International Journal of Education and Applied Sciences
Volume 1, Number 5, 235- 240, October 2014
http://www.injoeas.com
ISSN: 2345-6728

Self-directed skills enhancement through cognitive skills training

Meysam Naseri [a], Aboutaleb Seadatee Shamir *[b]

[a] *Department of Counseling, Quchan Branch, Islamic Azad University, Quchan, Iran*
[b] *Assistant Professor of Educational Psychology, Bojnourd University, Bojnourd, Iran*

Article history:
Received 25 August 2014
Received in revised form 17 September 2014
Accepted 29 September 2014

Keywords:
Cognitive skills
Self-directed
High school students

Abstract

Introduction: This study aimed to investigate the effectiveness of cognitive-skills training to enhance self-directed skills in first grade female students of secondary high school of Shirvan city.

Materials and method: By employing a quasi-experimental method, a total of 40 students were randomly selected and divided in two control and experimental group (20 each group). Fisher's self-directed questionnaire (2001) was employed for the assessment of self-directed skills. After pretest cognitive skill training was performed for 16 sessions for experimental group.

Results: The results of ANCOVA revealed that cognitive skill training can increase self-directed skills of experimental group and make a significant difference between two groups I holding self-directed skills.

Conclusion: cognitive skill training enhance students' interest in academic study and help them learn the academic skills perfectly and appropriately employee self-directed skills in academic setting.

Please cite this article as:
Naseri, M., & Seadatee Shamir, A. (2014). Self-directed skills enhancement through cognitive skills training. *International journal of education and applied sciences, 1(5)*, 235- 240.

* **Corresponding author:** Seadatee@yahoo.com

1. Introduction

By regarding the rapid changes that have taken place today in educational setting, hence the need to use new methods and practices, especially in the field of teaching and learning is more tangible (Doolittle, Dee, Nichols & Young, 2006). Among new instructional and educational methods one of the issues that mostly affect student's success, satisfaction and pleasures self-directed learning (Merriam, 2001). A glance to literature Research shows that accountability and independence are two key elements in the learning process; that is a factor which the student seeks the help of others when dealing with matters before the question of its inception, Self-directed learning is moving toward self-actualization.

In this regard, the findings of Stansfield, McLellan and Connolly (2004) on the value of self-directed learning students revealed that self-directed learning is very effective on students' success in school and at the same time in personal life .A crucial feature in self-directed learning is the learner's readiness for learning and also the second feature is independent learning environments (Victori & Lockhart, 1995) Believe that another important characteristic of self-directed learners in educational setting is a need to high degree of self-organization and self-discipline.

Knowles (1975) stated that "self-directed learning is a process in which learners take the initiative to diagnose their learning needs, formulating goals, identifying human and nonhuman resources, assessment for learning strategies and learning outcome. This can be done with or without the help of others". On the other hand, learning how to learn, develop and create a series of thought processes that can be used to solve the problem (Rowland & Volte, 1996).

Nowadays, people are faced with situations that have been learned from previous responses, but they are not able to solve. Applying meta-cognitive awareness in such cases is worked. So, where the use of formulaic learned from previous successful response is required it help students understand, recognize and apply Meta cognitive strategies to help them to some successfully solve problems. Brown (1980) believes that meta-cognition consists of knowledge that people have about their thinking processes and because of its meta-cognitive skills which enable the individual to control, an essential element of learning. Meta-cognitive ability of the learner is to understand the functionality of the application and the ability to learn.

Practice through the use of learning strategies that allow them to assess their progress and set learning approach. Meta- cognitive strategies are essential techniques that students learn to design, monitor learning activities and to evaluate the results of their learning activities (Tracy, Reid, & Graham, 2009).

Strategies for self-management and self-regulatory tools to the learners in order to achieve the desired learning outcomes are provided (Caraway, Tucker, Reinke & Hall, 2003). Cognitive strategies for learning methods that work directly on issues of interpretation tends to increase the understanding and acquisition of information. Cognitive processes to strengthen the process of thinking through a variety of learning strategies are In order to achieve goals such as the comprehension and memorization are helpful (Abdullah, 2001).

2. Method

The present research studies and quasi-experimental research design is a pretest-posttest design with a control group.

2.1. Participants

The population in this study consists of all first grade high-schoolgirls (862 people) in Shirvan city in academic year of 1392-93. First of all, referring to the Department of Education and inquiry to our current research was delivered; following their agreement, by employing multistage sampling, 10 female high schools from the city were selected then 30 classes, from among all high schools were selected. At the next step 4 classes were randomly selected among all 30 classes and finally 10 volunteered people were selected from all 4 classes and they were dividing in 2 experimental and control groups randomly. Then pretest was performed for both group and after that self-directed instruction was instructed .finally posttest was performed.

2.2 Measurement

2.2.1. Self-directed questionnaire

The questionnaire contains 40 items that respondent's five options for each phrase your response options ranging from "strongly agree" to the idea. Skills in both the positive and negative its expression. Naeimi, Bigdeli and Soltani Arabshahi (2012) directed learning reliability testing using Cronbach's alpha for the 0.92, the scale of self-management, 0.85, willingness to learn, 0.87 and restraint 0.84 was reached. For assessment of the reliability of this tool in the present study Cronbach's alpha was employed and the results were as following: for total self-directed learning variable (0.75), self-management subscale (0.60), interested in learning (0.65) self- respectively (0.72).

2.3. Training sessions

Cognitive skills training was presented in 16 sessions of 90 minutes based on the behavioral approach, with an emphasis on documentary method (the tracking) (Moritz & Woodward, 2007). The content of sessions is as follows.

At the *first session* the following content were presented. The introduction, implementation of self-direction scale, an expression of the laws, brief explanation about the sessions and the task for each session, the emphasis on collaboration. At the *second session*, discussion about adolescence, about the importance of learning life skills with emphasis on meta-cognitive skills. Learning strategies, Problem:

The first step: defining and formulating the problem, the second step: producing, creating and finding solutions to the numerous and varied, the third step: evaluating multiple solutions, Step Four: Using the solution of choice, at *third Session*, Teaching meta-cognitive strategies, in a statement after the meeting, several definitions of meta-cognition strategies to provide the bulk of meta-cognition in general was discussed Including strategies for planning, monitoring and control strategies, Strategies and regulation. At *fourth Session* Leaders meta-cognitive training including scheduling, planning strategies include goal setting for learning and study, to predict the time required to determine the appropriate speed reading, analyzing learning how to deal with the issue, and the choice of useful learning strategies.

At *fifth Session*, the implementation of meta-cognition was generally stated as follows: First) diagnostic assessment and knowledge of prior knowledge, second) planning, Third) self-regulation, Fourth) ongoing monitoring and revision. At *sixth Session*, The teacher tries to use techniques to encourage students to do three sets of activities: First, The decision on purpose, second, forecast and selection of problem solving strategies, Third, Review of previous knowledge required.

Seventh Session includes Update stage of the evaluation of their mental activities, both in terms of intellectual and scholarly activity. Intellectual activities related to finding solutions and ways of working and shaping the choice of a particular approach to the subject and evaluate the program. Evaluation: The teacher makes students to learn about themselves and their own judgment to evaluate their performance. *Eight Session* encompass teaching of academic skills, including concentration during the study, which included 12 items: Determine purpose, preparedness-plan study, Model question, fast-lane, drag study, Seriousness of the contents and index-locating, Suitable for study, stop negative thoughts and thoughts positive, choice right time to study, précis, notes-summary- wacky, distractions when studying the use of fingers or Help.

Ninth Session which concentrate on reciprocal teaching method. In this session the processes of reading and comprehension was practiced through four skills include questioning strategies, summarizing, explaining and clarifying complex issues and anticipate future events which were employed to improve the learning process.

The *tenth Session* was about the question of reciprocity which was developed by Monroe (Biemiller, & Meichenbaum, 1992).The aim of the intervention in this session was to answer all mentioned questions about reciprocity completely, arguing the answers provided by the instructor and the students refer to the text information. At

Eleventh Session which was derived from Dewey's pragmatic problem-solving approach of learning. The sequence of steps of this approach include: Supply question, definition questions, design-tested hypothesis, Hypothesis test, selecting the best hypothesis. At the *eleventh session* which was derived from Gestalt approach concentrate on problem solving. The following four steps are met in this session; Detect questions, Plasticity, Sight, preserving solutions based in sight, generalized solutions based on insight. At *thirteen, fourteenth and fifteenth Session* include instructing cognitive skills. The *sixteen Session* Browse all fifteen sessions and thanks Group.

3. Results

The results presented show that the pre-test and post-test mean of self-directed Skills for Experiment group was 135.75 and it increased to 138.30 I posttest; also Correlation between self-directed and its sub-components test results indicate that there was a significant correlation coefficients between all sub-components together. ANCOVA was used to test the research questions. The results showed that according to the means of self-directed skills significant differences was existed between control and experimental groups which indicates the positive effects of cognitive skills of students. Due to presented information contained in Table 1, it can be said that the meta-cognitive skills training was effective. Due to the squared coefficient of Eta, the impact of cognitive skills training on self-directed was 0.26 percent. It should be noted that the study of normal distribution of errors was done by Kolmogorov - Smirnov test. The results show that distribution of self-directed strategies was normal.

Table1. Table of covariance analysis of the impact of cognitive skills on self-directed skills

Source	Sum of Squares	df	Mean Square	F	Sig.	Eta
Pre test	7485.06	1	7485.06	5.29	0.12	0.08
Intervention	8018.23	1	8018.23	5.33	0.004	0.26
Error	52.33	37	1.41			

Due to the significance level of the pretest results (0.12) there was a no significant difference between the control and experimental groups in self-directed skills in pretest. But because of the intervention group was significance (0.004) is less than 0.05 it can be said that self-directed learning in enhancing students' meta-cognitive skills affect the research hypothesis (meta-cognitive skills increase the amount of self-directed).

4. Discussion

The correlation results showed a positive relationship between self-directed skills and its components; According to the results of analysis of covariance it can be said that "cognitive skills are capable of enhancing self-directed skills in students". Thus it can be concluded that the increase in cognitive and lead to the enhancement of self-directed learning and its subscales. In this process meta-cognitive skills have an effective rule. It means that students who are selecting acceptable learning strategies and can benefit self-cognition and self-monitoring. These results are consistent with the findings of some researchers (Mahdizadeh, Safari, Nadi & Paknia, 2012).

Those students who have Metacognitive skills think about thinking processes such as study skills, memory capabilities, and the ability to monitor learning (Rovai, 2002). Metacognitive and self-directed knowledge improve student's cognitive processes, declarative, procedural and Strategic knowledge and understanding of how to regulate learning processes to maximize learning.

Cognitive skills instruction leads to students memory-monitoring and self-regulation, meta-reasoning, consciousness, awareness and auto-consciousness. In practice these capacities are used to regulate one's own cognition, to maximize one's potential to think, learn and to the evaluation of proper ethical, moral rules (Song, 2005).

At the other side it can be concluded out of the present findings, cognitive monitoring and control

has been viewed as a function of the prefrontal cortex, which receives (monitors) sensory signals from other cortical regions and through feedback loops implements control (Dunlosky & Bjork, 2008).

Yousefzadeh, Yaghoobi and Rashidi (2012) also study the impact of cognitive skills instruction on students' self-efficacy and self-directed skills. Findings Showed that the improvement is occurred I acquiring the goal, the goal of meditation, inner motivation, problem solving and self-evaluation of students who were under meta-cognitive skills. Students who lack this training outperform their peers.

Elgar, Arlett and Groves Elgar (2003) in line with the present finding have shown that cognitive strategies have Forced to confront the crisis of adolescence and helps student have fewer behavioral problems.

Students who demonstrate a wide range of cognitive skills perform better on exams and complete work more efficiently. They are self-regulated learners who utilize the "right tool for the job" and modify learning strategies and skills based on their awareness of effectiveness. Individuals with a high level of cognitive knowledge and skill identify blocks to learning as early as possible and change "tools" or strategies to ensure goal attainment (Sener & Stover, 2000). Swanson (1990) found that cognitive knowledge can compensate for IQ and lack of prior knowledge when comparing fifth and sixth grade students' problem solving. Students with a high-metacognition were reported to have used fewer strategies, but solved problems more effectively than low-cognition students, regardless of IQ or prior knowledge.

References

Abdullah, M. H. (2001). Self-Directed Learning. ERIC Digest.

Biemiller, A., & Meichenbaum, D. (1992). The Nature and Nurture of the Self-Directed Learner. *Educational Leadership, 50(2),* 75-80.

Brown, A. L. (1980). Metacognitive development and reading. *Theoretical issues in reading comprehension*, 453-481.

Caraway, K., Tucker, C. M., Reinke, W. M., & Hall, C. (2003). Self-efficacy, goal orientation, and fear of failure as predictors of school engagement in high school students. *Psychology in the Schools, 40 (4),* 417-427.

Doolittle, P. E., Hicks, D., Triplett, C. F., Nichols, W. D., & Young, C. A. (2006). Reciprocal teaching for reading comprehension in higher education: A strategy for fostering the deeper understanding of texts. *International Journal of Teaching and Learning in Higher Education, 17(2),* 106-118.

Dunlosky, J., & Bjork, R. A. (2008). The integrated nature of metamemory and memory. *Handbook of metamemory and memory*, 11-28.

Elgar, F. J., Arlett, C., & Groves, R. (2003). Stress, coping, and behavioral problems among rural and urban adolescents. *Journal of Adolescence, 26(5),* 574-585.

Knowles, M. S. (1975). *Self-directed learning*. New York: Association Press.

Mahdizadeh, H., Safari, Y., Nadi, MA., & Paknia, L. (2012). The Effect of Educational software Designed Based on Meta-Cognition of the Students′ Self Direction at the Fifth Grade in Primary Schools of Kermanshah. *Curriculum Planning, 31*, 66-76[In Persian]

Merriam, S. B. (2001). Andragogy and self- directed learning: Pillars of adult learning theory. *New directions for adult and continuing education*, 2001(89), 3-14.

Moritz, S., & Woodward, T. S. (2007). Metacognitive training in schizophrenia: from basic research to knowledge translation and intervention. *Current Opinion in Psychiatry, 20(6),* 619-625.

Naeimi, L., Bigdeli, S., & Soltani Arabshahi, K. (2012). Level of self-directed learning readiness in medical students. *Education Strategies in Medical Sciences, 5(3),* 177-181.

Rovai, A. P. (2002). Development of an instrument to measure classroom community. *Internet and Higher Education, 5*(3), 197-211.

Rowland, F., & Volet, S. (1996). Self-Direction in Community Learning: A Case Study. *Australian Journal of Adult and Community Education, 36(2),* 89-102.

Sener, J., & Stover, M. L. (2000). Integrating ALN into an independent study distance education program: NVCC case studies. *In Learning Effectiveness and Faculty Satisfaction: Proceedings of the 1999 Sloan Summer Workshop on Asynchonous Learning Networks* (Vol. 1, p. 123). Olin College-Sloan-C.

Song, L. (2005). *Adult learners' self-directed learning in online environments: Process, personal attribute, and context.* Unpublished Dissertation, University of Georgia, Athens, GA.

Stansfield, M., McLellan, E., & Connolly, T. (2004). Enhancing student performance in online learning and traditional face-to-face class delivery. *Journal of Information Technology Education: Research, 3(1)*, 173-188.

Tracy, B., Reid, R., & Graham, S. (2009). Teaching young students strategies for planning and drafting stories: The impact of self-regulated strategy development. *The Journal of Educational Research, 102(5),* 323-332.

Victori, M., & Lockhart, W. (1995). Enhancing metacognition in self-directed language learning. *System, 23(2),* 223-234.

Yousefzadeh, M. R., Yaghoobi, A., & Rashidi, M. (2012). The impact of metacognition skills instruction on secondary school girl students' self-efficacy. *Journal of School Psychology 1(3),* 118-133[In Persian].