The comparison of the Effect of Reciprocal Education and Direct Explanation on Problem -Solving Skills and Educational Self-Concept of Female Students

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Abstract

The aim of the present research is to investigate the comparison of effectiveness of reciprocal education and direct explanation on solving problem skills and educational self-concept of female students studying at fifth grade in Shiraz City. The present study is semi-experimental study that 34 students were selected using cluster sampling method out of female students skills studying at fifth grade. The research tools included questionnaires of solving problem skills and educational self-concept. Data using multivariable analysis of variance using SPSS-2 software were analyzed. The results showed that reciprocal education and direct explanation had significant effect on raising solving problem silks. Also, reciprocal education and direct explanation had significant effect on raising educational self-concept (0.51) *Partial* η^2 ،0.0001=p /53.15=F). Also, the amount of effectiveness of reciprocal education obtained were more than direct explanation in solving problem skills and educational self-concept of the students **(**p<0.05). The present research showed that reciprocal education and direct explanation promote the amount of solving problem skills and educational self-concept of the students. Therefore, students in reciprocal education and direct explanation processes (Especially in reciprocal education) learn to act efficiently toward problem solving in the learning process and in this way, they develop some amount of solving problem skills and educational self-concept.

Key Words: Reciprocal Education, Direct Explanation, Problem Solving Skills, Educational Self-Concept.

Introduction

It is clear for educational scientists that school is a social institute that is effective on development of social characteristic of a person, because students can learn lifestyle and interaction from others in this place. In addition, school is a place that gives him how to perform the finite activities and quality for cooperation or competition in activities. Moreover, any country in formal or informal framework has a duty for preparing people for logically solving problems when facing them and developing belief in daily solving problem. On the whole, one of characteristic and educational features which are essential for developing them is solving problem skills and educational self-concept

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of the students. Nowadays, in all activities, education authorities lead students to obtain the so-called high-level skills either in general area or technology area, whether it is natural or problem-solving activities (Seif- 2017). One of these skills is problem-solving skills. Problem solving skills is a vital skill for life in the present era.

Nowadays, in all activities, the authorities are called for developing high-level skills and problem solving, in general area or technology area wthether it is natural or problem-solving activities and the most societies, people believe that problem-solving skills must be emphasized. Problem-solving necessitate purposive and special stretegies that a person describes problems through them, makes a decision, performs problem-solving strategies and supervises them. (MaryAnn & Rajni-2011).

Also, in educational environments, one of the important concepts emphsized by the authorities of educational affairs is to develop educational self-concept of the students. Som psychologists stated that the main key of comprehension of person's behavior is the manner of educational attitude of each person about educational self-concept (Franz, et. al, 2010; Dicke, et. al, 2018), on the other hand, keeping and empowering educational self-concept is the motivation of all learners in educational area and anywhere and it has an experiment on a person's attitude about self-compatibility, the effects of that experiment are used, but when the experiment does not conform to educational self-concept of the person, the effects of the above-mentioned experiment is anxiety and causes a person to be isolation.
and it has negative effects in creating educational self-concept. Then, it can be called the manner of entourage, especially parents and instructors play the important role in creating educational self-concept of each student in learning process and education process (Huang, 2011).

Considering the results of some researches, developing the above-mentioned abilities (Solving Problem Skills and Educational Self-Concept) are more important in the educational process (Eide, et. al, 2018; Hafenbrack, 2017) and and it is necessary to develop these abilities using different educational methods. On the other hands, using different educational methods in developing the above-mentioned abilities (solving problem skills and educational self-concept) are controbutories (Huang, 2011). Educational self-concept is one of effective factors on educational performance and includes total atitude of a person in regards to his/her abilities in relation to school learning (Hung 2011). Evolution of educational self-

concept is forming at birth, especially when he/she could communicate with others. It means that she/he has more cognition toward herslf/himself due to interaction and communication with parents, sibiling, relatives and families, friends and others, especially at the end of primary school program, his/her identification of educational features category is more completed in interaction with his/her classmates and teacher (Dik, etal. 2018). In this regard, one of educational methods is the direct explanation. Direct explanation method is one common method used by the teachers throughout the world. In this method, the teacher is responsible for the main activity of the class and practice to present and show subjects to teach different subjects. The other important feature of this method is that the most educational activities of the teacher is verbal aspect which is called as speech method (Nimasari, 2016). By using this method accurately and correctly, it is expected that many characteristic and educational abilities of learners are developed. It is worth mentioning that between 10-12, growing and developing cognitive system in students, a category of cognitive and supervision processes is formed as well which is as extent as cognitive processes leading evolution, efficiency and flexibility of mind, purposeful and deliberately learning (Parviz & Sharifi, 2011). Characteristic and education features including solving problem skills and educational self-concept are developed more and better. One of the methods where the student has active role in education and learning processes is reciprocal teaching method. Reciprocal teaching method gives the required fundamentals of cognitive and metacognitive strategies to the students and the students can increase their comprehension and concept abilities using them (Sagir, 2011). Some researchers believe that this method can develop solving problem skills and educational self-concept through frameworked education (raising question, summerizing, explanating, making complicated remarks and expecting future events) (Caliskan & Sunbul, 2011). On the other hand, reciprocal teaching is a method that the student is aroused through simple activity or explanation about it to practice to actively learn; then, to obtain the experimental, teacher guides them in such a way that they practice to search participating team activities. Teacher guides students in the way of findings interpretation and explanation of his acheivements that they can use new learned subjects increasing their concepts and assess the learning activities

(Richard, Deegan, & Klena, 2014). Therefore, it is expected using reciprocal teaching pattern, characteristic and educational abilities inluding solving problem skills and educational self-concept are developed.

In accordance with direct expalanation using behaviourism theory methods attempts to develop cognitive and educational features as well as reciprocal education necessiotates special behavioural and cognitive strategies for concentrating attention process which can help student to learn better and obtain comprehension of course deeply and it is possible that they develop educational self-concept (Asyari & Ikhsan, 2019; Rizki & Lucia, 2017), it is expected that direct explanation and reciprocal expalanation are able to be effective on developing cognitive and psycho abilities including solving problem skills and educational self-concept.

In accordance with direct expalanation, education movement and reciprocal education have been used in advanced soceities for many years and many research have been raised in such a way that direct expalanation and reciprocal education and study of its effect on different cognitive, excited and ethical scopes of people are one of the most wide scopes in the advanced societies, as well as although this extent, unfortunately, not sufficient attention has been paid to this category is in our country and the number of performed research in this area per other societies are less. Especially less research in educational psychology has been practiced to study this subject, whereas many experts in educational area state that the amount of solving problem skills and educational self-concept of students are not in appropriate level (Kordnobaghi & Dortaj, 2017; Izadi & Mohammadzadeh, 2007), therefore, considering lack of the required background in this research, we are seeking to find this question, Are direct expalanation and reciprocal education effective on solving problem skills and educational self-concept of female students studying at fifth grade of primary school of Shiraz? Therefore, the present research is going to fulfil this research vacuum comparing the effectiveness of "Direct Expalanation and Reciprocal Education" on solving problem skills and educational self-concept of female students studying at fifth grade in Shiraz City.

Population & statistical Sample

Research population includes students studying at fifth grade of primary school of Shiraz City in the academic year 2019-20 (N=13800). In this research, 52 students were selected using multi-stage cluster sampling and then were randomly substituted in experimental and control group. Thus, firstly, two districts (District 1 and 2) were selected among different districts, then Besat 2 and Farhang Girls'

Primary School were selected and they were randomly and equally placed in two experimental groups (reciprocal education and cycle of thinking) and one control group, finally because of lack of the required participation and cooperation of subjects in research process, 52 people (18 people in reciprocal education, 17 people in cycle of thinking and 17 people in control group) were remained and they were analyzed.

Research Method

The subject of the present research is to compare the effectiveness of "direct expalanation and reciprocal education" on solving problem skills and educational self-concept of female students studying at fifth grade in Shiraz City and based on aims raised, this research type was applied research and semi-experimental with regard to the method and using pre-test and post-test design with control group. In pre-test step, three groups of solving problem skills and educational self-concept were examined by giving questionnaires, then, in one experimental group, three-month intervention was implemented for a period of 45-Minutes 8 sessions, reciprocal education package using Palesneskar and Brown educational method (1985, quotation of Rezaei and Kermanizadeh, 2015)

And the other experimental group, three-month intervention was implemented for a period of 45-minute 8 sessions, direct explanation education package based on Osterman (1992; quotation of Kornoghaei & Dortaj, 2017), but control group did not received intervention and after interventions of participants, every three groups answered problem-solving skills and educational self-concept questionnaires (Post-Test).

Research society includes female students studying at fifth grade in Shiraz who have studied in the academic year 2019-20 (N-13800). In this research, 34 students using cluster sampling method have been selected in several steps and then have been substituted in experimental group through random substitution and randomly confirmed.

Also, tools used in this research include:

Solving problem questionnaire: to assess sovling problem skills in students from solving problem questionarie (Heppner, 1988) was used and include 32. Responses to this phrases is drawn up in 6 states of Likert Scale and it is variable from 1 (completey agree) to 6 (completey disagree) and the minimum grade of solving problem is 32 and the maximum one is 192, the lower grade showed lower ability in problem-solving. It includes two components of self-confidence in solving problem and self-control.

To determine the validity of questionnaire used content validity and content validity coefficient and the validity of questionnaire was appropriately reported. Also, content validity index was of phrases of problem solving skills questionnaire between 0.7 to 1. To

determine questionnaire reliability, Cronbach's alpha coefficients was used to investigate internal homogeneity and retest interval of 10 days for determining tool stability which this coefficient was obtained 0.89 for all questionnaire (Jalili, Hejazi, Entesar and Morovati, 2018). In this research, to determine questionnaire reliability, 68-people sample from tests and Cronbach's alpha coefficients was used. The coefficient of self-confidence component in solving problem, self-control and all questionnaires was 0.89, 0.88 and 0.90, respectively.

Educational Self-Concept Questionnarie: Educational self-concept questionnaire was created by Liu and Wang (2005). This questionnaire consists of two subscales of educational confidence of students (10 questions) and educational effort of students (10 questions) and answering these phrases was drawn up in four-state Likert Scale and is variable from 1 (always no) to 4 (always yes). A validity study showed that scale with educational self-steem subscale (r-0.73) and March School Self-Confidence Scale is converge (r-0.71) as well as Cronbach's alpha coefficients showed that total value of this scale (0.82) and two subscales (0.71 and 0.76) have high internal consistency (Liue & Wang, 2005).

In this research, to determine questionnaire reliability, a 34-people sample from tests and Cronbach's alpha coefficients was used where educational confidence components coefficient, educational effort and total questionnaire coefficient were obtained 0.78, 0.83 and 0.79, respectively.

Also, in this research two interventions in two experimental groups were used including:

Reciprocal education using Brown and Palsneskar method (1985; quotation of Rezaei and Kermanizadeh, 2015) was implemented for a period of 45-minute 8 sessions as team (106 three-people groups) helping researcher and trained teacher. Reciprocal method framework for education using four strategies includes expalanation and pattern of strategy by trainer (expressing thought while using strategy), practice of using strategies by students with corrected feedback of trainer and independent use of these strategies by the student himself. Educational sessions of reciprocal education method have been breifly in Table 1.

Table 1- The Contents of Reciprocal Education Sessions in Palseneskar and Brown (1984)

No. of Session Aim, Content of Session, Session Homework

First Session: In this session after introducing, the importance of reading and Conprehension, the role of it in learning of school courses and locations outside the school and thereafter explanation of reciprocal education, aims and advantages of holding sessions of reciprocal education to students are explained.

Second Session: At the beginning of this session, four sterastegies of reciprocal education was breifly presented, then the first sterategy, i.e. expected sterstegy was taught to the students. Teaching this sterategy is that firstly after reading the first sentence of the text, the further sentence is expected, after that reading the second sentence, the authenticity was determined.

Third Session: In this session, sterategy for making question is taught to them. In this Sterategy, after reading paragraph, all questions of that paragraph are raised and at the end, total questions are made among these questions.

Fourth Session: In this 45-minute session, two stersategies were bereifly reviewed.

Fifth Session: Explanation sterategy (answering question) was taught to students in such a way that firstly teacher read a text and thereafter told the students Whether they faced ambigious cases or not, and in case they faced how to comprehend.

Sixth Session: In this session, three sterategies were reviewed.

Seventh Session: In this session, the last stertegy, i.e., summerizing stertegy was taught to students within 45 minutes. In education this sterategy from four rules;
trivial information elimination, eliminating superflous and additional phrases, substituting superordinate phrases for list of terminology and substituting superordinate for list of actions and events for summerizing each paragraph were used.

Eighth Session: In this session, four sterategies taught were reviewed. At the end of sessions, post-test was inplemented.

Also, direct explanation plan using feedback speech pattern based on Osterman (1992; quotation of Kordvaghaei & Dortaj, 2017) was provided and within 45-minute 8 sessions for social studies course was presented. The contents of educational sessions are presented in Table 2.

Table 2- Contents of Direct Explanation Education Sessions Based on Ostermann's (1992) Perspective

No. of Session Aim, Content of Session, Session Homework
First Session Aquaintance and communication to the members of group, familiar to educational sessions and the respective

regulation dominating on these sessions, fulfilling cooperation contract, obtaining pretest, introducing preparation activities of further sessions.

Second Session: Reviewing previous session of teaching, the first section of subject Course, team discussion related to the first section of course, teaching the second section of subject of course, team discussion about the first section of teaching, feedback discussion and question, holding post-test, introducing preparation for activities further session

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Third Session: Reviewing previous session of teaching, the first section of subject Course, team discussion related to the first section of course, teaching the second section of subject of course, team discussion about the first section of teaching, feedback discussion and question, holding post-test, introducing preparation for activities further session

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Fourth Session: Reviewing previous session of teaching, the first section of subject Course, team discussion related to the first section of course, teaching the second section of subject of course, team discussion about the first section of teaching, feedback discussion and question, holding post-test, introducing preparation for activities further session

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Fifth Session: Reviewing previous session of teaching, the first section of subject of the Course, team discussion related to the first section of course, teaching the second section of subject of course, team discussion about the first section of teaching, feedback discussion and question, holding post-test, introducing preparation for activities further session.

Sixth Session: Reviewing previous session of teaching, the first section of subject of the Course, team discussion related to the first section of course, teaching the second section of subject of course, team discussion about the first section of teaching, feedback discussion and question, holding post-test, introducing preparation for activities further session.

Seventh Session: Reviewing previous session of teaching, the first section of subject of the Course, team discussion related to the first section of course, teaching the second section of subject of course, team discussion about the first section of teaching, feedback discussion and question, holding post-test, introducing preparation for activities further session.

Eighth Session: Holding post-test and completing teaching.

Problem-solving skills and educational self-concept questionnaries were given to sample group people and they are assured that their information is kept safe and only were collected for research purpose. Also, it was emphasized that they answered the questions honestly. After collecting querstionnaires, information was analyzed by SPSS software, version 22. For test of research hypothesis, multivariable variance analysis was used.

Findings of Research

In Table 3, the mean and standard deviation of research variables in pretest and post-test and separately test group and control group were reported.

Table 3- Mean and standard deviation of scores of research in experimental and control groups

Components				
	Group	Pre-Test		Post-Test
		Mean	Standard Deviation	Mean Standard Deviation
Problem solving Skills				
Receiprocal Education				
	Experimental Group	79.11	11.26	129.33 12.41
	Direct Explanation of Experimental Group	73.25	13.36	98.96 13.45
	Control Group	74.53	12.84	73.18 09.27
Educational Self-Concept				
Receiprocal Education				
	Experimental Group	36.78	4.41	64.72 5.16
	Direct Explanation of Experimental Group	35.01	5.79	52.44 5.78
	Control Group	34.24	4.46	31.35 4.45

To investigate hypothesis: there is a difference between the effectiveness of direct explanation and reciprocal education on problem-solving skills and educational self-concept of students, multivariable variance analyze was used. Before using multivariable variance analysis, hypothesis was investigated. All hypothesis including normality of research variables, variance homogenety about dependent variances of the`research, croation assumption and equality of dependent variable covariances were done.

After placing hypothesis from Mancova analysis to investigate the effect of plan of direct explanation and reciprocal education on problem solving skills and educational self-concept of female students studying at fifth grade in Shiraz City was used. As observed in Table 4, interventions of direct explanation and reciprocal education results showed a significant difference between experimental group and control group in problem-solving skills and educational self-concept of female students studying at grade five in

Shiraz and the amount of pillai's effect was 0.35 in p=0.001.

Table 4- Summary of the results of multivariate analysis of covariance related to impact of direct explanation and cross-education programs on problem-solving skills scores and educational self-concept

Effect	Test	Value	F	Hypothesis DF	Error DF	Sig	Partial Eta Squared
Group	Pillai's Effect	1.06	19.11	12	177	0.001	0.35
Lambda wickles		0.05	26.58	12	151	0.001	0.63
Hotelling Effect		16.91	36.64	12	167	0.001	0.54
Roy's Largest Root		16.78	47.59	4	59	0.001	0.61

In accordance with significant difference of the experimental groups (direct explanation and reciprocal education) and control in problem-solving skills and educational self-concept, to realize the position, difference from univariate coviriance analysis in Monocova context was used. The results of this analysis (Table 5) shows plans of direct explanation and reciprocal education in problem-solving skills (Partial=0.51, η^2, p=0.001, F (3.60)=53.15) and educational self-concept (F (3.60)=100.81, p=0.001, Partial η^2=0.57) has been effective.

Table 5- Summary of the results of univariate analysis of covariance in Mankova tissue

The effect of direct explanation and reciprocal education on problem solving skills and educational self-concept scores

Source	Dependent Variable	Type III Sum of Square	DF	Mean Square	F	Sig	Partial Eta Squared
Group	Solving Problem Skills	24292.98	3	806966	53.15	0.001	0.51
	Educational Self-Concept	10835.24	3	3611.74	100.81	0.001	0.57
Error	Solving Problem Skills	9141.04	60	152.35			
	Learning Speed	2149.59	60	35.82			
Total	Solving Problem Skills	44378.98	67				
	Educational Self-Concept	13760.76	67				

Now, in the following using Bonferroni Post Hoc, the effect of the experimental groups (direct explanation and reciprocal education) together on dependent variables is compared (problem solving skills and educational self-concept).

Table 6- Bonferney post hoc test to examine differences in pairwise comparisons

The effect of experimental groups (direct explanation and reciprocal education) on the variables of problem solving skills and educational self-concept

Dependent Variable	Test Step

		Mean Difference	Std. Error	Sig.
Solving Problem Skills	Reciprocal Education	Direct Explanation	27.57	4.35	0.001
	Control Group		37.82	2.41	0.001
Direct Explanation	Control Group		23.47	4.43	0.001
Self-Concept	Reciprocal Education	Direct Explanation	13.24	2.11	0.001
Educational Self-Concept	Control Group		33.95	5.08	0.001
Direct Explanation	Control Group		20.71	2.15	0.001

In accordance with Table 6, the amount of mean of problem solving skills grades are more than direct explanation group in reciprocal education group and this difference is significant.

Also, the experimental group difference (reciprocal education and direct explanation) with control group has been significantly confirmed. Suming up, we can say that: the effect of reciprocal education and direct explanation on the amount problem solving skills of female students studying at fifth grade in Shiraz has been significant and the difference between mean of grades of problem-solving of reciprocal education group and direct explanation has been significant. Also, the difference of the experimental difference (reciprocal education and direct explanation) with control group has been significant. Suming up, we can say that: the effect of reciprocal education and direct explanation on the amount of educational self-concept of female students studying at fifth grade in Shiraz has been significant and this difference between grades of educational self-concept of reciprocal education and direct explanation has been significant.

Discussion & Conclusion:

The results of the present research showed that direct explanation and reciprocal education was effective on the amount of solving problem skills and educational self-concept of students. Also, the effectiveness of direct explanation and reciprocal education was different on the amount of problem solving skills and educational self-concept of students. In the effectiveness area of direct explanation and reciprocal education in raising problem solving skills, these findings is favorable to the results of the previous research (Yen, 2015- Luzale, 2012- Hosseinimehr, et. al. 2019-Imani, et.al. 2016). In explanation of this research based on the effectiveness of intervention of direct explanation and reciprocal education in problem solving skills of students, we can say that many students suffer from lack of

confidence to themselves in problem solving and lack of control due to experience for continous failure of lack of interest (Luzale, 2012). Using incentive plan and correction feedback exactly organizing educational content from simple to hard (using in direct explanation approach) cause to create successful experiences of learning and increase motivation level of learners; therefore, it results from self-confidence in problem solving and self-control in problem solving process in students.

Also, scholars in reciprocal education believe that using this method, we can help students to learn better and comprehend more deeply. Relying on reciprocal education, four sterategies (making question, summerizing, explanation, making complicated remarks and expecting future events) can be taught to students (Rezaei & Kermanizadeh, 2015; Mariska, etal. 2018); therefore, it seems that learners through learning four sterategies are able to increase the amount of confidence in solving different problems of life and have self-control with regards to problem solving process. In effectiveness area of direct explanation and reciprocal education on increasing educational self-concept, this finding is is in line with the results of previous research (Franz, et. al, 2020; Dicke, et.al. 2018; Ching & Shu, 2015; bdu & Sumarmo, 2013)

Summing up, we can say that intervention plans (direct explanation & reciprocal education) is effective on variable of educational self-concept of students. Explaining the findings of this research based on intervention effectiveness of direct explanation and reciprocal education in educational self-concept of students, we can say that in classes that direct explanation is taught, in comparison to traditional classes that individual practices and assessment of course aims are considered, teachers provide more opportunities for answering to students. Doabler and Fien's research (2013) supported the model of direct explanation and`stated that classes taught by direct explanation method comparing traditional classes considered indivudual practices and assessing course aims, teachers give more opportunities to the students to answer, on the other hand, in this method due to education nature with small and regular steps with many practices and repeatitions, students are able to increase learning speed and since it conforms to many steps of problem solving in different courses, explains the effectiveness of this educational method to increase learning speed and solving problem skills in students.

Also, one of the important factors in reciprocal education approach is scaffold, i.e. supporting one expert from being newcomer in using speech, to patterning and explaining cognitive processes. The first method is teacher-oriented and gradually it moves from beginner to supervising reviews and expects internal cognitive process. It means that speech is internally thought and placed intermediate of text and

decoding reader the cases of text; so, it is`expected that these educational collection that students are taught in reciprocal education, and develop the amount of problem solving skills and learning speed (Ching & Shu, 2015) and students who are able to learn speed and solving problem skills, the amount of educational self-concept is developed.

Also, the results of this research showed that the amount of effectiveness of reciprocal education is more than direct explanation in variables of problem solving and educational self-concept of students. Explaining this result, we can say that in traditional classes, usually teacher is only knowledge source, regulations and determiner and speaks more than others. Students are about inactive and do homework determmined by teacher. But in social constructivism classes (that reciprocal education is placed), people who must fulfil information as blank tablet or empty container, do not enter class. In these classes, students persuade another student to supervise their knowledge and actively learn solving problem skills. Also, in social constructivism approach on learning social areas is emphasized and knowledge in interaction is created. These approaches are newer and uses rich social beds for helping students to learn. In these classes, students participate types of challengeable activities with teacher and classates and practice to achieve awareness. When students achieve sterstegies working togther, they are qualified and contributory members in their class and develop in educational self-concept (Richard, etal. 2014). Also, in continous interaction of students in reciprocal education classes of solving problem skills, learning speed of them is developed. Therefore, we can say that the amount of problem solving skills and educational self-concept of students in education and learning process in reciprocal education classes comparing ordinary classes (direct explanation) are developed more.

In accordance with theory, the present research has several implicitions. Firstly, this research provides evidences in regards to the effectiveness of reciprocal education (Palsensekar & Brown, 1985) and direct explanation (Ostermann, 1992) that are models raised in reciprocal education area and direct explanation.

Secondly, showing the role of reciprocal education and direct explanation in problem solving skills and educational self-concept of students, it concentrates to the present gap in the field of using this group educational method on students and helps provide experimental evidences to remove this gap. In accordance with application, based on the results of the present research, providing educations required for reciprocal education area and direct explanation and learning basic principles of these models, people are able to reach the self-assessment and self-correction and therefore, using these strategies, the amount of awareness, cognitive strategies,

planning and self-review of students in learning process will be developed so that believe in their own abilities will be increased, and finally their self-concept will be increased. Therefore, it is recommended that holding educational workshop to be more familiar to psychologists and teachers in the field of education basic principles and direct explanation and how to use principles raised in this model affects students' growth and education, and helps to empower them. The limitation of this research is the participants of the study which is limited to female students studying at fifth grade in Shiraz; therefore, the generalizability of findings must be encountered with caution. In accordance with in this research, the gender differences were not studied, it is sugessted that in future research, the effectiveness comparison of reciprocal education and direct explanation should be considered among students (both male and female).

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