Research Article

The Effectiveness of Teaching Self-adjustment-based Learning Strategies in Understanding Students' Competencies and Motivational Beliefs

Parvin Parhami Alamdari,[1] and Mojgan Nickname[2,*]

[1]Department of General Psychology, College of Humanities and Social Sciences, Science and Research Branch, Islamic Azad University, Tehran, Iran
[2]Faculty Member, Department of General Psychology, College of Psychology and Social Sciences, Roudehen Branch, Islamic Azad University, Tehran, Iran

[*]*Corresponding author*: Mojgan Nickname, Faculty Member, Department of General Psychology, College of Psychology and Social Sciences, Roudehen Branch, Islamic Azad University, Tehran, Iran. E-mail: mojanniki@yahoo.com

Abstract

Background: Self-adjustment-based learning is an important educational, scholarly, and experimental approach in educative, cognitive, and clinical psychology.
Objectives: The present study was aimed to examine the effectiveness of teaching self-adjustment-based learning strategies in understanding of Islamic Azad University's (Research and Science Unit in Tehran) students' competencies and motivational beliefs.
Methods: Research method was practical in terms of objective; and in terms of data collection method, it was quasi-experimental with pre-test, post-test type. The statistical population of the study consisted of all psychology students in Islamic Azad University, from whom 30 individuals were selected for a control group (15 individuals) and an experimental group (15 individuals), using a convenience sampling method. Data were collected using a self-made questionnaire for competency comprehension and Pintrich and DeGroot's motivational strategies for learning questionnaire. The analysis of the obtained data was done through SPSS software in two sections: descriptive (frequency, percentile frequency, mean, standard deviation, and variations) and inferential (covariance analysis).
Results: Results showed that teaching self-adjustment-based learning strategies affects Islamic Azad University's psychology students' understanding of competencies and motivational beliefs. In addition, findings showed that due to self-adjustment-based learning strategies, students' understanding of competencies increased.
Conclusions: Teaching self-adjustment-based learning strategies helps to enhance motivational beliefs.

Keywords: Competency, Motivational Beliefs, Self-Adjustment, Learning Strategies

1. Background

Human beings are complex, adaptive systems. This is important due to constant changes in our living environment. Occupational opportunities are increased and decreased; educational opportunities are taken and missed; relationships are improved and faced problems; health is troubled and then improved. In fact, it is helpful to adapt ourselves to constantly changing conditions, because motivational states make it possible for us to adapt to systems. This means that whenever there is a gap between time-to-time conditions and our health, we face motivational states which prepare us for modification measures (1).

According to psychologists, motivation is a key concept. This concept refers to the differences between efforts to do homework (2). In educational theories, motivation is a key concept too (3). Motivation is defined as dynamism and mobility (4). It is one of the internal dimensions of humans, which stimulates, directs, and maintains individ-

ual efforts in order to different activities. It is influenced by internal and external factors (4). Individuals' motivations need to deal with their interests in taking part in learning processes naturally. In addition, they must pay attention to the reasons and purposes for taking part or not in educational activities. An internally motivated person does activities because he/she likes doing activities, but an externally motivated person works for rewards (5).

Intense competition and technological changes put increasing pressure on organizations and their various methods to increase productivity in human forces; this has made competency important in competitive environments. Competency comprehension is a construct which has attracted Iranian scholars' attention within the past decade. In Ericson's theory, competency comprehension is the feeling of being competent in successfully doing activities which require certain skills that are obtained through interactions with social and physical environments. Barteram (2005) refers to competencies as a set of

behaviors which help to achieve results or output through effectively doing occupational activities according to expected standards (6). Competency comprehension and internal enjoyment which are obtained from success lead to an increase in success-related efforts (7).

Self-adjustment-based learning is an important educational, scholarly, and experimental approach in educative, cognitive, and clinical psychology which is one of the concepts emphasized in Bendora's social-cognitive theory. Self-adjustment requires a balance between discipline and irregularity (8). Self-adjustment-based learning is a process which helps individuals to adjust their thoughts, behaviors, and feelings (9). In addition, Heikila (2006) stated that self-adjustment includes beliefs, fillings, and behaviors in order to achieve learning goals (10). Therefore, self-adjustment in learning processes shows that learners can examine their behavioral effects. Furthermore, studies show that students who are motivated to dominate homework use more cognitive and meta-cognitive strategies (11). Self-adjustment or self-discipline strategies are executable plans which are used by learners in order to achieve preset goals (12). Thus, we must focus on increasing individuals' understanding of their work environments as well as support them in developing and applying self-adjustment-based educational methods (13). In a self-adjustment-based educational program for enabling learners to take learning responsibilities, students learn four skills (14).

Certain studies in connection to the effectiveness of self-adjustment in motivational beliefs have been conducted by scholars such as Alexiou and Paraskeva (2013), Eliot and Nevo, Kutz 12 (2013), Seung and Rayne 13 (2012), Naseri Jahromi, Marzughi and Rasekh Jahromi (2015), Karimi Monghi, Muhammadi, Saleh Moghaddam, Gholami, Karshki and Zamanian (2014), Muhammadi Darvish, Hatami, Asadzadeh, and Ahadi (2013), (15-20); in addition, certain studies in connection to the effectiveness of self-adjustment in competency comprehension have been conducted by scholars such as Mostafa Sarbaz, Abolghasemi and Rostam Oghli (2014), Hossein Nejhad and Hosseinimehr (2015), Bahador Motlagh, Attari, Yusefali, and Bahador Motlagh (2012), Salehi and Seif (2012), Asgari, Mirmahdi and Mazloomi (2011) (21-25).

2. Objectives

This research was aimed to find an answer to the question, "does teaching self-adjustment-based learning strategies affect students' competency comprehension and motivational beliefs?"

3. Methods

In this study, research method was quasi-experimental with pre- and post-test. The statistical population of the present study consisted of all psychology students in Islamic Azad University (Research and Science Unit in Tehran) (2015 - 2016), abouta758 individuals, from whom 30 volunteers were selected as a sample size, using a convenience sampling method. The students of the sample, after responding to scales such as competency comprehension and motivational beliefs, were divided into two groups (control group and experimental group) of 15 individuals. The experiment group received 12 1-h sessions which taught self-adjustment-based learning strategies; but, the control group received no training. The list of sessions has been given in Table 1:

Table 1. List of Materials Related to Self-Adjustment-Based Learning Strategies[a]

Session	Content
First	Getting familiar with students, explaining about the subject and activities, doing a pre-test
Second	Teaching motivational components and resource management strategies
Third	Reviewing the activities of the second session
Fourth	Teaching repetition and review strategies
Fifth	Reviewing the activities of session three for taking risks in educational affairs and meaning expansion
Sixth	Reviewing the lessons of the previous session and helping students to choose proper rewards and punishments
Seventh	Reviewing the activities of the previous session
Eighth	Teaching planning strategies and helping students to choose proper rewards and punishments
Ninth	Reviewing the activities of the previous session, teaching control and monitoring strategies, and taking educational risks
Tenth	Reviewing the activities of the previous session, teaching discipline strategies
Eleventh	Reviewing the activities of the previous session and students' homework
Twelfth	Reviewing the taught strategies in a composite style

[a]Source: Asgari et al. (2011).

The consent form was taken from the appropriate section of the university before conducting the study.

4. Results

Competency comprehension questionnaire: in order to measure the level of competency comprehension in students, a self-made questionnaire was used.

Motivational beliefs questionnaire: part of Pintrich and DeGroot's (1990) "motivational learning strategies"

questionnaire (MSLQ) was used (26). This questionnaire had 44 items, which were adjusted in two sections: 1) motivational beliefs (22 items) and 2) self-adjustment-based learning strategies (22 items). In the present study, the "motivational beliefs" items (22 items) were used. Motivational beliefs had three components: self-efficacy (9 items), internal valuation (9 items), and exam anxiety (4 items). The items of this questionnaire are scored based on a 5-point Likert scale, and the direction of all questions is positive, except for the questions related to exam anxiety, which are scored in a reverse format. In Pintrich and DeGroot's (1990) examinations, in order to determine the reliability of the "motivational learning strategies" questionnaire, Cronbach's alpha coefficient was calculated to be 0.89, 0.87, and 0.75 for the three factors of motivational beliefs, i.e. self-efficacy, internal valuation, and exam anxiety, respectively.

In order to analyze data, SPSS software was used; and descriptive statistics methods such as frequency distribution Tables, mean calculation, standard deviation as well as inferential statistics indexes of covariance analysis were used.

Descriptive characteristics of the variables are shown in Table 2:

Descriptive data of the level of competency comprehension and motivational beliefs in Table 2 have been given, with pre-test and post-test classification, in two groups: experimental group and control group. As it can be seen, mean of the experiment group in pre-test level compared to pre-test increases; however, in the control group, no change is seen.

In order to examine the hypothesis of the research, statistical tests of multivariate covariance analysis (MANCOVA) and post hoc tests (ANCOVA) were used and their information has been given in the Table 3. In addition, research pre-hypotheses such as Box test equaled 5.41 (F = 5.41). Levene test for competency comprehension was 1.38, and for motivational beliefs, it was 1.90.

Research hypothesis: Teaching self-adjustment-based learning strategies affects competency comprehension and motivational beliefs in psychology students of Islamic Azad University (Research and Science Unit in Tehran).

In order to approve or disapprove the above hypothesis, a multivariate covariance analysis (MANCOVA) was used, information of which has been given in the Table 3:

As it can be seen, the significance of all four multivariate statistics, i.e. Roy's largest root, Hotelling's Trace, Wilks Lambda, and Pillais trace is 0.001 (P < 0.01). Hence, statistical null hypothesis is not approved, and it is made clear that there is a significant difference between the two groups in terms of scores for the comparison of total scores. Hence, in order to determine the effect of post-test,

a post hoc test or a multivariate covariance analysis (ANCOVA) was used, information of which has been given in the following Table 4:

In the above Table 4, based on "F" for competency comprehension and motivational beliefs, and based on "significance" (0.01) which is greater than 0.05, it can be concluded that teaching self-adjustment-based learning strategies significantly affects students' competency comprehension and motivational beliefs. Therefore, it can be concluded that teaching self-adjustment-based learning strategies to the respondents of the experiment group had a bigger impact on students' competency comprehension and motivational beliefs.

In order to examine the effectiveness of teaching self-adjustment-based learning strategies in competency comprehension and motivational beliefs of Islamic Azad University's (Research and Science Unit in Tehran) psychology students.

Considering the results given in Table 5, the value of "T" for competency comprehension and motivational beliefs with a freedom degree of 14 is 1.11 and 2.66, which is lower than the critical value of "T" with a freedom degree of 14, and it is not significant in a 0.05 level (P > 0.05, = 1.11). Hence, null hypothesis is approved; and there is not a significant difference between pre-test scores and the scores of competency comprehension and motivational beliefs. Therefore, it can be concluded that teaching self-adjustment-based learning strategies has a significant effect on students' competency comprehension and motivational beliefs.

5. Discussion and Conclusion

The present study was a quasi-experimental research of a pre-test and post-test type with a control group, which examined the effectiveness of self-adjustment-based learning strategies in students' competency comprehension and motivational beliefs. Findings obtained above show that teaching self-adjustment-based learning strategies affects competency comprehension and motivational beliefs in Islamic Azad University's (Research and Science Unit in Tehran) students. In other words, it can be stated that with teaching learning strategies, we will see an increase in competency comprehension and motivational beliefs in students. Self-adjustment enables individuals to understand and control their learning in order to achieve success. In fact, it is an active process within learners have learning goals and try to navigate their cognition, motivation, and behavior in a certain educational texture, based desired goals (27). This factor helps expand competency comprehension and motivational beliefs.

Table 2. Mean and Standard Deviation of Competency Comprehension and Motivational Beliefs in Pre-Test and Post-Test, with Group Classification (N = 30)

Variable	Group	Competency Comprehension		Control	
		M	SD	M	SD
Comprehension	Group	11.41	5.35	13.66	4.57
Competency	Pre-test	19.86	4.02	14.13	5.11
Motivational beliefs	Pre-test	16.00	4.85	17.93	6.27
	Post-test	36.26	2.77	16.13	5.11

Table 3. Results of Multivariate Covariance Analysis (MANCOVA)

Effect	Tests	Values	F	df of Effect	df of Error	P Value
Group	Pillais trace	2.03	21.43	2	82	0.011
	Wilks Lambda	0.21	22.10	2	71	0.011
	Hotelling's Trace	1.39	22.73	2	72	0.011
	Roy's largest root	1.88	34.41	2	45	0.011

Table 4. Results of Covariance Test for Determination of the Effectiveness of Teaching Self-Adjustment-Based Learning Strategies in Students' Competency Comprehension and Motivational Beliefs

Variable	Statistical Index	SS	Df	MS	F	P Value
Competency comprehension	Group	2175.08	1	2175.08	111.08	0.001
Motivational beliefs	Group	263.24	1	263.24	8.02	0.001

Table 5. Examining the Effectiveness of Teaching Self-Adjustment-Based Learning Strategies in Students' Competency Comprehension and Motivational Beliefs

Variable	Mean	Standard Deviation	T	Degree of Freedom	P Value
Competency comprehension	1.33	8.35	1.11	14	0.71
Motivational beliefs	0.73	4.28	2.66	14	0.33

In fact, self-adjustment-based learning strategies are a method which is advised for any individual who needs to set goals and to make himself/herself motivated and competent. Different theorists believe that any increase in competency comprehension and motivational beliefs is accompanied by one or more dimensions in individuals. In fact, we cannot directly increase competency comprehension or motivational beliefs, but we can indirectly affect it through changes in one or more personal variables such as determining and teaching self-adjustment-based learning strategies. Those who set their goals and adjust themselves develop in terms of capabilities and value themselves.

The findings of this study are in congruence with studies conducted by Naseri Jahromi et al. (2015) and Mostafa Sarbaz et al. (2014) (18, 21). In expressing the mentioned findings, it can be stated that: considering the fact that competency comprehension is a self-assessment dimen-

sion. This approach can make big changes in the level of competency comprehension and increase it through modifying and changing self-adjustment components which are inefficient; in addition, teaching self-adjustment-based learning strategies to students is a method which makes changes in motivation and motivational beliefs of students, lead to an increase in its level in students; more purposeful students with more motivation move towards their goals. As it was shown in studies, competency comprehension is highly correlated with components such as self-discipline and self-adjustment-based learning strategies. And if individuals reinforce these strategies and self-adjust themselves, they start to feel competent and their motivation and motivational beliefs are doubled.

Additionally, the results of the present study show that students' competency comprehension has increased through the intervention of self-adjustment-based learn-

ing strategies. Scholars such as Muhammadi Darvish et al. (2013), Bahador Motlagh, Attari, Yusefali, and Bahador Motlagh (2012), Salehi and Seif (2012) examined the effect of self-adjustment-based learning strategies on increasing competency comprehension in different groups; and their results were consistent with those obtained from the present study (20, 23, 24).

In expressing this effectiveness, it can be stated that: the purpose of self-adjustment-based learning strategies is to make individuals to have a purposeful and organized behavior. In fact, self-adjustment-based learning strategies prepare individuals for responsibilities in order to take control of their actions and thoughts, leading to an increase in competency.

Teaching self-adjustment-based learning strategies helps enhance motivational beliefs. The results of the present study are in line with those obtained from studies conducted by scholars such as Virtanen, Nevgi and Niemi (2015), Alexiou and Paraskeva (2013), Park and Sperling (2012) (15, 17, 28). Virtanen, NevgI and Niemi (2009) found that self-adjustment-based learning strategies and motivational strategies play an important role in expressing and predicting students' educational progress; and this study refers to the relationship between self-adjustment-based learning strategies and motivational strategies (28).

In expressing the above findings, it can be stated that motivational beliefs are states which are manifested through excitements, capabilities, and interests. With development of motivational beliefs, individuals become highly active and then they can assess life situations and adapt themselves to changes. One of the constraints of the present study is that students' are unfamiliar with executive protocols and these researchers have tried to run several sessions, which were in fact parts of the research. Moreover, using a young age group reduces the possibility of generalizing the results of this study to other age groups. Hence, it is recommended that discussions related to self-adjustment-based learning strategies be brought in books in order to help individuals develop motivational beliefs and competency comprehension. Furthermore, self-adjustment-based concepts and strategies must be taught to officials in order to be able to use them for the purpose of increasing competency comprehension and motivational beliefs. This research focused on students; thus, it is recommended that the variables of this research be examined for students.

References

1. Teixeira PJ, Silva MN, Mata J, Palmeira AL, Markland D. Motivation, self-determination, and long-term weight control. *Int J Behav Nutr Phys Act.* 2012;**9**:22. doi: 10.1186/1479-5868-9-22. [PubMed: 22385818].

2. Tabachnick BG, Fidell LS. Using Multivariate Statistics. 6th ed. New Jersey: Pearson Education; 2012.

3. Gutierrez M, Ruiz LM, Lopez E. Perceptions of motivational climate and teachers' strategies to sustain discipline as predictors of intrinsic motivation in physical education. *Span J Psychol.* 2010;**13**(2):597–608. doi: 10.1017/S1138741600002274. [PubMed: 20977010].

4. Kusurkar RA, Croiset G, Ten Cate TJ. Twelve tips to stimulate intrinsic motivation in students through autonomy-supportive classroom teaching derived from self-determination theory. *Med Teach.* 2011;**33**(12):978–82. doi: 10.3109/0142159X.2011.599896. [PubMed: 22225435].

5. Carreira JM. Motivational orienations and psychological needs in EFL learning among elementary school students in Japan. *Sys.* 2012;**40**(2):191–202. doi: 10.1016/j.system.2012.02.001.

6. Dianati M, Erfani M. Competency; Concepts and Applications [In Persian]. *Tadbir Monthly Mag.* 2009(206):14–9.

7. Baudson TG, Weber KE, Freund PA. More Than Only Skin Deep: Appearance Self-Concept Predicts Most of Secondary School Students' Self-Esteem. *Front Psychol.* 2016;**7**:1568. doi: 10.3389/fpsyg.2016.01568. [PubMed: 27803681].

8. Fernandez-Rio J, Cecchini JA, Mendez-Gimenez A, Mendez-Alonso D, Prieto JA. Self-Regulation, Cooperative Learning, and Academic Self-Efficacy: Interactions to Prevent School Failure. *Front Psychol.* 2017;**8**:22. doi: 10.3389/fpsyg.2017.00022. [PubMed: 28154544].

9. Stacey FG, James EL, Chapman K, Courneya KS, Lubans DR. A systematic review and meta-analysis of social cognitive theory-based physical activity and/or nutrition behavior change interventions for cancer survivors. *J Cancer Surviv.* 2015;**9**(2):305–38. doi: 10.1007/s11764-014-0413-z. [PubMed: 25432633].

10. Heikkilä A, Lonka K. Studying in higher education: students' approaches to learning, self-regulation, and cognitive strategies. *Stud High Educ.* 2006;**31**(1):99–117. doi: 10.1080/03075070500392433.

11. Ames C, Archer J. Achievement goals in the classroom: Students' learning strategies and motivation processes. *J Educ Psychol.* 1988;**80**(3):260–7. doi: 10.1037/0022-0663.80.3.260.

12. Azevedo ÂS, Dias PC, Salgado A, Guimarães T, Lima I, Barbosa A. Teacher-student relationship and self-regulated learning in Portuguese compulsory education. *Paidéia.* 2012;**22**(52):197–206. doi: 10.1590/s0103-863x2012000200006.

13. Kramarski B, Desoete A, Bannert M, Narciss S, Perry N. New perspectives on integrating self-regulated learning at school. *Educ Res Int.* 2013;**2013**:1–4. doi: 10.1155/2013/498214.

14. Seif AA. Novel educational psychology. Tehran: Doran; 2013.

15. Alexiou A, Paraskeva F, editors. Exploiting motivation and self-efficacy through the implementation of a self-regulated oriented, Portfolio. The International Conference on E-Learning in the Workplace. 2013; New York, NY, USA. .

16. Katz I, Eilot K, Nevo N. "I'll do it later": Type of motivation, self-efficacy and homework procrastination. *Motiv Emot.* 2013;**38**(1):111–9. doi: 10.1007/s11031-013-9366-1.

17. Park SW, Sperling RA. Academic procrastinators and their self-regulation. *Psychol.* 2012;**03**(01):12–23. doi: 10.4236/psych.2012.31003.

18. Naseri Jahromi R, Marzughi RA, Rasekh Jahromi A. The intermediary role of self-adjustment-based learning strategies in the relationship between PhD medical students' motivational beliefs and educational values. Case Study. *Jahrom Med Sci Univ.* 2015;**8**(17):102–12.

19. Karimi Monghi H, Muhammadi A, Saleh Moghaddam A, Ghlami H, Karshki H, Zamanian N. Comparison of the effect of teaching in a corporate learning style and giving lectures on motivational beliefs and self-adjustment-based learning strategies. *Iran Mag Educ Med Sci.* 2014;**14**(5):393–402.

20. Muhammadi Darvish Baghal N, Hatami H, Asadzadeh H, Ahadi H. A study of the effect of teaching (cognitive and metacognitive) self-regulation strategies on high school students' motivational beliefs (educational motivation, self-efficacy, test anxiety). *Q Educ Psychol.* 2013;**9**(27):49–66.

21. Mostafa Sarbaz Z, Abolghasemi A, Rostam Oghli S. Comparison of self-adjustment strategies, creative thinking and goal-orientation in children with and without math disorder. *Learn Disabilities.* 2014;**3**(3):68–78.

22. Hossein Nejhad AA, Hosseinimehr M. Effect of motivational beliefs and self-regulated learning strategies on achievement motivation of student in physical education schools (Application of structural equations). *App Sci Report.* 2015;**10**(1):1–7. doi: 10.15192/pscp.asr.2015.10.1.17.

23. Bahador Motlagh E, Attari Y, Bahador Motlagh G. Effectiveness of teaching self-adjusted-based learning strategies in students' competency comprehension. *J Iran Psychol.* 2012;**9**(33):39–46.

24. Salehi L, Seif D. Pattern for predicting loneliness based on the interactions of teachers and students, and dimensions such as competency comprehension among adolescents with and without impaired eyesight. *Psychol Excep People.* 2012;**2**(5):43–64.

25. Asgari M, Mirmohummadi S, Mazloomi A. Effect of teaching self-adjustment-based learning strategies on Arak's female students' (third period of junior high) self-concept and progress in math. *Educ Psychol Q.* 2011;**7**(21):25–46.

26. Pintrich PR, de Groot EV. Motivational and self-regulated learning components of classroom academic performance. *J Educ Psychol.* 1990;**82**(1):33–40. doi: 10.1037//0022-0663.82.1.33.

27. Samruayruen B, Enriquez J, Natakuatoong O, Samruayruen K. Self-regulated learning: A key of a successful learner in online learning environments in Thailand. *J Educ Comput Res.* 2013;**48**(1):45–69. doi: 10.2190/EC.48.1.c.

28. Virtanen P, Nevgi A, Niemi H. Self-regulation in higher education: Students' motivational, regulational and learning strategies, and their relationships to study success. *Stud Learn Soc.* 2015;**3**(1-2):20–34. doi: 10.2478/sls-2013-0004.