge, vocabulary and basic linguistic knowledge are also important in

understanding a text. What's more, teachers should be guided by certain theories. If questions are concerned with contextual ability, teachers should pay attention to the students' linguistic level. Teachers should also ensure that the questions be helpful for testing whether the students really understand the text, based on their learning objectives. For instance, a question like "How much money had Andrew Carnegie given away by the time he died in 1919?" will not provide information about students' degree of comprehension at an advanced level because the students can get the answer to the question without further thinking. However, it would be very beneficial for low level students in their school achievement test. As for proficiency tests, that is another story.

For the teacher, then, the importance of background knowledge has three main implications. First, the teacher must take into account the knowledge on which any written text is based. Second, if a reader is not actively using his/her background knowledge, a significant part of the reading process is not taking place. Third, teachers should view and have it as their principal objective--the development of problem-solving, creative, interpretive strategies in which the students can exploit whatever knowledge or resources they may have. Teachers, therefore, in teaching students to activate and use their background knowledge, are helping them to become better readers and testers.

It has been mentioned that there are three main levels of reading comprehension. To achieve a comprehensive understanding of whether students have attained the required abilities, a variety of questions should be employed in multiple-choice reading comprehension tests. Below is an extract from the reading comprehension test of the Joint College Entrance Examination (JCEE) in 2007, comprised of one of three passages and its four questions.

Conflict diamonds, sometimes called blood diamonds, are diamonds that are sold to fund the unlawful and illegal operations of rebel, military and terrorist groups. Countries that have been most affected by conflict diamonds are Sierra Leone, Angola, Liberia and the Democratic Republic of Congo. They are places where citizens have been terrorized or even killed by groups in control of the local diamond trade.

Wars in most of those areas have ended or at least decreased in intensity, but the problem of conflict diamonds hasn't gone away. Diamonds mined in some rebel-held areas, such as Liberia, are being smuggled into neighboring countries and exported as conflict-free

diamonds.

In order to stop blood diamond sales, South African countries with a legitimate diamond trade began a campaign in 2000 to track the origins of all rough diamonds. Their efforts resulted in the Kimberley Process Certification Scheme (KPCS), an international organization to make the world free of conflict diamonds. The goals of the KPCS are to document and track all rough diamonds when they enter a participating country. Shippers are required to place those diamonds in sealed boxes and provide enough detailed information about their origins to prove they did not originate in a conflict zone.

It's difficult for most of us to imagine what life is like in countries where diamonds are the source of so much chaos and suffering. Furthermore, the connection between terror and diamonds is not something that's reported heavily in the press. The 2006 movie *Blood Diamond*, starring Leonardo DiCaprio, should help make the issue more mainstream, if only temporarily. So, take some time to learn more about the problems that conflict diamonds create, and then follow your heart the next time you shop for a diamond. (Readability: 13.1, Words: 289)

There are four questions given in the test, based on a passage with 289 words. Among the four questions, Q1 is designed to elicit semantic knowledge and the ability to draw inference, because readers have to figure out what is the implied meaning of **blood**, based on the context in the passage. Q2 is clearly to test inference, while Q3 requires local information. For this question, readers can find the answer when they read the third paragraph and locate the abbreviated word KPCS. Finally, Q4 assesses critical thinking, and thus demands a higher level of reading comprehension.

Question 1: Why are diamonds from some areas called "blood diamonds"?

- (A) They resemble blood in color.
- (B) They cause loss of human lives.
- (C) They represent love and passion.
- (D) They are of exceptionally high quality.

Question 2: What can be inferred from the second paragraph of this passage?

- (A) Diamonds from Liberia are mostly conflict-free.
- (B) Most diamonds from Liberia are labeled correctly.
- (C) Diamonds in Liberia are still traded to support wars.
- (D) Diamonds from Liberia have been carefully investigated by the KPCS.

Question 3: What is the major task of the KPCS?

- (A) To promote the sales of rough diamonds.
- (B) To produce movies like *Blood Diamond*.
- (C) To penalize those who sell blood diamonds.
- (D) To document where the diamonds were mined.

Question 4: What is the author's attitude towards blood diamonds?

- (A) Indifferent.
- (B) Threatening.
- (C) Sympathetic.
- (D) Disapproving.

Critical evaluation occurs only after the readers have understood the ideas and information that the writer has presented. So, Q4 offers the teacher a chance to understand if the students have acquired the ability (1) to differentiate between facts and opinions, (2) to recognize persuasive statements, and (3) to judge the accuracy of the information given in the text.

## **II. Criteria for Setting Reading Comprehension Questions**

There are many ways to test reading, and multiple-choice is one which is used effectively in achievement tests as well as proficiency tests. For testing low level students, true-false items or matching are two useful approaches for achievement tests. However, one problem with true-false questions is that the student might simply guess the right answers. Therefore, most teachers tend to favor multiple-choice questions, especially in school monthly tests or term tests. In addition, the number of passages and the length of each passage for reading comprehension depend on the level of students. Naturally, passage difficulty also influences how many questions can be set.

In setting questions for reading comprehension tests, teachers should be guided by certain guidelines. Multiple-choice questions can be set for very short passages of 35 to 75 words. Longer passages are usually from 100 to 300 words. Therefore, selections for less advanced students could range from about 100 to 200 words. For more advanced students, passages generally range from 150 to 300 words.

Normally, the teacher will only be able to write about three questions per 150 words, or four at the most. If there are more than this, the questions tend to

focus on insignificant details, and if there are fewer than this it is inefficient. Moreover, in order not to give some students a special advantage, selections should contain at least three to five passages from different sources, as seen in proficiency tests.

When planning to use a variety of types of questions on a reading test, the teacher should keep in mind these important rules—(1) paraphrasing the description of questions and items, (2) synthesizing the details, which requires students to integrate ideas from more than one sentence, and sometimes from the entire selection, (3) setting inferencing items that require students to see implications in what they read, (4) avoiding illogical distractors.

### III. Methodology

#### 3.1 Subjects and Procedure

Sixteen samples were drawn from different senior high schools, representing different levels. Each subject was required to state their teaching and learning objectives, the background of their learners and the purpose of their reading test. In addition, a sample without a listening test was excluded from the reading comprehension rating. As a result, there were eventually only eleven samples included in the study.

#### 3.2 Instrument

In this study, a set of criteria consisting of 4 factors – (1) Fit with learning objectives, (2) Questions for Passage Comprehension, (3) Variety of Questions, (4) The Items of Multiple-choice – were used to investigate the effectiveness of techniques and skills for reading comprehension tests. Results for each of these criteria will be shown shortly.

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#### Criteria for Reading Comprehension

##### Fit with Learning Objectives: 6%

(Good= 2 points, Fair= 1 point, Poor= 0 point)

Item/Rank	Good	Fair	Poor
Related & Revised			
Readability			
Level differences			

**Questions for Passage Comprehension: 4%**

(Good= 2 points, Fair= 1 point, Poor= 0 point)

Item/Rank	Good	Fair	Poor
Paraphrasing			
Co-relation between length and number of questions			

**Variety of Questions: 6% ( Each 'v' = 1 point)**

Type of Question	Check (V)
1. Knowledge/ Information	
2. Key point/ Main idea	
3. Getting the Whole Picture	
4. Inference	
5. Critical Thinking	
6. Analysis	

**The Items of Multiple-choice: 4%**

(Good= 2 points, Fair= 1 point, Poor= 0 point)

Item/Rank	Good	Fair	Poor
Equal Length and standardized difficulty in Each multiple Choice Item			
Proper Distracters			

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In the following section, an example is presented from our selected subjects. First the test passage will be given; then, the subjects' techniques and skills in question-setting will be evaluated according to the criteria mentioned above.

**3.2.1 Standard Criteria for Evaluating the Effectiveness of Techniques and Skills in Selections**

Passage comprehension is the most integrative and challenging kind of reading test type. However, it is not necessary to restrict test questions in passage comprehension to the traditional essay if we want to expose students to a variety of written contexts. For the sake of keeping an objective view in

testing the reading ability of learners, we need some criteria or rubrics.

### 3.2.2 One of the Passages for Reading Comprehension

Below is an example which shows how the criteria help teachers to get a clear picture of the effectiveness of their multiple-choice reading comprehension questions in achievement tests.

Eating birthday cake at one's birthday party has been a familiar tradition around the world. Besides, people all believe that in traditional practices blowing out birthday candles on the cake is able to blow away bad luck and bring fortune for the approaching year. In fact, this custom is said to be derived from the Greeks.

In ancient Greek legend, people worshiped the moon goddess Artemis, who is also a goddess of hunting. In honor of Artemis' birthday, the Greeks annually prepared honey cakes with many lit candles as an indication of their special reverence. In the middle ages, after a German baker invented cakes shaped in modern forms, gradually people adopted the same way to celebrate their own important events. They believed that these candles had mysterious power. If the birthday person made a wish then blew out all the candles inserted in the cake, then this person's good wish would certainly be realized. So this activity has become a popular program at every birthday party, whether in children's celebrations or adults' ceremonies.

In fact, what we celebrate in the birthday is not only the joy of growth but also a memorial of Mother's suffering. That is, the word birthday has "double" meanings. So do the birthday candles. Therefore, when we puff out the cake candles on the cake, we are supposed to keep gratitude in our mind. (See Reference in Appendix: 1)

(Readability: 9.6, Words: 228,)

Question 1: What is the best title for this passage?

- (A) The History of Celebrating Artemis
- (B) The Origin of Birthday Cakes and Birthday Candles
- (C) A Magical Birthday in Ancient Greece
- (D) When West Meets Birthday

Question 2: The word "approaching" in the first paragraph refers to \_\_\_\_\_.

- (A) past
- (B) well-prepared
- (C) methodical
- (D) upcoming

Question 3: To know the history of the birthday cake, we can learn from \_\_\_\_\_.

- (A) the celebration of goddess of sun
- (B) a baker in Greece
- (C) Greek mythology
- (D) Mother's suffering

Question 4: According to the passage, which of the following statements is NOT true?

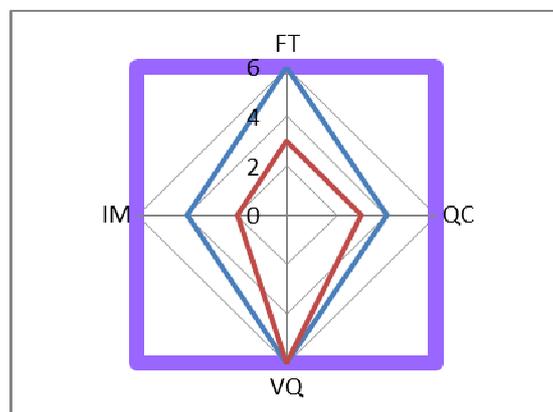
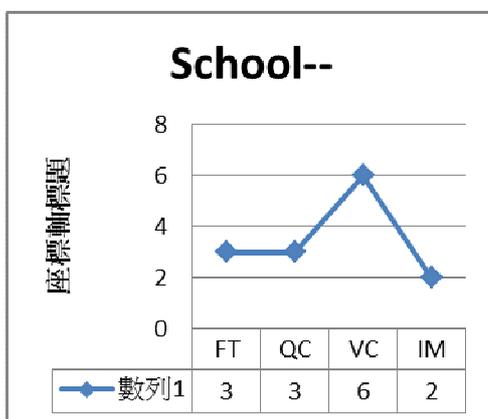
- (A) Artemis is a goddess of hunting and goddess of moon
- (B) Blowing out the birthday candles may represent the waving away of bad luck.
- (C) Blowing out birthday candles may stand for good luck.
- (D) A modern form of cake was created before the Middle Ages.

Question 5: According to the passage, what is the less possible answer for the “double” meanings of the birthday candles?

- (A) happiness and suffering
- (B) life and death
- (C) small and inexperience
- (D) gain and loss

In this selection, the value of readability is 9,6, which means it is readable for students above 9th grade. Although it may not be an authentic passage, it was revised to ensure it was fair for reading comprehension, and it is related to the learning objectives. The length of the passage is 228 words, which can provide four to five questions. A variety of question types is achieved through paraphrases in the questions, although not all of these provide good descriptions. In Q4, items (B) and (C) are similar in their description, so (C) is not a suitable distractor. In Q5, item (C) small and inexperience is not parallel in wording and forms an effective distractor. See the figure as follows:

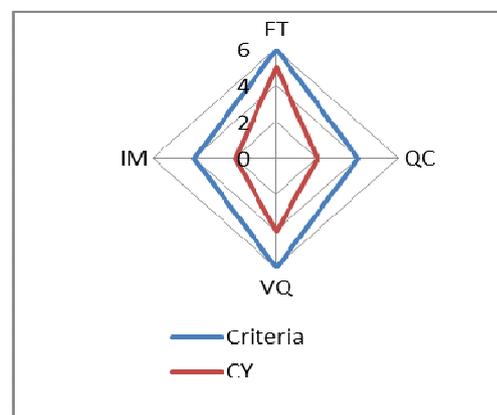
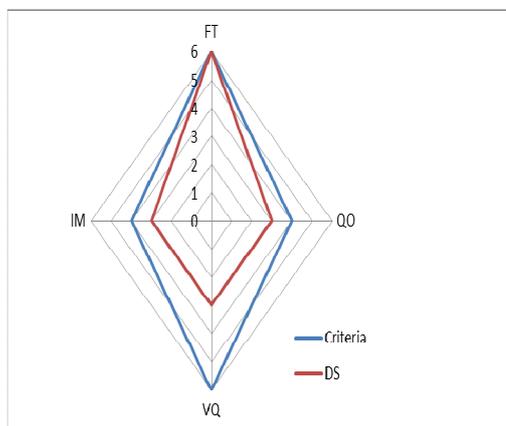
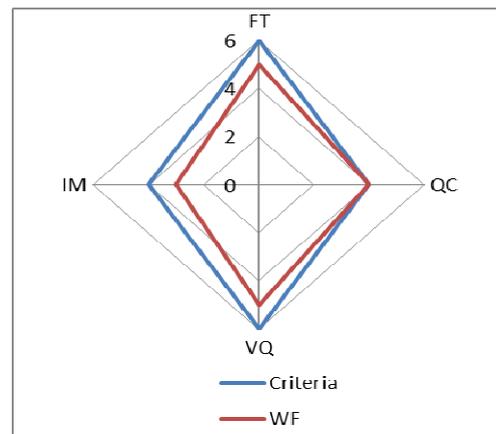
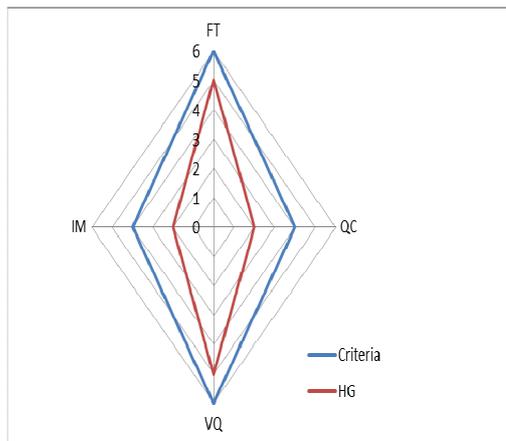
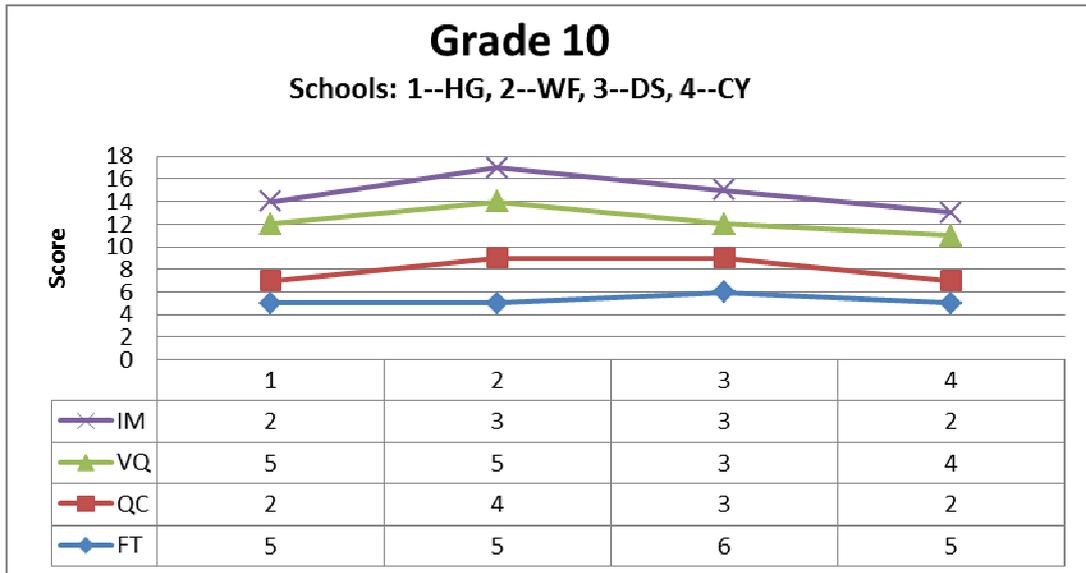
1. Fit with Learning Objectives—FT
2. Questions for Passage Comprehension—QC
3. Variety of Questions—VQ
4. Items of Multiple-choice--IM



## IV Data Analysis and Findings

### 4.1 Analysis of Grade 10

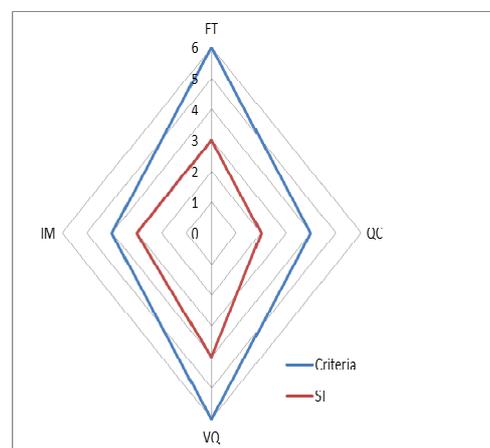
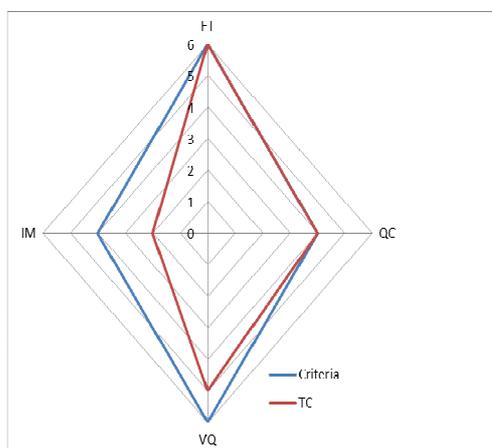
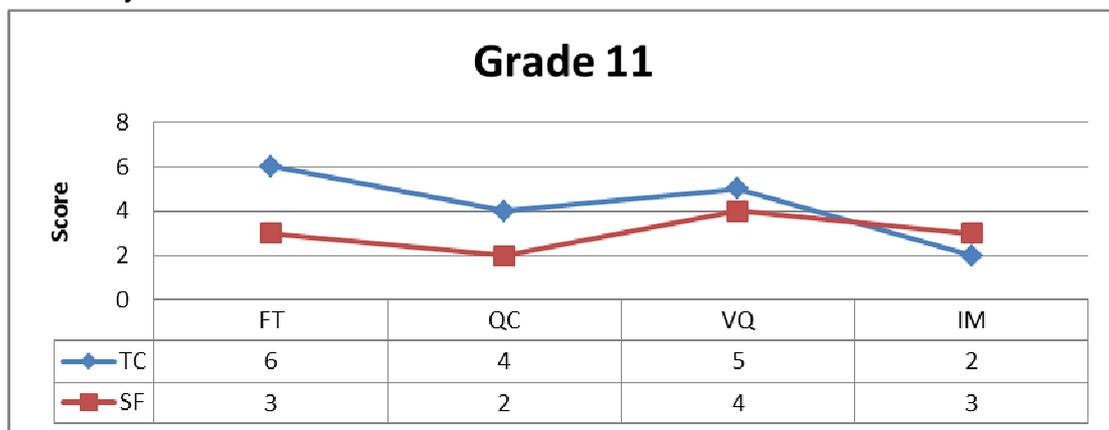
Based on the question setting criteria, we graded each of the 11 monthly test papers. The figures below show an analysis based on the four main criteria mentioned above. First, it is the analysis of Grade 10 (see Appendix I)



The figures show that their significant differences between schools HG and DS. The results for DS show the selection of reading passages was quite all right, but why did it rate so poorly in terms of the variety of questions, comprehension questions and multiple choice items? In contrast, school DS did not select an appropriate passage, but evidently paid more attention to ensuring there was a variety of questions. However, the comprehension questions and multiple-choice items were still poor. The evidence of problems at HG is found in the two reading passages, the average length of which was from 215-218 words. Their readability was rated at 6.9 & 8.5 respectively, significantly below the level of their students. Because of this, the effectiveness of the test for assessing the ability of students effectively is highly questionable.

Next, the data below is the analysis of Grade 11 (see Appendix II).

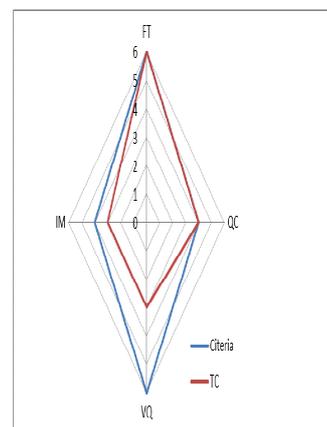
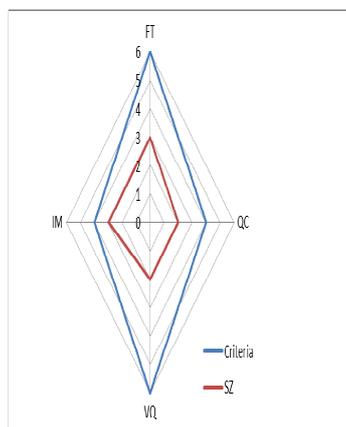
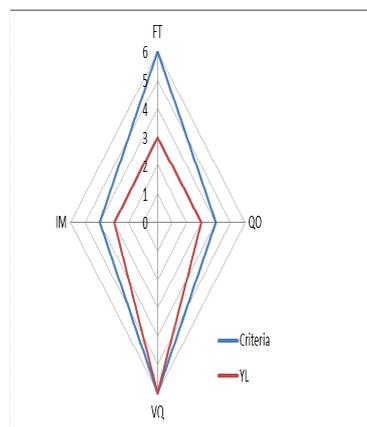
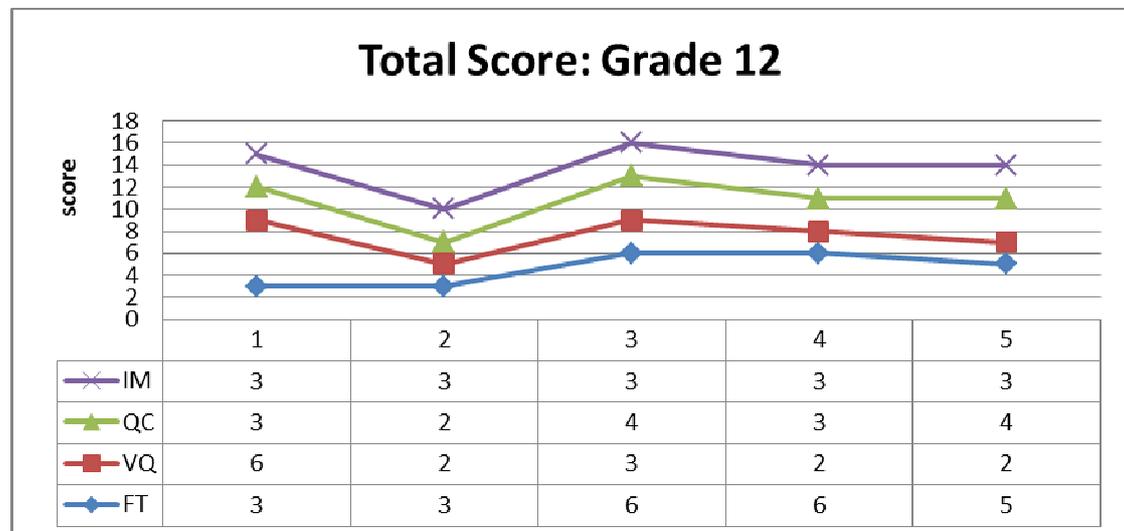
#### 4.2 Analysis of Grade 11

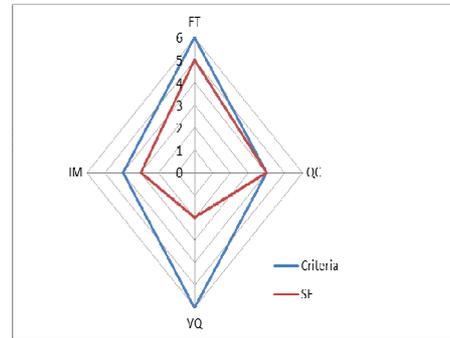
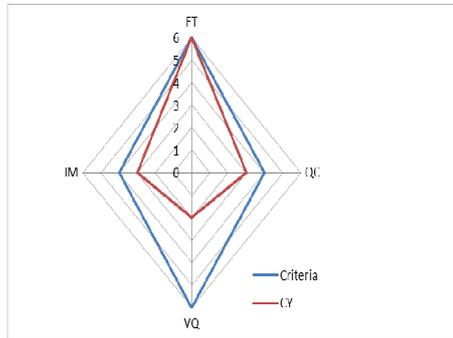


Based on the figures above, we can see that school TC is better than SF in three dimensions. The basic difference between them lay in their choice of the level of the comprehension passage. The readability of TC's passage was 9.0, but the readability of SF's text was 12.3. Comparing BC values, TC was much higher than SF (TC--PR value:95-99, SF--PR value:65-81). In other words, SF's comprehension passage did not fit the level of the students. Also, TC made efforts to paraphrase properly when asking comprehension questions. What's more, TC designed three different comprehension tests based on their learning objectives, which were very student-centered and friendly to the testers.

Finally, it is the analysis of Grade 12 (see Appendix III)

### 4.3 Analysis of Grade 12





Among tests for grade 12 students, school YL got good grades in the other three factors, but did not score well on factor FT, owing to the fact that the readability (9.6) of their first selection did not fit the level of the students, and the length of the passage was a little bit shorter. School HZ had the most advanced students (PR value: 95), but this was not reflected in their test. The percentage of reading tested was rated at only 4%, which means the teacher did not pay attention to reading ability, and instead put a lot of emphasis on syntax testing.

#### IV. Suggestions and Conclusions

From the above analysis, we note that factors FT & VQ are critical in determining the effectiveness of a reading comprehension test. The reason is that the passage will control whether the teaching fits the learning objectives, including the difficulty levels of sub-items. In addition, the length of the selections decides the number and variety of questions that can be set, as mentioned earlier in this paper. An appropriate passage should offer sufficient information and proper discourse, and these factors are the soul of the reading comprehension test.

As for factor QC, the results of this research did not show significance for this item. This is probably because the subjects were setting achievement tests, not proficiency tests. Teachers have to be very careful in their statement of questions, especially for low level students. Therefore, the quality of paraphrasing has a strong influence on the effectiveness of the reading comprehension test. With regard to factor IM, most of subjects showed that they were not skilled in this technique.

Like we mentioned in the previous pages, dividing comprehension into literal, referential and critical strands is only intended as a guide for teachers when

preparing reading assessments. Studies have shown that teachers tend to ask their students mainly literal comprehension questions. They need to be aware that there is more to reading than just the basic skills of reading and recalling information.

When selecting a passage to test, the teacher should make sure of their students' level. Otherwise, it will result in a bad wash-back and negatively affect the confidence and learning motivation of the learners.

Last but not the least, it is better to have some criteria to check the effectiveness and appropriateness of test items in order to enable English teachers to evaluate whether the students have learned what has been taught.