

The Role of Problem Solving Strategies and Logical Thinking in Predicting the Students' Life Expectancy

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Received: March 8, 2015

Accepted: May 10, 2015

ABSTRACT

The aim of this study was to investigate the role problem solving strategies and logical thinking in prediction life expectancy in the 93-1392 academic year high school students of Shiraz. Due to the nature and purposes of research is used of the practical and implementation of the correlation method. The study was included all boys and girls high school students in city of Shiraz in the 93-1392 academic year, that using multi-stage cluster random sampling of 358 students selected as the sample size. For data collection was used problem solving strategy questionnaire of Dzvrlyla (1982-1999), a logical thinking questionnaire of Shrkly and Whitman (1977) and Hope Scale of Miller (1991). Analysis of data from questionnaires were used Pearson correlation analysis, Stepwise regression method. The results showed that the strategy problem solving and logical thinking to predict life expectancy.

KEYWORDS: logical thinking, problem solving strategies, life expectancy.

INTRODUCTION

Adolescence must be considered as a very important stage of life. It is period which is distinguished from the rest of life through its features, this period is more important than the other periods because it has some sudden influences on the person's attitude and behavior. One of the ways of helping teenagers in this period is to create hope in their life [1]. Gropman [2] considers hope the sense of excitement and happiness when it is experienced that the person expects a better future beyond his eyes. Hope gives the person courage to face his conditions and be capable to cope with them. Life expectancy means the average number of years that a person will be alive if he observes the mortality conditions which are determined in the life table; and it is so-called the number of the years which a person is expected to remain alive from an age to another age [3]. Medical science has obtained statistics and got to the result that some factors influence the human's life expectancy [4], the logical thinking and problem solving strategies can be mentioned from these factors.

The term "logical thinking" was firstly raised in education and training by John Dewey [5]. From the viewpoint of Dewey, the logical thinking is the process of solving wonder and bewilderment which is started by a learning experience [6]. The logical thinking is formed by the active, continuous and accurate examination of each idea or recognition in the shadow of the reasons confirming it and more results which are obtained from it [7]; thus, this kind of thinking creates thoughtful reasoning and look at the issues in the person and cause that the person makes rational decisions in the life process. The rational decision in life leads to the positive feeling in the person about his life [8] and makes him to tolerate failure and does not jitter when facing failure, but deal with the difficult situation and try more and create positive changes in his life [9]. As the research of Askari No [10] indicated that as the level of logical thinking and sense of humor is higher in the people, their life expectancy gets more. Therefore, the logical thinking may increase the life expectancy in teenagers.

In addition to the above, the problem solving strategies can also help life expectancy increase in the teenagers because there is organized and regular thinking and in the field of solving problems in the problem solving process; regarded to this fact, it can be said that the students who have learnt the problem solving strategies have more integrated and regular mind and they analyze the issues easier and operate with a higher thought and contemplation when doing works [11]. The problem solving skill requires targeted and special strategies which defines problems and decides to take a solution through them and does the problem solving strategies and supervises them [12]. Generally, problem solving is called the cognitive – behavioral process of the person by which he wants to discover, determine or innovate effective and compatible strategies for daily problems [13]. The studies indicate that problem solving increases self-confidence and sense of competency and adequacy [14]; therefore, the problem solving skills

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are in relationship with the personal compatibility and many researchers have referred to this fact [15]. The research of Bornstein [16] indicated that one of the important indices of psychological health is the problem solving and decision making ability. Tellado et al. [17] found out that more ability in problem solving is in relationship with increase in self-esteem and internal base (quoting from [18]). With all of these interpretations, the problem solving strategy can provide the health and hope context in the society especially in the students who are the future and the tomorrow generation of the society and the development factor of the country. Due to the importance of the expressed discussions, and since most of the researches done have examined the role of factors beyond education in increasing life expectancy of the society's people, this research is intended to investigate the subject whether the problem solving strategy and logical thinking have significant role in predicting life expectancy or not?

MATERIAL AND METHODS

The Research Purpose:

The role of problem solving strategy and logical thinking in predicting the students' life expectancy

Research Plan:

The current research is from the applicable type and the correlation method has been used in order to implement it. The statistical society of the current study included the entire second grade students of high schools of Shiraz city and the high schools of the area 4 have been selected randomly from the high schools of the four areas through the multi-stages clustered sampling method; then 10 high schools have been randomly selected from the high schools of the area 4 (5 girls' high schools and 4 boys' high schools); then 2 classes of each high school have been randomly selected as the sample volume and totally 20 classes have been selected and the questionnaire were distributed among the students of these classes who were totally 358 students.

Data Collecting Tools:

Problem solving strategy questionnaire: Dzurillaa's problem solving strategy questionnaire (1982 – 1999) is a self-reporting scale measuring the theoretical problem solving model; this questionnaire has been used by Moqimi (2008) in Iran. **Grading:** this questionnaire is in form of Likert range (never, 1), (low, 2), (sometimes, 3), (often, 4) and (many times, 5). In this questionnaire, the questions numbers (8, 9, 11, 12, 13, 14, and 16) are negative. The structural validity of this questionnaire has been also confirmed using the exploratory factor and correlation with the other problem solving scales and overlapping psychological structures (Darreh Kordi, 2004). In the research of Adib Nia et al., (2013) the reliability of this questionnaire has been obtained (0.87) using Cronbach's alpha coefficient. Also in this research, the researcher has obtained reliability equal to (0.84) using the Cronbach's alpha coefficient.

The logical thinking questionnaire: The logical thinking questionnaire has been prepared by Sherky and Whiteman (1977) and has 37 questions in a 5 levels range (strongly agree, agree, no opinion, disagree and strongly disagree). The questionnaire's validity has been adjusted based on the theoretical criterion and by the structural validity; in the study of Namvar et al. [19], the reliability of the questionnaire has been obtained equal to 0.88 using Cronbach's alpha coefficient. Also in this study the researcher has obtained reliability equal to 0.86 using Cronbach's alpha coefficient.

The life expectancy questionnaire: Miller's questionnaire (1991) includes 48 aspects of hope and failure modes and the score value of each aspect varies from 1 (strongly disagree) to 5 (strongly agree). Nik Rou (2008) obtained the questionnaire's reliability using Cronbach's alpha coefficient and bisection orderly equal to 0.83 and 0.74; in order to calculate the validity, its score was correlated with the criterion question's score and it was determined that there is a significant relationship between them ($r=0.35$). Also in this study, the researcher has obtained reliability equal to 0.82 using Cronbach's alpha coefficient.

The Pearson correlation coefficient test and simultaneous multiple regression test have been used in order to analyze data.

RESULTS

According to information in table 1, there is a positive and significant relationship between the problem solving strategy and logical thinking with the life expectancy in level of $P \leq 0/01$. This relationship's value is orderly equal to 0.34 and 0.41.

As it can be observed in the table 6-4, the multiple correlation coefficient equals to $R = 0.33$ and the obtained determination coefficient equals to $R^2 = 0.11$. This indicates that the problem solving strategy and the logical thinking totally predict about 11 percent of the variance of life expectancy variable. Also, regarded to the

significance level and Beta, it can be realized that the problem solving strategy and the logical thinking are positively able to predict the life expectancy of the students.

Table 1. correlation matrix between the problem solving strategy and the logical thinking with the life expectancy

Variable	Problem solving strategy	Logical thinking	Life expectancy
Problem solving strategy	1		
Logical thinking	0.52**	1	
Life expectancy	0.34**	0.41**	1

**P≤0/01

Table 2. the results of simultaneous multiple regression test for predicting life expectancy through problem solving strategy and logical thinking

		Beta	T	P<	R	R ²	f	df	P<
Predictor variables	Problem solving strategy	0.32	4.439	0.001	0.33	0.11	4.580	356	0.001
	Critical thinking	0.35	5.100	0.001					

DISCUSSION AND CONCLUSION

This research has investigated the role of the problem solving strategy and the logical thinking in predicting the life expectancy of the students and the results indicate that the problem solving strategy and the logical thinking positively predict the life expectancy of the students.

These findings are compatible with the findings of the research of Namvar et al. [19], Sha'bani [20], Sha'bani & Mehr Mohamadi [21], Karabenick & Collins [22], Dennick & Exley [23], Magnussen et al. [24], Young Blood & Beitz [25] and Bangert and Baumberger [26].

In expressing these findings, it can be said that the problem solving strategy is completely coordinated with the discovering method, there is an aspect of discovering in this method, the person defines the problems, decides to take a solution, does the strategies of solving the problem and supervises it. Thus, problem solving is an alerted, intellectual, attempted and targeted contrastive process which can encourage the individual for effective confliction with a wide range of pressure-creating situations and make the human's mind discover; therefore, it can be said that problem solving amplifies the mental power in human. The students who have learnt the problem solving strategies have more integrated and regular mind and they analyze the issues easier. Hence, the students who have learnt this method have obtained attitude, preparation or tendency that help them be able to regularly and fervidly investigate and study a problem from the different viewpoints from their own ones and have more tendency to identify the different solutions and to regularly investigate them; and totally they can obtain a special preparation for regularly facing the complex works and issues; therefore, the problem solving skills can create the intellectual regularity and sense of curiosity in human and help the persons improve their behaviors and self-esteem; it provides the success field and self-confidence in life and through these elevates the life expectancy of the people.

In fact, the logical thinking is the highest level of thinking which is dedicated to human. It has been experienced that if we ask about the success secret of the people who are successful in their lives, we reach to the result that they are able to make right decisions in issues and situation in their lives, they can create an intellectual system using previous experiences in which they firstly analyze the issues in the current situations and new conditions in order to identify the essence of that issue and realize that it is similar to what kind of the previous situations and then they take action; hence, thinking influences the way we live. The logical thinking leads to formation of realism, holism, understanding relationships among phenomena, deep understanding of subjects, etc. in human; therefore, the logical thinking makes person take logical actions and control his thoughts and feelings and have a more logical look at his life and face the life's tensions and issues more logically; so the logical thinking may increase psychological health, help psychological welfare and increase the person's life expectancy.

The more logical look at the life is, the psychological welfare increases and tensions of life decrease consequently. Therefore, it can be said that the problem solving strategy and logical thinking are able to predict the life expectancy positively.

Regarded to the findings of the research, it is suggested that the teacher train the problem solving strategies in to the students in schools and increase intellectual actions instead of storing information and pay attention to the knowledge structure instead of creating knowledge. Also, in the field of the relationship between problem solving and life expectancy and in order to develop the problem solving skills, it is necessary to take methods in school

plans through which the students can learn the capabilities of how to train in intellectual discipline method, because cognition (Wisdom or knowledge) develops in regular thought process and the educational environments and the methods ruling them play basic role in realizing these purposes. It is necessary for the students to learn to involve themselves in issues which they face in everyday life instead of storing facts.

REFERENCES

1. Baran Owladi, S., Etemadi, A., & Karami, A. (2012), The effectiveness of hope therapy on the development motivation of boy students of the second grade of Kar va Danesh (work and knowledge) of Baharestan city, Knowledge and research in applicable psychology, the thirteenth year, No. 2, pages 3 – 9
2. Grooman J. (2005). The anatomy of hope: how people prevail in the face illness. *Am Erican psychologist*. 14(2): 79 -91.
3. Hosseini, H. (2012), Basics of Demography, Hamedan: Bou Ali Sina University publications
4. Berk, L.E. (2005). *Development through the lifespan*. Boston: Allyn & Bacon.
5. Dewey, J. (1910). *How we think*. New York. D. C. Health and Co. Publishers.
6. Kim, Y. (2005). *Cultivating reflective thinking: The effects of a reflective thinking tool on learners' learning performance and metacognitive awareness in the context of online learning*. Unpublished doctoral dissertation, University of Pennsylvania.
7. Soleyman Pour, J. (2007), Educational planning with emphasis on the adjustment of the active educational contents and content analysis usage, Tehran: Ahsan publication
8. Sharf, R.S. (2010). *Theories of psychotherapy and counseling: Concepts and Cases*. Belmont, CA: Wadsworth.
9. Gardi, F., Minakari, M. & Heydari, M. (2005), The relationship between psychological health with the illogical thoughts in the students of Shahid Beheshti University, Psychology Studies, period 8, No. 3 & 4, pages 45 – 61
10. Askari No, B. (2010), The relationship between logical thinking and humor and life expectancy in the students of University of Saari, M.A. theisi, University of Saari
11. Badri Gorgi, R. & Fathi Azar, E. (2007), Comparing the impact of group problem solving-based learning and traditional education on the critical thoughts of the student teachers, Quarterly of Educational and Psychological Studies, the eighth year, No. 2, pages 23 – 33
12. Elliot ,T . R,shewchuk , R .M ., & Richards ,J . S.(1999). Care given social problem solving abilities and family member adjustment to recent onset physical disability . *Rehabilitation Psychology* , 44(1) ,104-123.
13. Dzurilla ,T.j., & Sheedy ,C .F.(1992) . the relation between social problem solving ability and subsequent level of academic competence in college student .*cognitive therapy and Research college students*. *Cognitive therapy and Research*16(5),589 599.
14. Kianoush, Z., Reza Zadeh, A. & Ahqar, Q. (2010), The effectiveness of problem solving skills training on the self-efficiency of the girl students of the high schools in Rasht city, educational Management Innovations, period 5, No. 3, pages 133 – 150
15. Aqajani, M. (2002), The Study of the impact of training life skills on the psychological health and control resource of teenagers, Iran Zamin Parsian research institute
16. Baumberger-Henry, RN. (2005). Cooperative learning and case study: does the combination improve students. *Nurse Education Today*. 25(3): 238-246.
17. Tellado MV, Mclean IW, Specht CS & Varga J (1997): Adenoid cystic carcinomas of the lacrimal gland in childhood and adolescence. *Ophthalmology* 104: 1622–1625.
18. Mohammad Khani, Sh. (2010). Guidance of training life skills, Department of psychological health and council
19. Namvar, Y., Naderi, E.A., Shari'atmadari, A. & Seyf Naraq, M. (2011), The impact of weblog-based learning with the approach of problem solving on development of logical thinking of the English Language students of Islamic Azad University of Ardebil, Research in Educational Planning, the eighth year, the second period, No 1 & 2, pages 84 – 95

20. Sha'bani, H. (1999), The impact of group work problem solving method on the critical thinking and educational development of the fourth grade students of primary school, PhD. Thesis, Tehran: Tarbiat Modarres University
21. -Sha'bani, H. & Mehr Mohamadi, M. (1997), Developing the critical thinking through the issue-based training method, Modarres, period 4, No. 1, pages 115 – 125
22. Karabenick, S. and Collins-Eaglin, J. (1996). Relation of perceived instructional goals and incentives to college student's use of learning strategies. *The Journal of Experimental Education*, 65, 331-341.
23. Dennick, R.G, & Exley, k. (1998). Teaching and learning in groups and teams. *Biochemical Education*. 26, 111-115.
24. Magnussen, L. Inshida, D. & Itono, J. (2000). The use of inquiry based learning. *J. of Nursing Education*. 39(8): 360-364.
25. Young Blood, D. & Beitz, M. (2001). Developing critical thinking with active learning strategies. *Nurse Educators*, 26(1):39-42.
26. Bangert, A. W., & Baumberger, J. P. (2005). statistical techniques used in the Development: 1990-2001. *Journal of Counseling & Development*, 83, 480-487. doi:10.1002/j.1556 6678.2005.tb00369.x
27. Askari, P. & Sharaf Al-Din, Z. (2001), The relationship of social anxiety, hopefulness and social support with the mental sense of welfare in the students, M.A. thesis, Islamic Azad University, Ahwaz branch
28. Burnstein, M.H. (2003). *Well-Being positive development across the life course*. Mahawah: Lawrence Erlbaum.
29. Snyder, C. R. (2000). *Positive Psychology: The scientific and practical explorations of human strengths*. New York, sage publication Inc.