REFERENCES

Atchley, R. A., Stringer, R., Mathias, E., Ilardi, S.S., & Minatrea, A. D. (2007). The Right Hemisphere's Contribution to Emotional Word Processing in Currently Depressed, Remitted Depressed, and Never-Depressed Individuals. *Journal of Neurolinguistics, 20*, 145-160.

Blakemore, S. J., & Frith, U. (2005). *The Learning Brain: Lessons for Education*. Oxford: Blackwell Publishing Ltd.

Brebion, G., Smith, M., Amador, X., Malaspina, D., & Gorman, J. M. (1997). Clinical Correlatos of Memory in Schizophrenia: Differential Links Between Depressión, Positive and Negative Symptoms, and Two Types of Memory Impairment. Retrieved April 05,2007,from http://www.ajp.psychiatryonline.org/cgi/content/full/154/11/1538.pdf

Breitenstein, C., Jansen, A., Deppe, M., Foerster, A. F., Sommer, J., Wolbers, T., & Knecht, S. (2005). Hippocampus Activity Differentiates Good from Poor Learners of a Novel Lexicon. *Neuro Image, 25(3)*, 958-968.

Bremner, J. D. (2005). *Does Stress Damage the Brain?: Understanding Trauma-Related Disorders from a Mind-Body Perspective*. New York: Norton & Company Ltd.

Cowan, N. (1997). *Attention and Memory: An Integrated Framework*. Oxford: Oxford University Press.

De Paulo, J. R., & Horvitz, L. A. (2002). *Understanding Depression: What We Know and What You Can Do About It*. New Jersey: Wiley & Sons Inc.

Gorp, W. G., Altshuler, L., Thebege, D. C., & Mintz, J. (1999). Declarative and Procedural Memory in Bipolar Disorder. *Biological Psychiatry, 46(4)*, 525-531.

Groeger, J. A. (1997). *Memory and Remembering: Everyday Memory in Context*. Edinburgh: Addison Wesley Longman Limited.

Hamilton, M. (2006). Hamilton Depression Scale. Retrieved December 24, 2006, from http://www.minddisorders.com/Flu-Inv/Hamilton-Depression-Scale.html

Harre, R., & Lamb, R. (1986). *The Dictionary of Psychological and Clinical Psychology*. Oxford: Blackwell Publishing Ltd.

Johnson, S. L., Huyes, A. M., Field, T. M., Schneiderman, N., & McCabe, P. M. (2000). *Stress, Coping, and Depression*. New Jersey: Lawrence Erlbaum Associates Publishers.

Mitchell, R., & Myles, F. (2004). *Second Language Learning Theories (2nd ed.)*. Oxford: Oxford University Press.

Nicoli, A. M. (1988). *The New Harvard Guide to Psychiatry*. Boston: Harvard College Press. Oxford University Press. (2007). English Language Teaching. Retrieved April 03, 2007, from http://www.oup.com/elt/catalogue/teachersites/selectreadings/?cc=global

Packer, L. E. (2002). Accommodating Students with Mood Lability: Depression and Bipolar Disorder. Retrieved April 05, 2007, from http://www.schoolbehavior.com/files/tips_mood.pdf

Paller, K. A. (2004). Electrical Signals of Memory and the Awareness of Remembering. *Journal of the American Psychological Society, 13(2)*, 49-54.

Pedia, W. (2005). *Clinical Depression*. Retrieved 2005.11.07 from http://en.wikipedia.org.

Rybash, J. M., & Monoghan, B. E. (1999). Language, Emotion and Cognition Experiences from Bilingual. *Journal of General Psychology, 126*, 85-96.

Verhaeghen, P., & Marcoen, A. (1993). Memory Overview. *Journal of Psychology and Aging, 8*, 380-388.

Yang, J. A., & Rehm, L. P. (1993). Memory. *International Journal of Aging and Human Development, 36*, 39-55.

Table 7. Correlation of Depression Questionnaire and Concrete Vocabulary

Concrete words	Depression		
-.076	1	Pearson Correlation	Depression
.456	.	Sig. (2-tailed)	
98	98	N	
1	-.076	Pearson Correlation	Concrete words
.	.456	Sig. (2-tailed)	
98	98	N	

As table 7 shows, there is a negative relationship between these two variables, but in fact, the value of sigma (α=0.456) is bigger than 0.05. In other words, there is no significant relationship between depression among university students and their ability to recall concrete vocabulary.

Conclusion

The results of the present study indicated the existence of a negative correlation between depression and vocabulary recall. In other words, with an increase in depressive symptoms among students, their ability of vocabulary recall decreased.

The results showed that the correlation between depression and abstract vocabulary recall is high as well.

In contrast, the researches could not find any significant relationship between depression and concrete vocabulary recall.

Our memory has a great deal to do with not only who we are, but also how we function on a day-to-day basis. As Yang (1993) states, "It serves as means to multiple ends and provides the foundation for critical thinking and decision-making, thus impacting every facet of our lives" (p.40). Memory is often used as the gauge by which cognitive functioning is measured. "Intact memory allows us to function independently, and contribute to the world in which we live. Mildly impaired memory has a disorienting effect; severely impaired memory isolates us from emotionally or practically meaningful contact with the surrounding world" (p.40).

Thus, there is no surprise that we value our memory and fear its possible decline as a result of illness.

One of the necessities for learning a new language, specially its vocabulary is having a good memory. The value of learning correlates directly with the amount of learned information that is stored in memory, and the proportion of that material that the individual can recall.

The brain areas involved in memory formation are also involved in emotion. Thus, one category of changes caused by depression is thinking changes which include impaired concentration, impaired memory and difficulties in decision making. Depressed Students experience various kinds of memory problems or attentional difficulties.

Educating the school or university personnel about depression is essential. They should be aware of depressive symptoms among the students. Thus, the prime suggestion of this study would be directed to teachers for being aware of depression among their students, and consider it as a significant factor which reduces their learning ability. Packer (2002) suggests some accommodations which can help depressed students such as: accommodations for sleep disturbances, accommodations for impaired concentration/ focus/ memory, in-school counseling, testing accommodations, homework accommodations, behavior/ mood reporting charts, and parent counseling. By providing these accommodations, and asking them what supports they need, teachers can empower the depressed students. In such a friendly environment, the students feel that someone is hearing them, and caring about them. The result would be creating a plan that is more likely to be successful.

As mentioned in the above table, the maximum and minimum scores obtained by the subjects, were 45 and 15, respectively. The mean was 34 and the median 36, the range 30, the standard deviation 6.1, and the variance 37.34. The value of skewness (-0.620) reveals that these scores formed a negative skewed distribution. The value of kurtosis (0.837) refers to the peakness of the distribution.

Results:

The Relationship between Depression and Vocabulary Recall

To test the hypothesis, i.e. whether there is any relationship between depression and vocabulary recall of Iranian university students, the Pearson Product Moment Correlation was used in order to describe the relationship between these two variables. Table 5 shows the results.

Table 5. Correlation of Depression Questionnaire and Vocabulary Test

Vocabulary Recognition	Depression		
-.212(*)	1	Pearson Correlation	Depression
.036	.	Sig. (2-tailed)	
98	98	N	
1	-.212(*)	Pearson Correlation	Vocabulary
.	.036	Sig. (2-tailed)	Recognition
98	98	N	

As mentioned in table 5, the value of correlation is (–0.212). It tmeans that there is a negative relationship between depression and vocabulary recall of Iranian university students. The value of correlation indicates how closely depression and vocabulary recall are related.

In fact the value of sigma (α=0.036) shows that the correlation is significant at 0.05 level (α<0.05). Thus the null hypothesis is rejected at 0.05 level.

The Relationship between Depression and Recalling of Abstract Vocabulary

In order to test the hypothesis, i.e. whether there is any relationship between depression among Iranian university students and their ability to recall abstract vocabulary, the Pearson Product Moment Correlation was used in order to describe the relationship between these two variables. Table 6 shows the results.

Table 6. Correlation of Depression Questionnaire and Abstract Vocabulary

Abstract words	Depression		
-.219(*)	1	Pearson Correlation	Depression
.030	.	Sig. (2-tailed)	
98	98	N	
1	-.219(*)	Pearson Correlation	Abstract words
.	.030	Sig. (2-tailed)	.
98	98	N	

As it is obvious in table 6, the value of correlation is (–0.219). It means that there is a negative relationship between depression and abstract vocabulary recall of Iranian university students. The value of correlation indicates how closely depression and abstract vocabulary recall are related.

In fact the value of sigma (α=0.030) shows that the correlation is significant at 0.05 level (α<0.05).

The Relationship between Depression and Recalling of Concrete Vocabulary

To test the hypothesis, i.e. whether there is any relationship between depression among university students and their ability to recall concrete vocabulary, the researchers used Correlation Coefficient in order to reveal the degree of go togetherness of these two variables. Table 7 shows the results.

Procedure

In order to accomplish the research, different steps were followed. First, the proficiency test (NELSON) was administered to one hundred and thirty two participants majored in English translation, Spanish, Persian Literature, and Psychology. The time allocated to the test was 20 minutes. After calculating the mean and the standard deviation of the test, ninety eight of them whose scores were between 26 and 35 were selected as an almost homogenous group for the purpose of this research.

Second, The Hamilton depression rating scale was given to the subjects in order to measure the level of depression.

Then, the participants were exposed to some new vocabulary in their textbook which was *Select Readings*.

At the end of the course, a 45-item vocabulary test was administered to see whether there was any relationship between participants' depression and their ability to recall new English vocabulary.

Data Analysis

Descriptive analysis of Language Proficiency Test (NELSON)

Table 2 displays the descriptive statistics pertaining to the language proficiency test.

Table 2. Descriptive Statistics of Language Proficiency Test

Std.Error	Statistic			
.39205	30.9697	Mean		Language proficiency
	30.1941	Lower Bound	95% Confidence Interval for Mean	
	31.7453	Upper Bound		
	30.9242	5% Trimmed Mean		
	31.0000	Median		
	20.289	Variance		
	4.50435	Std. Deviation		
	24.00	Minimum		
	40.00	Maximum		
	16.00	Range		
	8.00	Interquartile Range		
.211	.008	Skewness		
.419	-1.119	Kurtosis		

As mentioned in the above table 2, the mean of the test was 30.96, the standard deviation 4.50, and the variance 20.28. The minimum and maximum scores obtained by the participants were 24 and 40, respectively. The number of skewness (0.008) was so close to zero, and it is as a normal distribution. However, the number of kurtosis (-1.11) shows that this is a flat distribution which indicates a high variability of scores.

Descriptive analysis of Depression Rating Scale

Table 3. Descriptive Statistics of Depression Questionnaire

Std.Error	Statistic			
.60715	12.4490	Mean		Depression
	11.2439	Lower Bound	95% Confidence Interval for Mean	
	13.6540	Upper Bound		
	12.0726	5% Trimmed Mean		
	11.0000	Median		
	36.126	Variance		
	6.01051	Std. Deviation		
	2.00	Minimum		
	37.00	Maximum		
	35.00	Range		
	9.00	Interquartile Range		
.244	1.074	Skewness		
.483	2.033	Kurtosis		

The above table shows the maximum and minimum scores obtained by the participants which were 37 and 2, respectively. The range of the scores was 35, the mean 12 and the median 11. The number of kurtosis (2.033) refers to the peakness of the distribution. The number of skewness (1.074) shows that this is a positive skewed distribution.

Descriptive analysis of Vocabulary Test

Table 4. Descriptive Statistics of Vocabulary Test

Std.Error	Statistic			
.61731	34.7041	Mean		Vocabulary Recognition
	33.4789	Lower Bound	95% Confidence Interval for Mean	
	35.9293	Upper Bound		
	34.9751	5% Trimmed Mean		
	36.0000	Median		
	37.345	Variance		
	6.11102	Std. Deviation		
	15.00	Minimum		
	45.00	Maximum		
	30.00	Range		
	7.00	Interquartile Range		
.244	-.620	Skewness		
.483	.837	Kurtosis		

to concentrate or think clearly becomes weak.

According to Pedia (2005), "In depressed people, there is a lack of motivation, because motivation is tied mainly to the dopamine system in the brain".

As Jonson, Huyes, Field, Schneiderman, and McCabe (2000) state, "There is an association between depression and left hemisphere lesions, particularly when such lesions occur in the left prefrontal region" (p.186). According to Morris, Robinson, DeCarvalho, et al. (1996, as cited in Jonson, Huyes, Field, Schneiderman, and McCabe, 2000), "For patients with comparable small-sized lesions, depression is more frequent in patients with left hemisphere lesions than in patients with right hemisphere lesions" (p.186). Electroencephalography (EEG) studies show that the left frontal region plays a role in depression. In depressed patients, decreased left frontal EEG activation is apparent.

Atchley, Stringer, Mathias, Ilardi, and Minatrea (2007) state, "The experience of major depression is characterized by a distinctive pattern of acute lateralized brain activity, with a pronounced reduction of activity in the left versus right prefrontal cortex" (p.148).

Weingartner et al. (1981, as cited in Nicholi, 1988) believe that, "Memory loss in depressed people is due mainly to ineffective encoding and registration. The patient does not seem to spend the necessary effort at the stage of encoding. If additional drilling is allowed at the stage of registration, the deficit is usually overcome" (p.99).

According to Groeger (1997), the reason for having poor memory in depressed patients is encoding deficiency rather than retrieval problems.

Brebion, Smith, Amador, Malaspina, and Gorman (1997) suggest that, the degree of memory impairment in depressed people increases with the severity of depressive symptoms. "Among the different components of memory, it is the effortful processes that are impaired in depression" (p.1539).

Harre, and Lamb (1986), believe that in depressed mood, there is an increase of those cognitions that might maintain depression, and a decrease of those cognitions which might alleviate it. "This reciprocal relationship between depressed mood and cognition could form the basis of a vicious circle that would serve to perpetuate depression" (p.162).

METHOD

Participants

One hundred and thirty two students were the participants of this study. Thirty of them majored in English translation, twenty majored in Persian literature, twenty two majored in Spanish, and sixty majored in psychology. The participants were from both sexes.

Instrumentation

The proficiency test used in the study was a validated intermediate NELSON English Language Test, comprising of 40 items, and took the subjects 20 minutes to answer.

The Hamilton Depression Rating Scale included 17 statements exploring the severity of depression in the participants.

A 45-item vocabulary test was also used in this research. The items were selected from Oxford University Press. The test included multiple choice, fill in the blanks, and matching items. The reliability of the test was calculated after piloting and using KR-21. Table 1 shows the reliability of the test.

Table 1. Reliability Index of Vocabulary Test

NO. of items	Mean	Variance	Reliability
45	34.97	37.34	0.81

The reliability of 0.81 showed an acceptable reliability and it was concluded that this test was valid and reliable enough to be used.

become important in more advanced stages of semantic expertise, which require mastering of a language.

Verhaegen (1993) suggests that in case of severe damage to hippocampus, the encoding impairment is so profound that an event disappears from memory, and even hints or cues will not help to bring them back because retrieval of these lost memories is impossible.

Cowan (1997), emphasized the role of frontal lobes in the control of attention and cognition. According to Foster (1989, as cited in Cowan, 1997), "The symptoms of frontal cortical damage are disorders of attention and perception (including lowering the general awareness, and difficulties in concentration), as well as disorders of temporal integration (defective memory,...)" (p.255).

As stated in Bremner (2005), "The same parts of the brain that play a role in memory and quick thinking, also play an important role in the stress response. Hormones such as cortisol and adrenalin, which are released during stress, bathe these brain areas and change their function" (p.5). Stress is associated with a number of mental disorders such as anxiety and depression.

According to DePaulo (2002), the endocrine system is one of the control systems of the body, which consists of a set of glandular organs such as the pituitary, the thyroid, and the adrenal glands. The connection between the endocrine system and the brain, keeps the internal environment of the body synchronized with changing circumstances. They produce hormones and secrete them into the blood stream. "When we are under great stress, whether physical or psychological, the brain centers such as hypothalamus and the pituitary gland signal to the adrenal glands to produce more cortisol, often referred to as the body's stress hormone" (p.97).

Bremner (2005) state that a protein called corticotrophin releasing factor (CRF) is released from the hypothalamus. CRF stimulates the pituitary gland. The result will be the release of another hormone called adrenocorticotropin hormone (ACTH). Adrenal gland is affected by ACTH, and then release cortisol. Normally, the hippocampus inhibits the cortisol system, but damage to the hippocampus results in an increase in the amount of cortisol. "During depression, there is an increase in the brain messenger system called CRF, which results in an increased amount of cortisol and adrenalin" (p.123).

Bremner (2005) says that the function of brain regions is affected by brain chemicals (neurotransmitters) and hormones. For example, cortisol impairs the laying down of memories in the hippocampus, but norepinephrine and epinephrine strenghten the formation of memories.

According to Bremner (2005), "Hippocampus demonstrates an unusual capacity of neuronal regeneration, or growing new neurons in adult life. Elevated cortisol suppresses the capacity of neuronal regeneration of the hippocampus; therefore, atrophy and dysfunction of the hippocampus in depression may lead to distortion and fragmentation of memories." (p.127)

Gorp, Altshuler, Theberge, and Mintz (1999) state, "Elevated cortisol levels are toxic to the hippocampus. Prolonged hypercortiso-lemia, if present during episodes of depression, could damage the hippocampus and thereby produce deficits in declarative, but not procedural learning and memory." (p.531)

The results of their studies show that, patients with severe depression demonstrate lower level of performance in case of declarative memory, but not procedural memory. "They learn fewer words than control subjects on a declarative verbal memory task involving learning a list of words presented over repeated trails" (p.531). According to DePaulo (2000), in depressed people, the ability

Abstract

The present study investigated the relationship between depression and vocabulary recall of Iranian university students. The researchers hypothesized that depressive symptoms are linked to memory efficiency. In order to accomplish this research, different steps were followed. First, the proficiency test (NELSON) was administered to one hundred and thirty two participants majored in English translation, Spanish, Persian Literature, and Psychology. After calculating the mean and the standard deviation of the test, ninety eight of them were selected as an almost homogeneous group. Second, a depression rating scale was given to the subjects in order to measure their depression. During a course, the participants were exposed to new vocabulary in their textbook. At the end of the course, a 45-item vocabulary test was administered to see whether there was any relationship between participants' depression and their ability to recall new English vocabulary. To fulfill the objectives of this study, statistical techniques such as Pearson Product Moment Correlation were conducted. The results revealed that there was a high correlation between depression and vocabulary recall. The correlation between depression and abstract vocabulary recall was high as well. In contrast, there was no relationship between depression and concrete vocabulary recall.

Key Words: depression, memory, vocabulary learning, recall

Yang (1993) states, "The effectiveness of the memory system depends not only on how information is perceived, registered, rehearsed, consolidated and stored, but also on how readily and completely information can be retrieved" (p. 47).

According to Piaget (1981, as cited in Rybash, & Monoghan, 1999), "Affection and cognition are in constant interaction. Affectivity may be seen as the fuel of cognition, i.e. there is a functional relationship" (p.87). Rybash, and Monoghan (1999), regard language as an element of cognition.

Mitchell, and Myles (2004) state, "Linguists and psycholinguists have been concerned primarily with analyzing and modeling the inner mental mechanisms available to the individual learner, for processing, learning and storing new language knowledge" (p. 24).

Blakemore and Frith (2005), proposed a model in which the brain is divided into four lobes: temporal, frontal, parietal, and occipital. The brain's outmost surface is known as the cerebral cortex, which is the outer gray matter portion of the brain. Paller (2004), states, "The cerebral cortex of the brain is the large, outer portion of the brain with an infolded structure. It comprises two hemispheres, each of which includes parietal cortex at the top, prefrontal cortex behind the forehead, occipital cortex toward the back of the head, and temporal cortex at the side" (p.51).

According to Bremner (2005), one of the brain areas which plays an important role in learning and memory, is hippocampus which is a long sausage-shaped organ in the central part of the brain. Raw information can not be stored in the brain. They should be processed in the hippocampus, and then stored in the brain cortex as longterm memories.

Breitenstein, Jansen, Deppe, Foerster, Sommer, Wolbers, and Knecht (2005) state, "After the initial binding of information from different sensory modalities by the hippocampus, retrieval of these associations may be mediated by neocortical regions with less demand on the hippocampus" (p.13). This implies that the hippocampus contributes to the initial stages of language acquisition, whereas neocortical language regions

چکیده

بخش مهمی از یادگیری هر زبان جدید به یادگیری واژگان آن مربوط می‌شودو دارا بودن حافظه‌ی خوب برای یادگیری واژگان ضروری است. ارزش یادگیری نه‌تنها با اطلاعات ذخیره شده در حافظه، بلکه با یادآوری آن اطلاعات نیز ارتباط دارد. بخش‌هایی از مغز انسان که در ذخیره‌ی اطلاعات دخالت دارند، در احساسات نیز دخیل هستند. افسردگی، به‌عنوان یک مشکل روحی و احساسی، عواقبی دارد که یکی از آن‌ها کاهش حافظه است. با توجه به افزایش افسردگی خصوصاً بین جوانان، توجه معلمان به این موضوع ضرورت دارد. لازم است که آن‌ها آگاهی‌های لازم درخصوص علائم افسردگی و راه‌های کمک به دانشجویان افسرده را کسب کنند. با کمک به دانشجویانی که مشکل افسردگی دارند و با ایجاد محیطی دوستانه، می‌توان به نتایج مطلوبی در امر یادگیری زبان دست یافت.

هدف از تحقیق حاضر، بررسی رابطه‌ی افسردگی دانشجویان ایرانی و توانایی آن‌ها در به یادآوری واژگان زبان انگلیسی بوده است. بدین منظور، ابتدا برای ۱۳۲ دانشجو در رشته‌های تحصیلی مترجمی زبان انگلیسی، زبان اسپانیایی، ادبیات فارسی و روان‌شناسی، آزمون نلسون به‌منظور سنجش توانایی زبان انگلیسی دانشجویان فوق برگزار شد و پس از بررسی نمرات حاصله از آزمون، ۹۸ نفر از جمعیت آماری برای ادامه‌ی تحقیق انتخاب شدند. سپس با استفاده از پرسش‌نامه‌ی سنجش افسردگی همیلتون، میزان افسردگی آن‌ها تعیین گردید. در طول یک ترم تحصیلی، واژگان جدید کتاب درسی «Select Readings» به آن‌ها آموزش داده شد و در پایان دوره‌ی تحصیلی یک آزمون لغات هم برگزار گردید تا رابطه‌ی میان افسردگی و به یادآوری واژگان انگلیسی معلوم شود. پس از تصحیح آزمون‌ها، با استفاده از نرم‌افزار SPSS رابطه‌ی بین افسردگی و به یادآوری واژگان بررسی و براساس نتایج آماری حاصله مشخص شد که بین افسردگی و به یادآوری واژگان انگلیسی رابطه‌ی معناداری وجود دارد.

کلیدواژه‌ها: حافظه، افسردگی، یادگیری واژگان، یادآوری، پرسش‌نامه

The Relationship between Depression and Vocabulary Recall of Iranian University Students

Seyed Akbar Mirhassani ,Ph.D. in TEFL, *mirhas_a@cs.modaresAc.IR*
Islamic Azad University
Science & Research campus
Sepideh Hajireza MA. in TEFL, *shajireza@yahoo.com*
Islamic Azad University
Science & Research campus