Pan-Pacific Association of Applied Linguistics 15(1), 67-90

The Relationship between Iranian EFL learners' Stress and their Reading Comprehension

Somayeh Peyman and Firooz Sadighi
Islamic Azad University

Peyman, S., & Sadighi, F. (2011). The relationship between Iranian EFL learners' stress and their reading comprehension. *Journal of Pan-Pacific Association of Applied Linguistics, 15*(1), 67-90.

This investigation intended to find out the relationship between EFL learners' stress and their reading comprehension. The subjects who included ninety EFL juniors from Shiraz Azad University were asked to answer a standardized reading comprehension test and a stress questionnaire. After finding out the results of stress questionnaire, 10% of the whole participants who had stress were chosen to be interviewed. The collected data were analyzed through Multiple Regression and One-Way ANOVA, using SPSS software. The results showed a negative and significant relationship between learners' stress and their reading comprehension. And also, the relationship between learners' stress and their reading comprehension was predictable. Furthermore, the results revealed that there is a significant difference between the three groups of high, moderate, and poor test-takers in their rate of stress.

Key Words: stress, reading comprehension, learning, academic achievement

1 Introduction

Reading comprehension is probably the most important skill that a person will learn. The importance of this skill to language learning and teaching is to the extent that in one specific period in the history of language learning/teaching an approach called "reading comprehension" emerged that focused on reading as an instrument for language learning (Brown, 2000, p.45). Farhady, Jafarpour, and Birjandi (2001), in stressing the importance of reading for learning English as a foreign language (EFL) maintain that "reading is the most important skill for most language learners in general and for EFL learners in particular"(p.247).

Alderson (2000) believes that reading comprehension consists of two variables: the reader and the text variables. That is why the reader's memory, emotion, attention, feelings, and concentration are important to understand the text. Since human beings are emotional creatures, any theory of language and language learning without considering this aspect would not be valid.

 © 2011 PAAL 1345-8353/00

At one point or the other, everybody suffers from stress. It's a well known fact that stress isn't good for the body. Stress is our body's reaction to what is known as a stressor. A stressor is anything that poses a challenge in life. These can be people, places, or events. According to McNamara (2000), stress can refer to the internal state of individuals, an external event, or the interaction between a person and his or her environment. It is an ordinary part of life and means different things to different people, and what is stressful for one person is not necessarily stressful for another.

One of the major problems of Iranian students in learning a foreign language, especially English, is their low comprehension in reading texts as well as taking reading comprehension tests. Akbari and Mirhashemi (2000) claim that "The majority of Iranian students are poor readers in English (also in Persian). They waste a great deal of time and effort, and their comprehension is not proportionate to the trouble they go through" (p.49).

Another students' problem is having stress which can affect their reading comprehension.

It is evident that college stress (MacGeorge et al., 2005; Sasaki & Yamasaki, 2007) and depression are major problems for college students. Research has shown that the vast majority of college students experience a moderate (77.6%) or serious (10.4%) amount of stress (as cited in Dixon et al., 2008).

Therefore, the purpose of this study is to examine the relationship between stress and reading comprehension among Iranian EFL learners and to investigate whether stress can predict reading comprehension variability. The effect of achievement level will also be considered in the present study. That is, the possible difference in the extent to which EFL learners' stress is related to reading comprehension is determined at different levels of achievement.

The study, therefore, seeks answers to the following questions:

1. Is there any relationship between Iranian EFL learners' stress and their reading comprehension?

2. Can stress predict reading comprehension?

3. Do highly successful, moderately successful, and unsuccessful test-takers differ in their stress?

Significance of this study can be assessed in terms of theoretical as well as empirical points of view. This can be applied to the field of language teaching. It provides valuable data to those who serve on the front line of education. The research results may make both learners and teachers aware of the negative effects of stress on reading comprehension.

2 Review of Literature

2.1 Impact of stress on learning

Stress is a strong modulator of memory function. However, memory is not a unitary process and stress seems to exert different effects depending on the memory type under study. Luethi et al. (2009) explored the impact of social stress on different aspects of human memory, including tests for explicit memory and working memory (for neutral materials), as well as implicit memory (perceptual priming, contextual priming and classical conditioning for emotional stimuli). A total of 35 young adult male students were randomly assigned to either the stress or the control group, with stress being induced by the Trier Social Stress Test (TSST). Salivary cortisol levels were assessed repeatedly throughout the experiment to validate stress effects. The results support evidence indicating complex effects of stress on different types of memory: A pronounced working memory deficit was associated with exposure to stress. No performance differences between groups of stressed and unstressed subjects were observed in verbal explicit memory (but note that learning and recall took place within 1 hour and immediately following stress) or in implicit memory for neutral stimuli. Stress enhanced classical conditioning for negative but not positive stimuli. In addition, stress improved spatial explicit memory. These results reinforce the view that acute stress can be highly disruptive for working memory processing.

VonDras et al. (2005) explored the differential association of everyday stress with the episodic memory test performances of young, mid-life, and older adults. Participants included 98 community-dwelling adults ranging in age from 19-89 years. Everyday stress was assessed via the Perceived Stress Scale and the Elder Life Stress Inventory. A brief battery of episodic memory tasks was administered which included tests of Logical Memory, Verbal Paired Associates, Digit Symbol Substitution, and Digit Symbol Incidental Learning. Results suggest that everyday hassles and irritations as well as the accumulation of challenging life events may exacerbate age-related decline on episodic memory tests that require greater executive resources and more integrated and elaborative processing.

2.2 Impact of stress on academic achievement

An ongoing concern for educators is the identification of factors that contribute to or are associated with academic achievement; one such group of variables that has received little attention is stress.

Casiano (2009) conducted a study which was hypothesized that among college students, a negative relationship exists between stressful living situations and academic performance, and a positive relationship between level of health of lifestyle and academic performance. This study

took a sample of 120 students from Loyola University's undergraduate population. The negative relationship between stress in living arrangements and academic performance approached significance.

Audrey (1985) conducted a study in which the relationship between perceived stress, sex, age, personality, entry qualification and academic grades were examined in a sample of 78 first year medical students at the University of the West Indies. A weak, negative relationship was found between stress and grades which was not statistically significant.

Malik and Balda (2006) conducted a study to investigate if any relationship exists between psychological stress and academic achievement of high IQ adolescents. Subjects were high IQ adolescents having IQ 110 and above. Bisht Battery of Stress Scale was used to assess the amount of stress on these adolescents. Academic achievement, assessed on the academic scores, was computed. Academic achievement was found to be negatively and significantly correlated with all types of stress except existential stress.

Two studies examined the effects of stress and social support on the academic achievement of Hispanic associate degree nursing students by Maville and Huerta (1997). The first study investigated stress, measured by the Life Experiences Survey (LES), and its relationship to academic achievement. Data analysis revealed a negative relationship between stress and academic achievement.

Stewart et al. (1999) provided prospective, longitudinal data on the relationship between stress-related measures and academic performance during the first two years of medical school. First year medical students (n = 121) were surveyed prior to beginning classes (wave 1), and again 8 months later (wave 2). Personality variables predisposing to distress (optimism and trait anxiety), stress response (depression and state anxiety), and stress management strategies were assessed at wave 1 and 8p wave 2. Pre-medical academic scores and grades at the end of five assessment periods over the course of the first 2 years of medical school were also obtained. Results showed pre-medical-school academic performance strongly predicted performance in medical school. Academic performance before and during medical school was negatively related to reported stress levels. On bivariate correlations, there were numerous significant relationships between stress reported at waves 1 and 2, and medical school academic performance assessed after these measures. In addition there were modest negative correlations between self-reported coping strategies of `humor' and `wishful thinking', and consequent academic performance. However, the predictive value of stress and its management on prospective academic performance was much decreased once pre-medical-school performance was statistically controlled.

2.3 Impact of stress on reading comprehension

Gentile & McMillan (1981) state that skills are important to reading, but social and emotional adjustments determine how much a student brings to

and grasps from the reading experience. According to Lamb (1985), standardized test results usually fail to tell what students are capable of doing. However, successful readers are most flexible in their response to task. In summary, they are more relaxed while reading.

Laurita (1985) believed that poor readers face many problems. They see reading as threatening experience and frequently exhibit stress while reading.

According to Skinner (1972), behavior is a product of conditioning. When we apply this theory to reading, teachers affect the probability of students' responses through the way he or she interacts with the student. The student chooses which direction to take depending on the consequences established by the teacher.

Jones (1994) conducted a study to determine the relationship between life stress and reading comprehension test scores on the Iowa tests of Basic Skills. Subjects, 41 middle-school students attending Lincoln School in Garwood, New Jersey, were surveyed as to the amount of life stress prevalent in their lives. In addition, the Iowa scores for reading comprehension were examined. Results indicated that life stress had a statistically significant, although minor, effect on students' reading comprehension test scores.

3 Methodology

3.1 Participants

The subjects of the study consisted of 90 (12 male and 78 female) EFL juniors majoring in English from Shiraz Azad University. They were all Iranian and varied in age from 18 to 24 years. After collecting the data and finding out the results of the stress questionnaire, 10% of the whole participants (2 males and 8 females) were chosen to be interviewed. The interviewees were those whose scores were above 150 (out of 330) and showed that they had stress.

3.2 Instrumentation

The participants were asked to take a reading comprehension test, followed by a stress questionnaire and after finding out the results, 10% of participants who had stress were interviewed.

The first instrument was a standardized reading comprehension test (TOEFL) which was in fact the reading comprehension section of a complete test of English proficiency (see appendix I) and was used to assess the participants' reading comprehension proficiency (Nourdad, 2005). This test includes three passages along with thirty-three items. The reliability of the test was computed through KR-21 method of calculating reliability and the index obtained was 0.63 (as cited in Nourdad, 2005).

The second instrument was a stress inventory questionnaire (Chandran, 2005). It is a tool to measure the amount of stress a person experiences in his or her daily life (see appendix Π). The questionnaire consists of 66 Likert scale statements ranging from A (Very true, I agree fully) to E (Not true, I totally disagree).

Some difficult words of the questionnaire were translated into Persian to prevent misunderstanding.

To ascertain whether Hari's Stress Inventory (HIS) was a valid tool, the content validity was determined by Chandran (2005). He had given 112 items to five teachers in Psychology department of Bishop Moore College, Mavelikara, India who had sufficient orientation and experience in this area. They read every item and judged carefully the degree of stress expressed by each. For this purpose the judges were given a table in which they were required to place every item under one of the following 5 categories, fully agree/agree/undecided/disagree/fully disagree. Judges were also requested to mention such items which were either not well worded or difficult to understand. On the basis of their opinion only 101 items were subjected to item analysis and out of them 66 items which fulfilled the criteria were finally included in the inventory.

In order to ascertain the reliability of the inventory, Chandran (2005) determined the internal consistency by split half method. It was calculated on the basis of responses given by a sample of 50 college students of Bishop Moore College, Mavelikara, India. The product moment co-efficient of internal consistency as corrected by Spearman- Brown formula was found to be 0.74. To test the temporal consistency, Chandran (2005) administered the inventory questionnaire to the same 50 college students after 4 weeks. Test-retest coefficient of correlation was found to be 0.79 and temporal consistency to be 0.88.

The reliability of the stress inventory questionnaire based on the participants' responses of this study was calculated through Cronbach's alpha and the index obtained was 0.76.

Interview questions were some items of the life stress questionnaire which could be merged with the reading comprehension. The interview also consisted of some questions to have participants' opinions about the role of their professors on their performance (see appendix III).

3.3 Administration

The participants were asked to take a reading comprehension test, followed by a stress questionnaire.

Half of the participants completed the stress questionnaire first and answered the reading test next, while the other half did the reverse. This was done to reduce any order effect of the instruments. There was no time limit to complete the two instruments.

After two weeks interval, the interviewees were interviewed in their native language one by one. The interviews were recorded and took about 40 minutes. It was a semi-structured and retrospective interview and both sexes (8 females and 2 males) were included in it.

3.4 Data analysis

These participants were divided into three groups of highly successful, moderately successful, and poorly successful, according to their total grades on reading comprehension test. Group A with scores one SD above the mean score, group B with scores between one SD above and below the mean score, and group C with scores one SD below the mean score.

$$A \rightarrow \underline{X} \geq \overline{X} + 1\,SD$$
$$B \rightarrow \overline{X} - 1\underline{SD} < X < \overline{X} + 1SD$$
$$C \rightarrow X \leq \overline{X} - 1SD$$

Scores 1, 2,3,4,5 respectively for A, B, C, D, E were given to each response of the stress questionnaire.

Questions 2, 4, 6, 8, 11, 13, 14, 16, 17, 31, 43, 44, 46, 48, 49, 60, 64, 65 were scored in the opposite order.(Scores 5,4,3,2,1 respectively for A,B,C,D,E).

Then, their total score was found by adding the scores. The maximum score one can attain is 330. Scores above 150 means the person has stress and if the score is above 250, he or she will need professional help to reduce stress.

After the required data were collected, statistical analyses were performed using SPSS software. And a level of 0.05 was used as the criterion of significance. The degree of relationship between stress and reading comprehension was measured using Pearson Product-Moment Correlation. A regression analysis was conducted to make a prediction about learners' stress and their reading comprehension. One-Way ANOVA was run to find out if the three groups of highly successful, moderately successful and poorly successful test-takers differ in their stress.

Interview recordings were also transcribed and analyzed to find out if there is a correspondence between quantitative and qualitative results and also receive more information from the participants' experiences.

4 Results and Discussion

4.1 Research questions results and discussion

In order to find out if there is a relationship between Iranian EFL learners' stress and their reading comprehension and if stress can predict reading

comprehension, Multiple Regression was run. The obtained results are given in Table 1 and 2.

Table 1.The Relationship between Iranian EFL Learners' Stress and Their Reading Comprehension

variable	N	M	SD	r	P
Reading	90	16.51	3.8	-0.35	0.001
Stress	90	171.73	22.1		

The results in Table 1 indicate that there is a negative and significant relationship (-0.35) between Iranian EFL learners' stress and their reading comprehension. In other words, having stress results in weak reading comprehension performance. For each point increase in stress score, there was a 0.35 point decrease in reading comprehension score. The result is consistent with the finding of Jones (1994) who mentioned that life stress had a statistically significant, although minor, effect on students' reading comprehension test scores.

Maville & Huerta (1997), Casiano (2009) came to the conclusion that there is a significant and negative relationship between stress and academic achievement. And since reading is a part of academic achievement, these findings are in line with the results of the present study.

Table2. The Prediction Power of Reading Comprehension by Stress

Predictor	r	r^2	F	P	B	Beta	t	P
Stress	0.35	0.12	11.95	0.001	-0.06	-0.35	3.45	0.001

The results show that F coefficient is significant ($P<0.001$), so the predictor stress can predict reading comprehension. It indicates that only 12% of the learners' reading comprehension based on the rate of their stress could be predicted. It means the more the learners have stress the worse they perform on reading comprehension. The correlation between stress and reading comprehension is -0.35.

The result is somehow in agreement with the findings of Stewart, Lam, Beston, and Wong (1999), since it is the matter of academic achievement but not reading comprehension, who revealed that the predictive value of stress and its management on prospective academic performance was much decreased once pre-medical-school performance was statistically controlled. In conclusion, they regard stress as a predicator of academic success.

In order to see if highly successful, moderately successful and poorly successful test takers differ in their stress, One-Way ANOVA was run. The results are illustrated in Table 3.

Table3. The Difference between High, Moderate and Poor Achievers' Stress

Groups	N	M	SD	F	df	P
Highly	12	155.9	23.4		B=2	
Moderate	65	172.7	21.9	4.76	W=87	0.01
Low	13	181.4	14.4		T=89	

The results revealed that the difference between the three groups' stress is statistically significant. In other words, the three groups of highly, moderately, and low successful test takers differ in their rate of stress. Based on the scores which were out of 330, highly successful test takers were those with the least stress (155.9), low successful ones had the most stress (181.4) and moderately successful test takers had more stress than highly successful and less stress than low successful test takers (172.7).

Descriptive statistics and Histograms of students' reading scores and their stress level are presented as follows:

Table4.Descriptive Statistics of the Reading Scores

Statistic	Value
Mean	16.5
Median	17
Mode	17
SD	3.8
Variance	14.7
Range	23
Minimum	6
Maximum	29

Table 4 represents the descriptive statistics of the reading scores. As it is shown the students' mean score in the reading comprehension test is 16.5 and the Standard Deviation is 3.8. The histogram of the reading scores in comparison with the normal curve is shown below to convert the distribution to a visual form in order to make it easier to understand.

Figure 1.Reading histogram

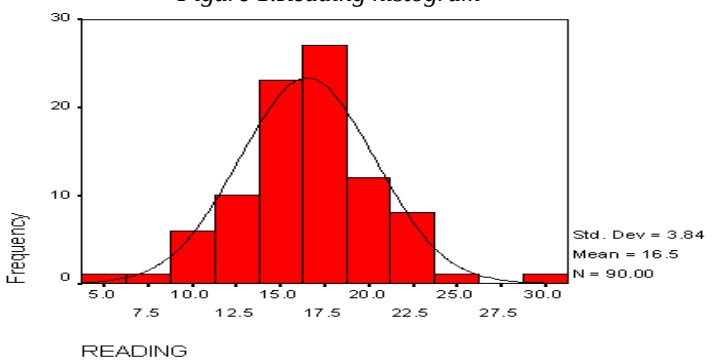


Figure 1 indicates that it is close to a normal curve since most of the scores pile up in the middle of the curve and it takes the form of a bell-shaped curve. It means the distribution of reading scores was close to be normal and it is in agreement with being a standardized test. And also, it is an appropriate test for our population.

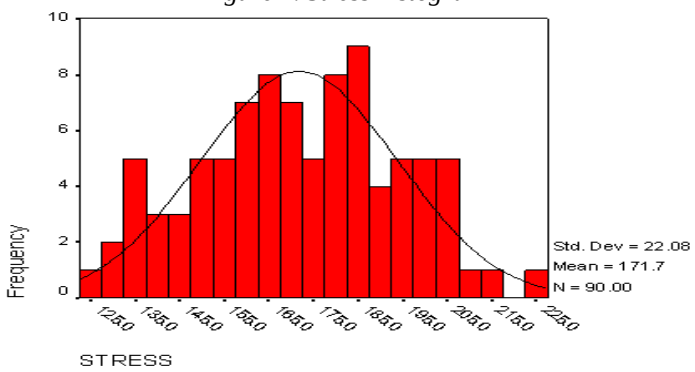
Table 5.Descriptive Statistics of the Stress Levels

Statistic	Value
Mean	171.7
Median	171.5
Mode	184
SD	22.1
Variance	487.6
Range	98
Minimum	127
Maximum	225

The descriptive statistics of the learners' stress level is indicated in table 5. According to this table, none of the students needs professional help to reduce their stress since the maximum score was 225 which is less than 250. However, it shows that some of the students had stress in terms of having scores above 150.

The histogram of the stress levels in comparison with the normal curve is shown below.

Figure 2. Stress histogram



4.2 Interview results and discussion

In general, the interview supported the quantitative results which showed the negative relationship between stress and reading comprehension. The results showed that 90% of the participants read the texts or answered the reading

comprehension test in a hurry which is consistent with the first question of the stress questionnaire. (I do things in a hurry.)

According to the interview results, the majority of the participants regretted not studying well, got confused, and felt frustrated during reading comprehension test and such results are in agreement with questions 61, 38, and 63 in order (I usually regret for what has happened. I receive confusing and contradicting instructions. I feel frustrated.)

The minority of them mentioned that they thought they would be scolded by their professors, they have nightmares, they felt tense, worthless, and anxious which are not in line with the related questions 33, 56, 66, and 59 (I am often scolded by superiors for coming late., I have nightmares., I feel tensed on thinking about my responsibilities., I feel worthless, feel anxious.) neither with question 62 since none of them feels sorry during reading comprehension.

The majority of them sweated. And also, suffered from headache during reading comprehension tests which is consistent with questions 54 and 51 (I sweat without reason. I suffer from headache.) And a small number of them reported that they had frequent attacks of chest pain which is not in agreement with question 52 (I have frequent attacks of chest pain.)

The following results were not related to stress questionnaire items although they are related to the study which is the weak point of stress questionnaire.

Quite a large number of the participants reported that stress ends up with memory loss, word forgetting, and concentration and attention impairment during reading comprehension.

Finally, they mentioned that their instructors have a very important role in lowering their stress.

5 Conclusion

This study was performed to examine the relationship between EFL learners' stress and their reading comprehension. Based on the research questions the following conclusion was drawn:

There is a negative and significant relationship between Iranian EFL learners' sates and their reading comprehension. In other words, the more they have stress the worse they perform the reading comprehension test. Each point increase in stress score will reduce 0.35 point of reading comprehension score. And also, 12% of the learners' reading comprehension based on their rate of stress could be predicted. Furthermore, the difference between the three groups' stress is statistically significant at the level of 0.01; meaning these three groups of highly, moderately, and low successful test takers have different rates of stress which is consistent with the previous research questions' results.

6 Implications and Suggestions

Based on the findings of this study, there is a negative relationship between EFL learners' stress and their reading comprehension which provides several implications for the English reading instructors.

Instructors have a significant role in lowering EFL learners' stress during reading comprehension by actively being supportive, having a good relationship with their students, making a relaxed atmosphere, giving more information about the test, and providing their students with a comprehensive guide to deal with stress in order to increase their reading ability.

References

Akbari, R., & Mirhassani, A. (2000). *Study skills*. Tehran. SAMT.

Alderson, J. C. (2000). *Assessing reading*. Cambridge, MA: Cambridge University Press.

Audrey, M. P. (1985). *Relationship between stress and academic achievement in pre-clinical medical undergraduates.* Retrieved May 27, 2009, from http:// bases. bireme. br/ cgi-bin/ wxislind. exe/ iah/ online/? Isis Script= iah/ iah.xis&Lang= p & next Action= Ink & exprSearch= 13670 & index Search=ID

Brown. D. (2000). *Principle of language learning and teaching*, (4th ed.), White Plains, NY: Pearson Education.

Casino, L. I. (2009). *The relationship among living situation, health, and college academic performance.* Retrieved May 27, 2009 from http:// clearing house. missouriwestern, edu/ manuscripts/ s/z. php

Chandran, H. S. (2005). *Assess your stress using Hari's stress inventory.* Retrieved February 10, 2009, from http:// www. time-management-guide. com/ assess-stress. Html

_____. (2005). *Hari's stress inventory.* Retrieved February 10, 2009, from http:// www. ananthapuri. com/ article. asp? title= Hari's-Stress-Inventory&id=22

Dixon, S. K., & Kurpius, S. E. R. (2008). Depression and college stress among university undergraduates: Do mattering and self-esteem make a difference? *Journal of College Student Development, 49*(5), 412-424.

Farhady, H., Jafarpour, A., & Birjandi,P. (2001). *Testing language skills: From theory to practice.* Tehran. SAMT.

Gentile, L., & McMillan, M. (1981). Profiling problem readers: Diagnosis and prescription. *Academic Therapy, 17*(1), 47-56.

Jones, M. C. (1994). *Life stress and reading comprehension test scores in the middle school student.* MA: Kean College of New Jersey, New Jersey

Lamb, P. (1985). *The symptoms of childhood depression as factors in children are reading difficulties.* Unpublished doctoral dissertation. North Texas State University.

Laurita, R. (1985). Child's reading ability linked to development of visual perception, *Educational Week, 5*(1), 8.

Luethi, M., Meier, B., & Sandi, C. (2009). Stress effects on working memory, explicit memory, and implicit memory for neutral and emotional stimuli in healthy men. *Front. Behav. Neurosci, 2*(5).

Malik, R. M., & Balda, S. (2006). High IQ adolescents under stress: Do they perform poor in academics, *Anthropologist, 8*(20), 61-62.

McNamara, S. (2000). *Stress in young people*. London: The Cromwell Press.

Maville, J., & Huerta, C. G. (1997), *Stress and social support among Hispanic student nurses: Implications for academic achievement.* University of Texas Pan American, College of Health Sciences & Human Services, Edinburgh, USA**.**

Nourdad, N. (2005). *On the relationship between test-taking strategies and EFL reading performance*. Unpublished master's thesis, University of Shiraz, Shiraz, Iran.

Skinner, B. F. (1972). *Some issues concerning the control of human behavior. In cumulative record: a selection of papers*, New York: Meredity Corporation.

Stewart, S. M., Lam, T. M., Beston, C. L., Wong, C. M., & Sunita, M. (1999). A prospective analysis of stress and academic performance in the first two years of medical school, *Medical Education, 33*(4), 243-250.

VonDras, D. D., Powless, M. R., Oslon, A. K., Wheeler, D., & Snudden, A. L. (2005). Differential effects of everyday stress on the episodic memory test performances of young, mid-life, and older adults, *Aging & Mental Health, 9*(1), 60-70.

Somayeh Peyman and Firooz Sadighi
English language and linguistics
Islamic Azad University, Shiraz
62, Shahid Kobboar 1, Pol-E-Mali Abaad, Shiraz, Iran.
Tel: 0098-711-6246404
E-mail: saminpeyman@yahoo.com, firoozsadighi@yahoo.com

Received: January 22, 2011
Revised: May 18, 2011
Accepted: June 15, 2011

Appendix I

L2 Reading Comprehension Test

Directions: You will read three passages. Each one is followed by several questions about it. You are to choose the ONE best answer, (a), (b), (c), and (d) to each question. Then, on your answer sheet, find the number of the question and mark in the space that corresponds to the letter of the answer you have chosen.

Passage one:
Questions 1-12

Basic to any understanding of Canada in the 20 years after the second World War is the country's impressive population growth. For every three Canadians in 1945, there were over five in 1966. In September 1966 Canada's population passed the 20 million mark. Most of this surging growth came form natural increase. The depression of the 1930's and the war had held back marriages, and the catching up process began after 1945. The baby boom continued through the decade of the 1950's producing a population increase of nearly fifteen percent in the five years from 1951 to 1956. This rate of increase had been exceeded only once before in Canada's history, in the decade before 1911, when the priorities were being settled. Undoubtedly, the good economic conditions of the 1950's supported a growth in ht population, but the expansion also derived from a trend toward earlier marriages and an increase in the average size of families. In 1957 the Canadian birth rate stood at 28 per thousand, one of the highest in the world.

After the peak year of 1957, the birth rate in Canada began to decline. It continued falling until in 1966 it stood at the lowest level in 25 years. Partly this decline reflected the low level of births during the depression and the war, but it was also caused by changes in Canadian society. Young people were staying at school longer, more women were working, young married couples were buying automobiles or houses before starting families; rising living standards were cutting down the size of families. It appeared that Canada was once more falling in step with the trend toward smaller families that had occurred all through the Western World since the time of the Industrial Revolution.

Although the growth in Canada's population had shown down by 1966 (the increase in the first half of the 1960's was only nine percents), another large population wave was coming over the horizon. It would be composed of the children of the children who were born during the period of the high birth rate prior to 1957.

1. What does the passage mainly discuss?
   a. Education changes in Canadian society.
   b. B. Canada during the Second World War.
   c. Population trends in postwar Canada.
   d. Standard living in Canada.

2. According to the passage, when did Canada's baby born begin?
   a. In the decade after 1911
   b. After 1945
   c. During the depression of the 1930's
   d. In 1966

3. The word "five" in line 3 refers to ……. .
   a. Canadians
   b. Years
   c. Decades
   d. marriages

4. The word "surging" in line 5 is closest in meaning to ….. .
   a. new
   b. extra
   c. accelerating
   d. surprising

5. The author suggests that in Canada during the 1950's
   a. the urban population decreased rapidly.
   b. fewer people married.
   c. economic conditions were poor.
   d. the birth rate was very high.

6. The word "trend" in line 13 is closest in meaning to ……..
   a. tendency
   b. aim
   c. growth
   d. directive

7. The word "peak" in line 17 is closest in meaning to … .
   a. pointed
   b. dismal
   c. mountain
   d. maximum

8. When was the birth rate in Canada at its lowest postwar level?
   a. 1966
   b. 1957
   c. 1956
   d. 1951

9. The author mentions all of the following as causes of decline in population growth after 1975 except …… .
   a. people being better educated
   b. people getting married earlier
   c. better standards of living
   d. couples buying houses

10. It can be inferred from the passage that before the Industrial Revolution …..
   a. families were larger
   b. population statistics were unreliable
   c. population grew steadily
   d. economic conditions were bad

11. The word "it" in line 18 refers to …. .
   a. horizon
   b. population
   c. nine percent
   d. first half

12. The phrase "prior to" in line 32 is closet in meaning to …. .
   a. behind
   b. since
   c. during
   d. preceding

Passage two:
Questions 13-24

The first two decades of this century were dominated by the microbe hunters. These hunters had tracked down one after another of the microbes responsible for the most dreaded scourges of many centuries: tuberculosis, cholera, diphtheria. But there remained some terrible diseases for which no microbe could be incriminated:

Scurry, pellagra, rickets, and beriberi. Then it was discovered that these diseases could be pretended or cured by consuming foods that contained the vitamins. Nd so in the decades of the 1920's and 1930's, nutrition became a science and the vitamin hunters replaced the microbe hunters.

In the 1940's and 1950's biochemists strived to learn why each of the vitamins was essential for health. They discovered that key enzymes in metabolism depend on one or another of the vitamins as coenzymes to perform the chemistry that provides cells with energy for growth and function. Now, these enzyme hunters occupied center stage.

You are aware that the enzyme hunters have been replaced by a new breed of hunters who are tracking genes-the blue prints for each of the enzymes-diabetes, cystic fibrosis. These gene hunters, or genetic engineers, use recombinant DNA technology to identify and clone genes and introduce them into bacterial cells and plants to create factories for medicine and for better crops for agriculture. Biotechnology has become a multibillion-dollar industry.

In view of the inexorable progress in science, we can expect that the gene hunters will be replaced in the spotlight. When and by whom? Which kind of hunter will dominate the scene in the last decade of our warring century and in the early decades of the next? I wonder whether the hunters who will occupy the spotlight will be neurobiologists who apply the techniques of the enzyme and gene hunters to the functions of the brain. What to call them? The head hunters. I will return to them later.

13. What is the main topic of the passage?
    a. The microbe hunters
    b. The potential of genetic engineering
    c. The progress of modern medical research
    d. The discovery of enzymes

14. The word "which" in line 5 refers to …. .
    a. diseases
    b. microbe
    c. cholera
    d. diphtheria

15. The word "incriminated" in line 5 is closest in meaning to …. .
    a. investigated
    b. blamed
    c. eliminated
    d. produce

16. Which of the following can be cured by a change in diet?
    a. Tuberculosis
    b. Cholera
    c. Cystic fibrosis
    d. Pellagra

17. The word “strived” in line 11 is closest in meaning to …. .
    a. failed
    b. tried
    c. experimented
    d. studied

18. How do vitamins influence health?
    a. They are necessary for some enzymes to function.
    b. They protect the body from microbes.
    c. They keep food from spoiling.
    d. They are broken sown by cells to produce energy.

19. In the third paragraph, the author compares cells that have been genetically altered by biotechnicians to …….. .
    a. gardens
    b. factories
    c. hunters
    d. spotlights

20. The word “them” in line 21 refers to …… .
    a. cells and plants
    b. genes
    c. hormones
    d. gene hunters or engineers

21. The phrase “occupy the spotlight” in line 28 in closest in meaning to …… .
    a. receive the most attention
    b. go to furthest
    c. conquer territory
    d. lighten the load

22. The author implies that the most important medical research topic of the future will be …….. .
    a. the functions of the brain
    b. inherited diseases
    c. the operation of vitamins
    d. the structure of genes

23. Which of the following best describes the author’s tone in the last paragraph of the passage?
    a. critical
    b. speculative
    c. appreciative
    d. emotional

24. With which of the following sentences would the author be most likely to agree?

a. The focus of medical research will change in the next two decades.
b. Medical breakthroughs often depend on luck.
c. Medical research through the twentieth century has been dominated by microbe hunters.
d. Most diseases are caused by defective genes.

Passage three:
Questions 24-33

The ocean bottom- a region nearly 2.5 times greater than the total land area of the Earth-is a vast frontier that even today is largely unexplored and uncharted. Until about a century ago, the deep-ocean floor was completely inaccessible, hidden beneath waters averaging over 3600 meters deep. Totally without light and subjected to intense pressure hundred of times greater than at the Earth's surface, the deep-ocean bottom is hostile environment to humans, in some ways as forbidding and emote as the void of outer space.

Although researchers have taken samples of deep-ocean rocks and sediments for over a century, the first detailed global investigation of the ocean bottom did not actually start until 1968, with the Sea Drilling Project (DSDP). Using techniques first developed for the off shore oil and gas industry, the DASD's drill ship, the Glomar Challenger, was able to maintain a steady position on the ocean's surface and drill in very deep waters, extracting samples of sediments and rock from the ocean floor.

The Glomer Chllenger completed 69 voyages in a 15-year research program that ended in November 1983. During this time, the vessel logged 600000 kilometers and took almost 20000 core samples of seabed sediments and rocks at 624 drilling sites around the world. The Glomar Challengers core samples have allowed geologists to reconstruct what the planed looked like million of ears in the future. Today, largely on the strength of evidence gathered during the Glomar Challenger's voyages, nearly earth scientists agree on the theories of place tectonics and continual drift that explain many of the geological processes that shaped the Earth.

The cores of sediment drilled by the Gllomat Chllenger have also yielded information critical to understanding the world's past climates.

Deep-ocean sediments provided a climate record stretching back hundreds of million of years, because they are largely isolated form the mechanical erosion and the intense chemical and biological activity that rapidly destroy much land- base evidence of past climates. This record has already provided insights into the patterns and causes of past climate change-information that may be used to predict future climates.

25. The author refers to the ocean bottom as a frontier in line because it,
    a. is not a popular area for scientific research.
    b. contains a wide variety of life forms.
    c. attracts courageous explorers.
    d. an unknown territory

26. The word “inaccessible” in line 4 is closest in meaning to …… .
    a. unrecognizable
    b. unreachable
    c. unusable

27. The author mentions outer space in line 8 because:
    a. The earth’s climate millions of years ago was similar to conditions in outer space.
    b. It is similar to ocean floor.
    c. Rock formations in outer space are similar to those found in the ocean.
    d. Techniques used by scientists to explore outer space were similar to those used in ocean exploration.

28. Which of the following is true of the Gloman Callenger?
    a. It’s a type of submarine.
    b. It’s an ongoing project.
    c. It has gone on over 100 voyages.
    d. It made its first DSDP voyage in 1968.

29. The word “extracting” in line 15 is closest in meaning to …….. .
    a. breaking
    b. locating
    c. removing
    d. analyzing

30. The Deep Sea Drilling Project was significant because it was:
    a. an attempt to find new sources of oil and gas.
    b. the first extensive exploration of the ocean bottom.
    c. composed of geologists from all over the world.
    d. founded entirely by the gas and oil industry.

31. The word “strength” in line 23 is closet in meaning to ……. .
    a. basis
    b. purpose
    c. discovery
    d. endurance

32. The word “they” in line 30 refers to …… .
    a. years
    b. climates
    c. sediments
    d. cores

33. Which of the following is NOT mentioned in the passage as being a result of the Deep Sea Drilling Project?
    a. Geologists were able to determine the Earth’s appearance hundreds of millions of years ago.
    b. Two geological theories became more widely accepted by scientists.
    c. Information was revealed about the Earth’s past climatic changes.
    d. Geologists observed forms of marine life never before seen.

Appendix II

Read slowly and carefully, state how far it is true in your case. You may please choose any one of the following five options to each item.

A. Very true, I agree fully
B. True, I agree
C. I cannot say
D. Not true, I disagree
E. Not true, I totally disagree

1. I do things in a hurry…… A B C D E
2. I like to travel slowly…….... A B C D E
3. I eat food faster…… A B C D E
4. I never interrupt when others talk. ……..… A B C D E
5. I want to finish works with neatness and perfection. ……. A B C D E
6. I speak slowly. ……. A B C D E
7. Seeing lazy people I get angry. ……... A B C D E
8. I never bet with others. …… A B C D E
9. I feel tensed on thinking about my responsibilities. …… A B C D E
10. I am not happy to wait in a queue(صف) . …….. A B C D E
11. I always consider the feelings of others while talking. ……. A B C D E
12. I take intoxicants. …….. A B C D E
13. I pray regularly. ……. A B C D E
14. I am interested in religious books. …… A B C D E
15. My sexual life is not satisfactory. ……. A B C D E
16. I watch movies and plays. ……. A B C D E
17. I practice meditation. ……. A B C D E
18. I don't reveal secrets to others. …….. A B C D E
19. I can't stay away from home..…… A B C D E
20. I feel tensed on unexpected arrival of a guest. …….. A B C D E
21. I feel disturbed on an unexpected expenditure. ……. A B C D E
22. I have debts. …….. A B C D E
23. I quarrel frequently with spouse. …….. A B C D E
24. I feel that some of my family members are against me. …... A B C D E
25. I am not properly understood. ……... A B C D E
26. I feel devaluated in society. ……... A B C D E
27. I can't plan my financial budget properly. ……. A B C D E
28. I am not being loved. ……. A B C D E
29. I have a lot of family problems. …… A B C D E
30. I reach home late. ……. A B C D E
31. I discus my problems with family members. …… A B C D E
32. I have experiences of loosing job unexpectedly. …….. A B C D E
33. I am often scolded by superiors for coming late. ……. A B C D E

34. I fear my work place. …….. A B C D E
35. I quarrel with colleagues. ……. A B C D E
36. I had been a scapegoat (قرباني) in fight between superiors.... A B C D E
37. I don't like in engaging in love affairs. ……. A B C D E
38. I receive confusing & contradicting instructions from above…... A B C D E
39. My job is boring one. …… A B C D E
40. I am not paid adequately…… A B C D E
41. My work evokes prick of conscience…… A B C D E
42. I had to bear injustice silently……... A B C D E
43. I am satisfied at work……. A B C D E
44. I am well trained for my work……... A B C D E
45. I get angry soon……. A B C D E
46. I don't lose opportunities to help others…… A B C D E
48. I am a patient listener…… A B C D E
49. I am willing to accept my faults…… A B C D E
50. At times I feel like destroying everything…… A B C D E
51. I suffer from headache. …… A B C D E
52. I have frequent attacks of chest pain. ……... A B C D E
53. I have poor appetite. ……. A B C D E
54. I sweat without reason. ……. A B C D E
55. I don't get adequate sleep. ……. A B C D E
56. I have nightmares. ……. A B C D E
57. I lose control soon. …… A B C D E
58. I hate criticism. ……. A B C D E
59. I feel anxious. …… A B C D E
60. I feel calm. ……. A B C D E
61. I usually regret for what has happened. …… A B C D E
62. I feel sorry. …… A B C D E
63. I feel frustrated. …… A B C D E
64. I am happy. ……... A B C D E
65. I am confident. ……. A B C D E
66. I feel worthless. …… A B C D E

Appendix III
سوالات مصاحبه

1. آ یا شما معمولا سوالات درک مطلب را با عجله جواب میدهید؟
2. آ یا عدم یا درک کم مطلب شما را دچارتا سف –نا امیدی – بی ارزشی و پشیمانی از عدم تلاش بیشتر می کند؟
3. آیا در زمان پاسخ به درک مطلب شما مضطرب- گیج- متعارض وعصبی می شوید؟
4. آیا در زمان پاسخ به درک مطلب به ا نتقاد و سرزنش استاد نسبت به عملکرد تان فکر می کنید؟
5. عدم درک کافی در زمان امتحان درک مطلب چه تا ثیری برسلامت شما دارد؟ آیا دچار سردرد یا درد مکرر در قفسه سینه میشوید؟ آیا عرق می کنید؟
6. آیا بطور کلی استرس با درک مطلب ارتباط دارد؟ آیا این رابطه قابل پیش بینی ا ست ؟
7. آیا استرس بر حافظه تاثیر دارد؟ برا ی مثال فراموشی لغات به همراه دارد؟
8. آیا شما کابوس شب امتحان درک مطلب دارید؟
9. آیا اساتید نقشی درایجاد یا کنترل استرس در رابطه با درک مطلب دانشجویان دارند؟
10. اگر نکته یا تجربه ای درمورد رابطه استرس و درک مطلب دارید عنوان کنید.