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The Impact of Postmethod Pedagogy on Academic Achievement, Self-Efficacy, Emotions, and Self Esteem According to the Dynamic Systems Theory

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Abstract

The current paper investigated the effect of postmethod pedagogy on senior high School students' achievement, academic self-efficacy, achievement emotions, and self-esteem. The participants of this study included 120 female students in Zahedan located in the Iranian province of Sistan and Baluchistan. They were randomly recruited and categorized into two control and experimental groups. The students' academic achievement was measured through a pretest. Subsequently, the Morgan-Jinks Student Self-Efficacy Scale (MJSES), Pekran Academic Achievement Emotions Questionnaire (AEQ) (2005), and Rosenberg Self-Esteem Scale (RSES) were distributed among the participants in both groups. The control group received instruction based on the conventional method, while instruction in the experimental group was based on the new method during the academic year. Upon the completion of the study, the achievements of both groups were measured again through a posttest. The data obtained were analyzed to reveal that postmethod played an important role in teaching and the use of this approach could develop academic achievement, self-efficacy, emotions, and self-esteem among senior high school students.

Keywords: Academic achievement; Academic emotions; Academic self-efficacy; Academic self-esteem; Dynamic systems theory; Postmethod pedagogy

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INTRODUCTION

In second language (L2) learning, it could be expected for some learners to be more driven than others. Dörnyei and Ryan (2015) pointed out that "even though emotions play a crucial role in our lives; they have been largely 'shunned' by Second Language Acquisition (SLA) scholars (p. 9)". According to Kumaravadivelu (2003), post method pedagogy comprises particularity, possibility, and practicality, which represent the theoretical principles that govern language teaching and learning. It is the post method pedagogy that could help go beyond and overcome the limitations of other methods (Kumaravadivelu, 2003).

Application of a Dynamic System (DS) Approach to the Psychology

The dynamic system (DS) theory can be used as an overarching framework to explain the interactions between different agents and elements of a system. However, while a system that has several identifiable elements may be complicated, it is not necessarily complex (Verspoor, & Lowie, 2007). A key focus of DS theory is to explore how the interacting parts of a complex system give rise to the system's collective behavior and how such a system simultaneously interacts with its environment. The focus has been changed into the idiosyncratic developmental difficulties in researching The dynamic system theory (DST). At the same time, different methodologies including complexity thought modelling (Larsen-Freeman & Cameron, 2008), retrodictive qualitative modelling (Dörnyei, 2014), and the four fundamental tasks consisting of the definition, description, trending, and establishment of cause(s) (Byrne & Callaghan, 2014) had been proposed.

In the early twentieth century, EFL practitioners and researchers argued that there was no single approach or method capable of bringing success into teaching a foreign language. These practitioners and researchers used critical pedagogy as a cornerstone of a new method called post method, defined by Brown (2007) as a rationale for language teaching and learning. This study aimed to identify the impact of post method pedagogy using Kumaravadivelu's 10 Macro strategies on learners' self- esteem, self-efficacy, academic emotion, and achievement. The following research question was, therefore, posed:

Does the Post Method Pedagogy (PM) pedagogy and its macro-strategies have an impact on EFL learners' academic achievement, academic self-efficacy, achievement emotions, and self-esteem?

To address any problems raised by the study and to answer related questions, the following null hypothesis was also drafted- subject to either confirmation or rejection at the completion of the study:

Post Method Pedagogy (PM) pedagogy and its macro-strategies have no impacts on EFL learners' academic achievement, academic self-efficacy, academic achievement emotions, and self-esteem.

Literature Review

Postmethod Pedagogy

Okazaki (2005) argued that classrooms are far from social and historical conditions. Norton and Toohey (2004), Pennycook (1991, 2001), Ramanathan (2002), Canarajah (1999, 2001), Morgan (1998) and Benesch (2001) all suggest that critical pedagogy or an alternative approach should be at the heart of language teaching. As Fathi and Hamidizadeh (2019) discussed, postmethod pedagogy is characterized by leaving methods-only arguments to find effective strategies to teach most appropriately and effectively while considering the practitioner's views and roles in preparing and teaching language materials.

Possibility

Highlighting and acknowledging the subjective positions of teachers and students, such as their gender, race, class, and ethnicity, recognizes that such sociopolitical elements which are brought into the classroom operate as a catalyst for identifying the form and social transformation.

Particularity

A particular group of teachers using a particular set of goals in a particular socio-cultural milieu within a particular institutional context. Elliott (1993) claims that a sound pedagogy cannot be constructed without a holistic interpretation of particular needs and situations. Particularity tends to facilitate the promotion of context-sensitive, location-specific pedagogy which is based on an accurate definition of local linguistic, cultural, political and social particularity.

Practicality

Practicality encourages teachers to develop their theories from their practice and provides them with meaningful guidelines (Kumaravadivelu, 1994). He proposes ten macro-strategies: Maximizing learning opportunities, Minimizing perceptual mismatches, Promoting Learner Autonomy, Activating Intuitive Heuristics, Integrating Language Skills, Raising Cultural Consciousness, Facilitating Negotiated Interaction, and Foster Language Awareness Contextualizing Linguistic Input, Ensuring Social Relevance.

Academic Achievement

Academic achievement was discussed in the experimental research conducted by Pekran et al. (2002). In its broadest sense, academic emotions are the ones observed and experienced in an academic context. The results obtained from the studies conducted by Pekrun, Goetz, Titz, and Perry (2002) showed that academic emotions are significantly related to the students' motivation, learning strategies, cognitive resources, self-regulation, and achievement. Their findings demonstrate that

effective cognitive research in education should be regarded. Emotions might influence students' achievement (Kleine, Goetz, Pekrun & Hall, 2005). Kelly (2004) wrote that emotions could be affected by an individual's thoughts, ideas, and behavior. Emotions, therefore, play a crucial role during the education process with their primary function being seen to protect specific social goals (Oatley, 2000).

Academic Self-Efficacy

In an instructional context, self-efficacy refers to the confidence a student has in his or her ability to achieve specific academic tasks. A broader definition encompasses a belief that ability is not fixed but can grow with effort. Research conducted by Zimmerman (2000) found that students with higher levels of self-efficacy will engage more, work harder, and persist longer when they encounter difficulties. It is an individual's belief or level of confidence about what he or she can and cannot do across different tasks and situations. Self-efficacy can, therefore, make a difference in how people think, feel and act.

Self- efficacy can be general or specific:

• General self-efficacy relates to the beliefs in one's general capacity to perform tasks.

• Specific self-efficacy refers to the beliefs in one's ability to perform specific tasks (e.g., reducing smoking, increasing healthy eating).

Academic Achievement Emotion

Dörnyei and Ryan (2015) argue that despite emotions play a crucial role in our lives; they have primarily been "shunned" by Second Language Acquisition (SLA) scholars. This statement recognizes that the role of positive emotion, although vaguely recognized in the field, still has a long way to traverse before positive emotion assumes the place it deserves (Dulay & Burt, 1977; Gardner, 1985; Krashen, 1982; Schumann, 1978), but it indeed seems to have remained a little bit in the shadows of the vibrant research into negative emotions, mostly about foreign language anxiety

In an instructional environment, positive and negative emotions are made up of a complex process. For Kelly (2004), positive and negative emotions influenced university students' attention, motivation and limited their performance. Negative emotions decrease learners' academic achievements since they can negatively affect their concentration on the target subject, comprehension, and intellectual functions. Thus, teachers and instructors must pay attention to both positive and negative emotions. It is evident that students' motivation and academic achievement can be impacted positively and that negative attitudes towards learning situations, classes and tests held by both teachers and students can be changed into positive ones.

Academic Self-Esteem

Self-esteem consists of thoughts, feelings, and opinions we have about ourselves; it means that self-esteem is not fixed. It can change,

depending on the way we think in response to our thinking. Over time, negative thinking can serve to lower self-esteem. In sociology and psychology, self-esteem reflects a person's overall subjective emotional evaluation of his or her worth. It is a judgment of oneself as well as an attitude toward the self. Over the past two decades, a large number of studies have examined self-esteem (Feingold, 1994; Kling et al., 1999; Orth, Robins and Widaman, 2012; Orth, Trzesniewski, and Robins, 2010; Robins et al., 2002; Shaw, Liang and Krause, 2010; Trzesniewski, Donnellan and Robins, 2003; Twenge and Campbell, 2001). Therefore, the present study aimed at clarifying the trajectory of self-esteem during adolescence and young adulthood and identifying moderating factors of the level and shape of the trajectory.

Q. *Do PM pedagogy and its macro-strategies impact EFL learners' academic achievement, academic self-efficacy, achievement emotions, and self-esteem?*

METHODS

Research Design

The data were collected from four testing sessions- two control and experimental groups' achievement measurement as pre and posttests as well as administering three questionnaires Morgan-Jinks Student Self-Efficacy Scale (MJSES) (1999), Pekran Academic Achievement Emotions Questionnaire (AEQ) (2005), and Rosenberg Self-Esteem Scale (RSES) (1965)) to two groups after both their pre and posttest sessions to determine EFL learners' academic self-esteem, academic self-efficacy, academic emotion, and academic achievement. A major part of this research focuses on the systematic categorization of features and creating a statistical model that increases the data's reliability and validity.

Participants

In this study, 120 participants were recruited through purposive sampling. They were high school students at grade 12. Participants were recruited from five public high schools and they all had English Language in their curriculums at school. They had two English classes each week and had no opportunities to learn and practice English language out of the classroom. The participants were 17 to 18 years old. All were students in grade 12 at Senior High Schools in Zahedan in the Iranian province of Sistan and Baluchistan. Purposive sampling was considered to be a suitable approach on the basis that participants could be as typical or representative of the target population (Ary, Jacobs, Sorensen, and Walker, 2014) and was relevant to the issue being studied (Gray, Williamson, Karp, and Dalphin, 2007). This conclusion as to representativeness was considered reasonable for two reasons. Firstly, the educational system in Iran requires that all state-run high schools adopt similar approaches and secondly, the participants who have studied the same courses had similar educational backgrounds. All participants were randomly organized into two control (60 received

instructions using the conventional method) and experimental (60 received instructions using post method pedagogy) groups. Both groups received the same amount of instruction time, i.e., two sessions every week; each session lasted 90 minutes for nearly 30 sessions. As the Iranian Ministry of Education teacher, the researcher of the current study attended all the classes in each session of both groups.

Performance of Participants in TOEFL Test as the Pretest

To ensure the comparability of both groups, the control and the experimental groups' performances were compared. All the participants were administered the TOEFL general proficiency test as the pretest to ensure they were all homogenous. This test is considered to be a reliable and valid index of general English proficiency (Phillips, D, 2001; PBT Complete Test/p.515-538) .As table 1, indicates, the language proficiency mean and the standard deviation for the control group amounted to 458.43 and 30.31, respectively, and the evaluated mean and standard deviation for the treatment group amounted to 460.63 and 34.19, respectively. An independent sample t-test was run to determine any significant difference between the mean scores.

Table 1

Descriptive statistics for the results of TOEFL general proficiency test

Groups		N	Mean	Std. Deviation	Std. Error Mean
TOEFL Proficiency Test Results	Control Group	60	458.43	30.331	3.915
	Experimental Group	60	460.63	34.19	4.414

As shown in Table 2, the P value is more than 0.5 (0.5> 0.05), indicating that both groups are homogenous and there are no statistically significant differences between the control and experimental groups on the pretest in overall English proficiency. As a result, it can be consummated that the two groups were relatively at the same level of proficiency. On that account, any incongruity between the two groups that may arise after the program's application will be attributed to the effect of the type of instruction (traditional or postmethod) on groups' achievement.

Table 2

Independent-samples t-test results for the pretest of the treatment and control

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2tail)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
TOEFL Proficiency Test Results	Equal Variances assumed	.459	.500	-.37	118	.710	-2.2	5.9	-13.88	9.48
	Equal variances not assumed			-.37	116.3	.710	-2.2	5.9	-13.88	9.48

Instruments

Based on the research question posed earlier, particular kinds of research instruments were used in conducting this study. The researcher used the TOEFL general proficiency test as pre and posttests and three questionnaires including MJSES , AEQ, and RSES which distributed to the participants of both groups in pre and posttest sessions after taking the TOEFL general proficiency test in order to examine the effect of postmethod pedagogy on three academic self-efficacy, academic achievement emotions, and self-esteem variables.

The same three questionnaires were distributed to the learners in both control and experimental groups, before and after the experiment (treatment), to make sure how much the techniques applied in the class were useful in affecting their achievement, academic self-efficacy, academic achievement emotions, and academic self-esteem. The questionnaires used to collect quantitative data were in two parts. The first part gathered participants' demographic information and the second part included a Likert-scale format using Strongly Disagree (=1) to Strongly Agree (=7) options for participant responses.Self-Esteem Scale (Rosenberg, 1965), is a ten-item Likert scale with items answered on a four-point scale from Strongly Agree to Strongly Disagree. . Points from 0 to 3 are given to the responses to each statement of the questionnaire (SA=3, A=2, D=1, SD=0). Items 2, 5, 6, 8, 9 which are identified with asterisks in the questionnaire are reverse scored, that is, SA=0, A=1, D=2, SD=3.

Then, the scores for the ten items are summed (The higher the score, the higher the self-esteem). Cronbach's alpha for the present study indicated as follows: .81 for talent, .84 concerning context as well as .78 for effort. The reliability of the test instrument was tested by Cronbach's alpha. The estimated reliabilities, which were calculated through the application of Cronbach alpha formula, amounted to be r=0.71 for the posttest and r=0.81, r=0.89 and r=0.91 for three questionnaires, respectively. The results revealed that the test and questionnaires were reliable enough to be applied in this study.

Procedure

Each group was administered two equivalent tests in its pre and posttest sessions to measure the group's achievement. The academic achievement was measured at the beginning of the study as a pretest. Then, the two groups received two different conventional and postmethod approaches' instructions in their classrooms during the year. Two groups' achievement was measured again at the end of the study as a posttest to evaluate the effect of two teaching approaches including conventional and postmethod on participants performance. At the end of each pre and posttest session, the participants of both groups had to respond three questionnaires to investigate the effect of a postmethod approach on academic self-efficacy, achievement emotions, and academic self-esteem variables.

After concluding the student's questionnaire results, the students of both groups were instructed in thirty sessions through applying conventional and postmethod approaches. Then, when the treatment was over, both groups were given the achievement test to estimate their increase in their academic achievement and academic self-efficacy, academic achievement emotions, and academic self-esteem. Since the quantitative analysis of the collected data was done through descriptive statistics such as calculating the frequency, mean and standard deviation to investigate the score difference, SPSS was used for data analysis. The results of pre and posttests and the participants' responses to three questionnaires were analyzed using the Independent Sample T-Test and One-Way ANOVA statistical procedure to investigate within and beyond groups' effects of the postmethod approach on four dependent variables.

DATA ANALYSIS AND DISCUSSIONS

Academic Achievement

This study aimed to investigate the difference between mean scores of four testing sessions obtained from high school students. Two equivalent tests were administered to the participants of two control and experimental groups on four different testing occasions. One-Way ANOVA was used to compare the mean scores of four testing sessions to reach the degree of difference and significance level. Then, One-Way ANOVA test was used to

reject or confirm the hypothesis based on the first part of the research question. To achieve the goal, parametric statistical analyses of one-way ANOVA should be run to probe the research questions. The quantitative data should be examined to be homogeneous in normal distribution and variances to satisfy these testing assumptions in our study by conducting statistical tests. Shapiro-Wilks and Kolmogorov-Smirnov statistical tests were used to provide objective judgment of normality of data distribution.

Table 4

Test Normality Assumption

Tests of Normality							
	Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Scores	Control Pretest	.098	60	.200*	.971	60	.155
	Experimental Pretest	.101	60	.200	.973	60	.201
	Control Posttest	.103	60	.177	.963	60	.068
	Experimental Posttest	.113	60	.056	.955	60	.026

According to the results of two Shapiro-Wilks and Kolmogorov-Smirnov tests (Table 4.) and given that p=.2 for pretest of control group, p=.2 for pretest of experimental group, p=177 for posttest of control group, and p=.05 for posttest of experimental group, it is concluded that each of the levels of the independent variable are normally distributed. Therefore, the assumption of normality has been met for this study. Table 5, reports Levene's Test of Homogeneity of Variances, F (3,236) =.274, p=.844, with an alpha level of .844, p (.844) that shows no significant difference. According to the variances analysis, Levene's F Statistic has no significant value and the assumption of homogeneity of variances is not violated p (.844) < α (.05). It means that our data had similar variances and we need using parametric statistical tests to compare the mean scores of two groups obtained from four testing sessions.

Table 5

Test of Homogeneity of Variances

Scores			
Levene Statistic	df1	df2	Sig.
.274	3	236	.844

First, descriptive statistics are used to gain a better view of the data. For the first analysis, the one-way analysis of variance (ANOVA) was used to determine whether there was any statistically significant difference between the means of two independent (unrelated) groups. It was also used to compare the means of two sets of scores of each group (related group) obtained in two different testing sessions.

Table 6

Descriptive Statistics of Two Groups' Mean Scores

Descriptive

Scores								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Control Pretest	60	458.43	30.33	3.91	450.59	466.26	400.00	520.00
Experimental Pretest	60	460.63	34.19	4.41	451.8	469.46	395.00	565.00
Control Posttest	60	459.86	30.94	3.99	451.87	467.86	408.00	525.00
Experimental Posttest	60	462.40	29.64	3.82	454.74	470.05	413.00	518.00
Total	240	460.33	31.16	2.01	456.37	464.29	395.00	565.00

According to the results, control group mean scores on pretest (M=458.43, SD=30.33) were lower than that of the posttest (M = 459.86, SD=30.94). Experimental group mean scores on pretest (M=460.63, SD=34.19) was lower than that group's mean score on the posttest (M=462.40, SD=29.64) (Table 6. and Graph 1). Additionally, of two posttest sessions of the test taken by testing groups, the highest mean scores was found in the experimental group, with a relatively higher mean score by 2.54 points.

Academic Self-Efficacy

Table 7

Descriptive Statistics of Groups' Self-Efficacy in Pre and Posttests (N=120)

Variables	Test	Experimental group		Control group	
		M	SD	M	SD
Talent	Pretest	35/12	4/1	33/02	4/6
	Posttest	39/23	4/7	33/83	4/2
Context	Pretest	35/42	4	33/80	3/9
	Posttest	40/83	5	35/50	4/6
Effort	Pretest	10/97	2	10/05	1/7
	Posttest	12/85	2/5	10/73	2/4
Total (Self-efficacy)	Pretest	81/50	7	76/87	7/9
	Posttest	92/92	8	80/07	6/8

A short look at the means will reveal that there is a difference between the two groups but to see whether it is significant or not, an Independent Sample T-Test was run. Generally speaking, an independent sample t-test is used to investigate the difference between two groups or variables. In social sciences, the significant level is set in .05 and here Sig. (2-tailed) is .000; smaller than significant level (Sig. 2-tailed: .000< .05), so t-test is significant at the level of .05.This shows that there is a statistically significant difference between the performance of the two groups of respondents to MJSES and one of the groups outperformed the other. By using the first table, one can conclude that the experimental group outperformed the control group. Based on the results of independent sample t-test, the null

hypothesis is rejected, and it can be claimed that there is a significant difference in consistency between self-efficacies of Iranian EFL learners, before and after applying postmethod pedagogy and this method has a significant effect on the self-efficacy of the EFL learners.

Academic Achievement Emotion

Table 8

Descriptive Statistics of Groups' Positive and Negative Emotions in Pre and Posttests

Academic Emotions	Test	Experimental group		Control group	
		M	SD	M	SD
Positive academic emotion	Pretest	82/97	9/7	78/32	16
	Posttest	93/27	8/6	79/85	10
Negative academic emotion	Pretest	133/15	21/4	124/47	29/9
	Posttest	120/83	26/6	123/37	33/6

Table 8 displays the results of the pre and posttests for the treatment and control groups. The computed academic positive achievement emotion mean and standard deviation of the participants in the experimental group equaled 82.97, and 9.7, respectively obtained from pretest. And the computed academic positive achievement emotion mean and standard deviation of the participants in the experimental group equaled 93.27, and 8.6, respectively obtained from posttest and the estimated academic negative achievement emotion development mean and standard deviation of the participants in the experimental group amounted to 133.15, and 21.4, respectively received from pretest. And the computed academic negative achievement emotion mean and standard deviation of the participants in the experimental group equaled 120.83, and 26.6, respectively obtained from posttest. The results show that applying post method approach in EFL classrooms develop positive academic achievement emotion and decrease negative academic achievement emotion. But such a difference is not seen in the control group for both positive and negative emotions. An inspection of the mean scores showed a considerable difference between the experimental and control groups regarding both positive and negative emotions.

Academic Self-Esteem

Table 9

Descriptive Statistics of Groups' Self-Esteem in Pre and Posttests (N=120)

Variable	Test	Experimental group		Control group	
		M	SD	M	SD
Self-esteem	Pretest	16/47	3/3	15/20	3/5
	Posttest	22/45	3/1	16	4/2

Certainly, the findings are strictly grounded in the fact that students' self-esteem has much to do with postmethod approach. Comparison of the results confirms that the tenets of the postmethod approach being taken in the classroom, and the application of its elements boost is in line with the improving the students' self-esteem. Correspondingly, it also proves that there is a significant alteration in the students' self-esteem after the treatment.

What is the Effect of Post Method Pedagogy on Academic Achievement?

Statistics contained in Table 10, above, show a significant effect: 0.01 level (F (117.1) = 18.09, P = 0.01). This suggests that there was a significant difference between the control and experimental groups concerning "academic achievement."

Table 10

ANOVA Test Results for the Effect of Postmethod Pedagogy on Academic Achievement

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Correlated Model	293/8	2	293/8	62/7	0/01	0/517
Intercept	369/5	1	369/5	78/9	0/01	0/403
Covariance	515/5	1	515/5	110/04	0/01	0/485
Group	84/7	1	84/7	18/09	0/01	0/134
Error	548/06	117	4/7			
Total	23195	120				

By comparing the means of "academic achievement" of the groups in table 10, it can be concluded with 99% confidence that postmethod pedagogy increased "academic achievement" amongst participants to a greater degree than those in the control group who exposed it to the conventional method.

What is the Effect of Postmethod Pedagogy on Self-Efficacy ?

Multi MANCOVA was used to examine the effect of postmethod pedagogy on self-efficacy, and the underlying assumptions of using this test are discussed below. The most fundamental assumption of MANCOVA, homogeneity of the covariance matrix, was examined using the Mbox. ($P = 0.92$, $df_2 = 100883.3$, $df_1 = 6$, $F = 6$, Box s = M = 2.08) and a significance level of more than 0.05 was demonstrated the meeting of homogeneity assumption of the covariance matrix.

Levene's Test was also used to examine the homogeneity of variances, with the results illustrated in Table 11.

Table 11

Levene's Test of Equality of Error Variances

Variables	df 1	df 2	F	Sig.
Talent	1	118	1/6	0/21
Context	1	118	3/1	0/08
Effort	1	118	1/9	0/17

A significant level of F indicated that homogeneity of groups' variance in all three components was established.

Table 12

MANCOVA Test Results for the Effect of Postmethod Pedagogy on Self-Efficacy

Effect	Wilks Lambda	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Group	0/61	24/6	3	113	0/01	0/395

Information in table 12, shows that the Wilks Lambda Index is significant at 0.01. ($\eta^2 =$ 0.395, P = 0.01, F = 24.6, Wilks Lambda = 0.61). This suggests that a statistically significant difference exists in at least one of the components of "self-efficacy" between groups. While the MANCOVA Test can establish the difference between groups, it does not show which group on which scale is different from the others. To address this and to determine which differences are related to which of the components, a single-variable test with type 1 correction (Bonferroni) was done; that is the tests with a significance or difference level below 0.016 are considered significant.

Table 13

Self-Efficacy Means Comparisons of Two Control and Experimental Groups

Source of effect	Variables	Sum of Squares	df	Mean Square	f	Sig.	Partial Eta Squared
Group	Talent	609/3	1	609/31	33/11	0/01	0/224
	Context	678/8	1	678/79	33/8	0/01	0/227
	Effort	97/6	1	97/61	17/3	0/01	0/131
Error	Talent	2116/5	115	18/4			
	Context	2308/3	115	20/07			
	Effort	648/8	115	5/6			
Total	Talent	163390	120				
	Context	178348	120				
	Effort	17521	120				

According to the results obtained, with the control of the pretest effect and considering the Bonferroni calculated alpha (0.016), the F-value obtained in all three components of "self-efficacy" is significant. There is a significant difference in the posttest scores of the "talent," "context," and "effort" components between the groups. As shown in Table 13, the mean score of "talent," "context" and "effort" in the experimental group, increased significantly at the end of treatment. Moreover, the effect size of the "talent" in the variance of "self-efficacy" was practically 0.22 which showed 22.4% statistically whereas the variance concerning

the "talent" only indicated 22.7% as well as what associated with "effort" was 0.131 in which 13.1% (small) portion of "effort" component described in the variance of. Given these results, it can be asserted with 99% confidence that the use of postmethod pedagogy increased "self-efficacy" amongst participants.

What is the Effect of Post Method Pedagogy on Academic Achievement Emotion?

MANCOVA analysis of covariance was conducted to investigate the effect of postmethod pedagogy on academic achievement emotion with the Mbox by confirming the homogeneity of the covariance matrix (P = 0.053, df_2 = 2506320, df_1 = 3, F = 2.6, Box s M = 7.8).

Table 14

Levene's Test of Equality of Error Variances for Academic Achievement Emotion

	F	df 1	df 2	Sig.
Positive academic emotion	1.272	1	118	0/26
Negative academic emotion	2.864	1	118	0.09

Based on Table 14, the F test confirms the homogeneity of groups' variances in both variables.

Table 15

MANCOVA Test Results for the Effect of Postmethod Pedagogy on Academic Achievement Emotion

Effect	Wilks Lambda	F	df 1	df 2	Sig.	Partial Eta Squared
Group	0/65	31/3	2	115	0/01	0/352

The significance level of the Wilks Lambda Index is 0.01, establishing that, with the pretest control, the mean difference between the groups is significant concerning "academic achievement emotion" (η^2 = 0.352, P = 0.01, F = 31.1, Wilks Lambda = 0.65) (Table 15). Given this, the one-variable analysis was used to find out the differences in "educational excitements." The results of that analysis are illustrated in Table 16 below.

Table 16

Means Comparisons of Control and Experimental Groups' Academic Achievement Emotion

Source of effect	Variables	Sum of Squares	df	Mean Square	f	Sig.	Partial Eta Squared
Group	Positive academic emotion	4290/8	1	4290/8	57/4	0/01	0/331
	Negative academic emotion	3168/3	1	3168/3	9	0/01	0/072
Error	Positive academic emotion	8672/1	116	74/8			
	Negative academic emotion	40854/1	116	352/2			
Total	Positive academic emotion	914693	120				
	Negative academic emotion	2073	120				

Table 16, demonstrates that taking into account the effect of pretest and observing 0.025 as the first type error of the structure surface, the difference between the groups is significant in both variables. These results indicate that the mean of "positive academic emotion" for participants who experienced postmethod pedagogy increased significantly, whereas the mean scores of the "negative academic emotion" show a decrease after the treatment. On this basis, it can be stated with 99% confidence that the use of postmethod pedagogy increased "positive academic emotion" and decreased "negative academic emotion." Consequently, 33.1% of the variance can be explained in the best linear grades combination of "positive academic emotion" attributed to the groups. The table 16. Showed statistically decreasing circumstances to 7.2 percent around the "negative academic emotion".

What is the Effect of Postmethod Pedagogy on Self-Esteem?

ANOVA (Covariance Test) was used to answer the research question regarding the effect of the postmethod pedagogy on self-esteem. The assumptions underlying the statistical model are discussed below:

Calculations for the investigation of this assumption showed that the obtained F was not significant for the covariance-group (F=0/1, DF=116.1, P=0/76) and the homogeneity of the regression slopes was met.

Levene's Test was used to examine the homogeneity assumption of groups' variances, and its calculations are summarized in Table 17 below which shows a level of significance greater than
0.05, meaning that the assumption of equal variances is acceptable.

Table 17

Levene's Test Results for Self-Esteem Variable

F	df1	df2	Sig.
.492	1	118	.484

Table 18

ANOVA Test Results for the Effect of Postmethod Pedagogy on Self-Esteem

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Correlated Model	161/4	3	808/2	89/6	0/01	0/605
Intercept	669/04	1	669/04	74/2	0/01	0/388
Covariance	302/98	1	302/98	33/60	0/01	0/223
Group	1066	1	1066	118/2	0/01	0/503
Error	1054/93	116	9/02			
Total	46793	120				

The values contained in Table 18, illustrate the effect of postmethod pedagogy on the self-esteem of participants indicating a level of 0.01(F (116.1) = 118/2, P = 0.01) which suggests a significant difference between the control and experimental groups in the posttest "self-esteem." Then, it can be concluded with 99% confidence that the new educational

method increased students' self-esteem significantly. Furthermore, the effect size indicated that approximately %50.3 of the students' "self-esteem" was influenced by the new teaching method.

CONCLUSION

According to the study, self-esteem enables students to walk the difficult path of life, manage ups and downs, cope with tough situations, and achieve our goals. More research studies are required concerning cognition and increasing self-confidence. The findings indicated a significant difference in "self-esteem" between those exposed to postmethod pedagogy and those whose experiences had been restricted to conventional methods. The use of new-method pedagogy, however, resulted in a significant increase in students' self-esteem. The study also found significant differences on "talent," "context" and "effort" demonstrating that using postmethod pedagogy could increase the self-efficacy.

The findings of this study also demonstrated that postmethod pedagogy impacts academic emotion, causing a significant increase in "positive academic emotions" and decreasing the level of "negative academic emotion." In general, use of postmethod pedagogy, at classrooms, can increase academic achievement to a greater degree in comparison to conventional methods in language teaching.

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