

The Analysis of the Effectiveness of Emotional Processing Strategies on Academic Adjustment and Academic Engagement of the Students in Kerman City, Iran

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Abstract

Background: Emotions accompany humans from the old days and have played their roles in the lives of human beings; a wide range of emotional instability and extremity and the adjusting dimensions of emotion have formed a series of behaviors. Besides, everyone's belief and cognition about one's abilities affect each moment of the educational and life stages. The present paper aimed to analyze emotional processing strategies' effectiveness on students' academic adjustment and engagement.

Materials and Methods: The research method is a quasi-experimental one with a non-equivalent control group pretest-posttest design; the research community includes all the boy students in the first grade of high school in the academic year 2019-2020. Thirty cases were chosen randomly and substituted in two groups of 15 cases (an experimental group and a control group). The experimental group then received instruction and intervention for eight sessions, but the control group received no instruction. After the end of the instructional sessions, the posttest had been taken. The used instrument in this research includes the adjustment questionnaire of Singha and Singh's (1993), and Zerang academic engagement questionnaire (2012). For considering the validity and the data analysis, Multivariate Analysis of Covariance (ANCOVA), Multivariate Analysis of Variance (MANCOVA), and SPSS V.22 were used.

Results: The results have shown that the strategies embedded with emotional processing have more effectiveness in improving academic adjustment compared to academic engagement. The results also have shown that emotional processing strategies' effectiveness has significant relationships with academic engagement and adjustment at $p < 0.05$.

Conclusion: According to the research findings, teaching interventional strategies of emotional processing helps increase the students' academic adjustment and engagement.

Key Words: Academic Adjustment, Academic Engagement, Effect, Iran, Students.

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1- INTRODUCTION

Indubitably, adolescence is regarded as the most critical stage of human evolution (1). These maladjustments are highly observed in school environments (2). The more advanced the society becomes, the higher the significance would be attributed to the scientific expertise and as a result to the scientific advancement, one of the essential guardians of this issue in all societies are the educational institutes that would continuously follow the factors that would affect the advancement of this process and in fact, would guarantee the academic advancement of the new generation. These factors are manifold and miscellaneous. One of these variables is the variable of academic engagement. The studies have demonstrated that if the students were more engaged with the academic issues and learning assignments, we would be more hopeful of their scientific success. A teacher's code of success encourages the learners to learn and interfere in the education process to be propelled to active learning (3).

The students in academic situations would experience various emotions. Emotion has relationships with motivation, learning strategies, cognitive sources, self-governing learning and academic advancement that would affect mental and physical health. Despite this, emotions, to a lesser degree, have any role in motivational or educational researches (4). Human beings have experienced different emotions in their lifetime and have affected their life path and process, and education. Some emotions have transformed human lives, and some have involved them in a very complicated manner; some act quite consciously and some others quite unconsciously. This broad scope of emotional strategies made researchers confront with difficulty in considering various dimensions of it. Besides, teaching emotional strategies have played a vital role in human beings'

evolution. Emotions like fear and anger for keeping primitive humans safe from any injuries frequently have helped them, and emotions like happiness and love helped human survival and advancement. Because of the active essence of the emotions and their role in the psychological and social processes, in recent years, the idea of emotional processing strategies entered the literature of psychology. Dividing emotions into two categories of positive and negative indicates that each group of these emotions could function for human beings; in other words, according to the functionalist approach, emotions would be analyzed concerning their role (5). The functionalists would involve emotion in the necessary behavioral responses, arranging, decision-making, enhancing memory function for the critical events and facilitating the inter-personal relationships.

Nevertheless, in the same vein that emotions could be helpful, they could also be hurting. It is based upon this idea that the importance of the emotions would appear in adjustment, and the relevant self-efficacy beliefs would be essential for helping humans in becoming more adjusted with the occasions; for instance, the communicative function of the emotions could help people to give others information about their internal feelings and their behavioral circumstances (6). According to this, emotions would play a critical role in the interpersonal relationships, and the education process and the instruction of the emotional processing strategies would aid people's adjustment in these relationships; the adjustment is a process in which every individual for adapting oneself to the internal pressures and the external requirements would make efforts (7). An individual would enjoy adjustment when making a healthy and significant relationship with oneself and their social environment. If an individual could not make a pleasant and effective relationship

with one's own environment, it would be enumerated as a maladjusted person. Besides this, the adjustment has various arenas. One of the most significant arenas in the adjustment domain is the concept of academic adjustment. The academic adjustment depends on the individual's adjustment with the academic conditions, environment, expectations, requests and the social structures governing schools' environment. In the last two decades, the academic engagement due to the broadness in describing the students' motivation and learning and a vital predictive factor for their functional outcomes, their advancement and success at school, have been noticed by the researchers and the coaches (8). Most studies have demonstrated that higher engagement is associated with better marks and behaviors, higher self-confidence and higher academic adjustment in school (9).

National Research Council and the Medical Institute (2004) believe that the engaged students show more enthusiasm for participating in academic activities. They also show more effort, persistence, and self-governing behaviors and step out of their comfort zone to challenge themselves and enjoy the challenge and learning. The academic engagement is a frame that was first propounded for perceiving and demarcating the academic failure-dropout and became the center of focus as the ground and basis for the modifying efforts in the realm of teaching and training. Academic engagement embeds the behavioral, cognitive and motivational dimensions (10). According to the achieved results of various research (11-13), it is demonstrated that by teaching cognitive and social problem-solving skills, the students' performance would improve social problem-solving, decrease undesirable aggressive behaviors, quit and change social purposes. Also, cognitive enrichment interventions emphasize cognitive processing, and their

effectiveness has also been highlighted in various variables (14, 15). As in the academic and educational realms, new interventions focus on emotional and cognitive processing; their effectiveness has been much less compared. In the previous research, the academic advancement and the background have been emphasized, and the surrounding variables and the prerequisite of academic growth like adjustment, academic engagement, and self-disabling were much less noticed. The current research aims to consider teaching the emotional processing strategies on academic adjustment and engagement of the first grade high schools students. Therefore, this research attempts to consider the following hypotheses.

2- MATERIALS AND METHODS

The current research is a quasi-experimental one with a non-equivalent control group pretest-posttest design. The current research's statistical community comprises the first-grade high school students in Region No. 2, Kerman City Ministry of Education, in 2019-2020. Concerning the quasi-experimental design of the research, for the sample volume, Cohen's Table is used with assuming the power of the test as (0.80), the effect size of (0.50), and the test error of (0.05) for each group of 15 cases that were randomly chosen. After choosing and determining the groups for study (an experimental group and a control group), at first, a pretest was taken for both mentioned groups according to the previous planning. Then eight sessions of the educational interventions (a 45-minute session per week) are described in the following Table for the experimental group; however, the control group subjects have not received any instruction. Then, the results of the performed interventional instruction were evaluated one month later.

2-1. The Educational Programs of the Emotional Processing Interventions

Teaching interventions of the Emotional Processing Strategies have been implemented during eight 45-minute sessions per week (Table.1).

Table-1: A summary of the emotional processing strategies intervention sessions.

One session prior to the intervention	Meet and greet with the students, making connections and exchanging greetings, explaining research objectives and initial pre-research evaluation, interacting and conceptualizing the test based on the compatibility and educational involvement questionnaires.
First session	Review of the previous session (awareness of positive emotions such as happiness, love, and fondness) and recognizing positive emotions and the necessity to use them, and mentioning examples using mental images, assigning the trainees the homework of writing down their positive emotions and recording them in the respective forms.
Second session	Review of the previous session, spreading awareness regarding methods for controlling negative emotions and how to use positive emotions as a means toward educational processes effectively and efficiently, giving the students a series of useful assignments to train at home aiming to develop a better understanding of their emotions.
Third session	Review of the previous session, asking the students about memorizing information, asking the reasons preventing them from memorizing educational materials, and finding the root causes of why some data and materials are easy to forget.
Fourth session	Review of the previous session, spreading awareness about negative emotions (anxiety, sadness, anger, and hatred), recognizing negative emotions and the need to use them, and mentioning examples through mental imaging, giving the students an assignment writing down their negative emotions and recording them in the respective forms.
Fifth session	Review of the previous session, training the students to accept positive emotions without judgment, assigning homework, and inquiring the parents and close friends regarding the students' level of positive emotions and recording them in the respective forms.
Sixth session	Training the students with the same material of the previous session and assigning them the same homework, this time regarding negative emotions and the viewpoint structure regarding one's self and memory.
Seventh session	Teaching reevaluation and expressing negative emotions: a review of the previous session, teaching the mental experience of about negative emotions (anxiety, sadness, anger, and hatred), introducing the improper means for expressing these emotions and how to prevent them.
Eighth session	Review of all previous sessions, discussing the delivered materials and the extent of tangible changes in compatibility processes and educational involvement after the test conduction.

2-2. Academic Engagement Questionnaire

Zerang introduces an academic Engagement Questionnaire in 2012 (16). In his research, he has used the researcher-made questionnaire for measuring academic engagement. At first, the academic engagement components, cognitive engagement, motivational engagement, behavioral engagement, and 45 proportionate items from the theoretical fundamentals (Linnenbrink and Pintrich Theoretical Model) have been derived. After interviewing with the theoreticians, the items were reduced to 41, and then according to the items, some statements have been arranged and have been implemented in the preliminary

questionnaire-based study with 38 items. The components of the cognitive engagement with the questions 1, 2, 5, 6, 9, 10, 13, 14, 17, 18, 21, 22, 25, 26, 29, 30, 33, 34, and 37; the motivational engagement with the questions 3, 7, 11, 15, 19, 23, 27, 28, 31, and 35; and the components of the behavioral engagement with the questions 4, 8, 12, 16, 20, 24, 32, 36, and 38, have been measured. The reliability of all questionnaires is gained 92%, with 38 questions in the preliminary phase. The subscales' internal homogeneity for the cognitive engagement would be 84%, for the behavioral engagement 76%, and the motivational engagement 86%. Also, the form the theoretical principles,

Questionnaire's total reliability in the final phase is gained 90% with 38 questions, and the internal homogeneity of the subscales for the cognitive engagement would be 83%, and 73% for the behavioral engagement, and 80% for the motivational engagement. The scoring method of this questionnaire based on the 5-point Likert scale is presented in **Table.2**. The reliability of the academic engagement questionnaire is calculated by determining the face reliability and content reliability with the expert examining their adaptation with the theoretical basis by three experts in Educational science. The academic engagement components would be derived

and for each component, some states would be arranged. For gaining the score of each dimension, the aggregated score related to either question of that dimension has to be added, and for gaining the total score of the questionnaire, all questionnaire questions have to be added. These scores would have a range of 38-190; it is taken for granted that the higher the marks, they would be indicative of the higher amount of the academic engagement of the respondent and on the contrary, the lower the score levels, they would be indicative of the lower amount of the academic engagement of the respondent.

Table-2: Scoring the questionnaire based on a 5-point Likert scale.

Item	Always right	Sometimes right	Sometimes right and sometimes wrong	Sometimes wrong	Always wrong
Score	5	4	3	2	1

2-3. Adjustment Questionnaire of the High School Students

For the first time, this questionnaire was provided by Singha & Singh in 1993, and it has been translated and edited by Karami in 1998 (17). This test aims to separate the attendant high school students with reasonable adjustment (age group of 14-18) from those students with weak adjustment in three adjustment domains (emotional, social and educational). This questionnaire has 60 questions and embeds three emotional, social and educational components, and according to the ranges of two-choice options with questions like (when your classmates borrow your books and notebooks, do you lend them with happiness?) have dealt with the evaluation of the students' adjustment. In this research, the students' adjustment implies the respondents' scores after answering 60 item questions of the adjustment questionnaire. The questionnaire is designed and codified according to the **Table.3**, including different dimensions of

(educational adjustment, emotional adjustment and social adjustment), and have been noticed for being studied and completed and submitted by the students' groups.

Table-3: Components of different dimensions of Adjustment Questionnaire.

Dimensions	Number	Number of questions
Emotional adjustment	20	1-20
Social adjustment	20	21-40
Educational adjustment	20	41-60

The validity and reliability of the adjustment questionnaire are evaluated in the study of Ali Mahdi et al. (2013). Moreover, Cronbach's Alpha Coefficient is calculated above 0.7 for this questionnaire, and the reliability coefficient of the students' academic adjustment questionnaire is estimated at 0.94. Questionnaire scoring is two-choice-options. Score 1 is given to the answers that indicate adjustment; otherwise, zero

would be calculated. In this questionnaire, achieving a high score would reflect lower adjustment and achieve a low score indicates pleasant adjustment.

Yes	No
1	0

For calculating each sub-scale, the score of either of the items related to that sub-scale would be added, and for calculating the total score of the questionnaire, the score of all questionnaire items would be added all together. The score range for this questionnaire is between 0-60. The higher the gained score of this questionnaire, the lower the adjustment rate and vice versa; the lower the questionnaire gained score, the higher the adjustment rate.

2-4. Ethical consideration

Making arrangements and asking for the required allowance and permission from the relevant Ministry of Education are considered for implementation. Preserving the participants' dignity and etiquette, respect, justice, observing the participants' freedom and control, confidentiality, and privacy preservation, creating emotional

security in the participants, and paying attention to the participants' cultural backgrounds were defined and observed.

2-5. Data Analysis

Multivariate Analysis of Variance (MANCOVA), and Multivariate Analysis of Covariance (ANCOVA) have been used to analyze data and testing hypotheses. Data processing is carried out by SPSS software version 22.0, and for the research hypotheses, the appropriate statistical tests are used. Gained data of the sample were analyzed by the methods of the statistical and inferential statistics and were statistically significant at the level of P<0.05.

3- RESULTS

In the current research, 30 boy students in the first grade of high school (seventh and eighth class) Region No. 2, of Kerman City (Iran) have participated in this study (Table.4). The average score of academic adjustment, academic engagement, and learning strategies have been shown in Table.5, for both experimental and control groups.

Table-4: Demographic characteristics of study participants.

Variables	Gender	Age	Number	%
Seventh grade students	Male	14	19	63.3
Eighth grade students	Male	15	11	36.6
Location of students	Male	14-15	30	100
Total		14-15	30	100

Table-5: Descriptive statistics of research variables in control and experimental groups in pre-test and post-test.

Variables	Group	Pre-Test, Mean+ SD	Post-Test, Mean+ SD
Academic Adjustment	Control	32.5 (6.28)	31.35 (6.24)
	Experimental	32.20 (6.54)	28.54 (6.04)
Academic Engagement	Control	65.5 (7.22)	66.25 (6.37)
	Experimental	64.05 (8.57)	67.98 (7.69)
Learning Strategies	Control	103.7 (4.378)	110.1 (5.97)
	Experimental	110.13 (7.28)	170 (9.62)
Basic Concepts	Control	32.20 (6.54)	28.54 (6.04)
	Experimental	25 (1.91)	38.7 (2.12)

SD: Standard Deviation.

Hypothesis 1: The emotional processing strategies had effectiveness in the first-grade high school students' academic engagement in Region No. 2, Kerman City. According to the data, the Analysis of Covariance test (ANCOVA) is used to analyze the mentioned hypothesis. According to the achieved results of **Table.6**, after balancing previous pretest

scores, teaching emotional processing strategies had significant effects on the process of academic adjustment in high school students ($F_{(1,25)}= 12.20$, $P<0.05$, $\eta^2=0.705$), and the effective rate of teaching emotional processing strategies on academic adjustment procedures of high school students was 95.7 percent.

Table-6: Analysis of covariance of the effectiveness of teaching emotional processing strategies on the academic adjustment process of high school students.

Variables	Total sum of squares	DF	Mean sum of squares	F	Sig.	η^2
Pre-test	352.06	1	276.03	12.20	0.003	0.705
Group	23890.17	1	23890.17	1311.39	0.001	0.865
Error	549.60	30	16.53	--	--	--

DF: Degree of freedom.

Hypothesis 2: Emotional processing strategies had effectiveness in the first-grade high school students' academic adjustment in Region No. 2, Kerman City. For analyzing the hypothesis mentioned above, the Multivariate Analysis of Variance test (MANCOVA) is used. According to the results of **Table. 7**, after balancing the previous pretest scores, emotional processing strategies had

significant effects on the process of academic engagement in high school students ($F_{(2,35)}= 154/09$, $P<0.05$, $\Lambda=0.07$, $\eta^2= 0.851$), and the effective rate of teaching emotional processing strategies simultaneously for academic engagement, academic adjustment, and the role of learning strategies was 0.851 percent.

Table-7: Results of MANCOVA test to examine emotional processing strategies on the components of adjustment and academic engagement.

Effect	Test	Value	F	DF*	DF**	P-value	η^2
Group	Pillai effect	0.84	154.09	3	23	0.001	0.851
	Wilks' Lambda	0.07	154.09	3	23	0.002	0.761

DF: Degree of freedom. *Hypothesis, ** Error.

After analyzing data, according to **Table.8**, the results indicate that the experimental and the control groups in the posttest have shown significant differences in the academic adjustment ($F_{(1,39)}= 5.319$, $P=0.01$, $\eta^2= 0.36$), the academic engagement ($F_{(1,39)}= 6.18=$, $P=0.01=$, $\eta^2= 0.38=$), and the role of learning strategies ($F_{(1,39)}= 8.37$, $P=0.001$, $\eta^2=0.49$), which were suggestive of the meaningful effect of teaching emotional processing strategies

on academic adjustment, academic engagement and the role of the high school students' learning strategies. According to Eta Coefficient, effects of the emotional processing strategies were 0/36 on academic adjustment, 0.38 on academic engagement, and 0.49 on the role of learning strategies. The gained results in **Table. 8** demonstrated that the analysis of Covariance in the variables of the students' academic engagement ($F=6.18$, $P=0.01$),

the academic adjustment ($F=5.19, P=0.01$), and function of the learning strategies ($F=8.37, P=0.001$) was meaningful. Regarding the gained results, we could say that in the interventional groups, meaningful relationships were higher in the posttest score of the variables of the students' academic adjustment and academic engagement than in the posttest

of the control group, as they were under the influence of the interventions. Therefore, the research hypothesis confirmed the effectiveness of teaching emotional processing strategies in the first-grade high school students' academic adjustment and academic engagement in Region No. 2, Kerman City, Iran.

Table-8: MANCOVA test results for comparison of post-test components of academic adjustment and academic involvement in control and experimental groups.

	Variables	Total sum of squares	DF	Mean sum of squares	F	P-value	η^2
Group	Academic Adjustment	9.24	1	9.24	5.19	0.01	0.36
	Academic Engagement	12.03	1	12.03	6.18	0.01	0.38
	Learning Strategies	17.14	1	17.14	8.37	0.001	0.49

DF: Degree of freedom

4- DISCUSSION

The present paper aimed to consider the effectiveness of teaching emotional processing strategies on academic adjustment and academic engagement of the high school students in Kerman City, Iran. Derived findings of the statistical data concerning the mentioned variables indicate that teaching emotional processing strategies had meaningful relationships with academic adjustment, academic engagement and their components in high school students of Kerman City. These conclusions are synchronous with the research results of Latifi, Amiri (11), Malekpour & Mowlavi, Ba'ezat (12), Seif and Mesrabadi (18), Ashouri et al. (19), Morena & Saldana (13), and Curtis & Elliott (20). They asserted that the cognitive and emotional processing strategies like predicting pleasant educational functioning level in doing particular school assignments, planning actions that lead to the achievement of the educational and academic purposes, and revising and teaching emotional and cognitive processing strategies are among essential processes in doing adjusting activities related to the academic adjustment and academic engagement. The

emotional and meta-cognitive processing strategies help guide students in problem-solving, self-disciplining and revising activities and affecting students' beliefs, but the effectiveness of these kinds of instructions requires time. Moreover, the current paper results have shown that teaching embedded with emotional processing could be practical and useful in all academic levels for the students and could improve the abilities related to their cognitive and emotional functions. Therefore, teaching embedded with emotional processing strategies should be initiated at an early age and from the elementary school level to prevent the inability in learning and academic maladjustment. All in all, findings have shown that meta-cognitive teaching for problem-solving in the short term causes the improvement of emotional processing, impulsiveness, and distraction, and it would improve these abilities and could generalize them to other assignments over time. Therefore, if the teachers' instructions were on this basis, they could improve the students' cognitive, emotional abilities, and the academic adjustment. These research conclusions are synchronous with the results of the

previous analyses (2), indicating a causal relationship between the effectiveness of the emotional strategies in academic adjustment and academic engagement. We could say that teaching program of cognitive and emotional processing strategies with presenting appropriate strategies would help people control their feelings and emotions, and decreasing mal-adjusting behaviors would lead to the improvement of the students' levels of academic and social functioning. It could also be said that these results would support those aspects of the findings that have shown that emotional inhibition is a cynical strategy for emotional processing strategies leading to the issues of indifferent dimensions of adjustment. Furthermore, finding relationships between emotional, cognitive, and physical processing and emotional processing strategies would improve adjustment (22). For justifying all these results, we could mention that emotional processing strategies and particularly understanding the relationships between emotional, cognitive and physical processing strategies cause negative feelings to decrease and positive feelings and adjust behaviors to increase in the students who could not adapt themselves to the academic environments. Therefore, teaching emotional processing strategies to the students decreases their negative feelings and increases their positive attitudes toward their abilities, and subsequently, students' adjustment rate would improve in social, emotional dimensions of adjustment and academic adjustment and academic engagement.

4-1. Study Limitations

This research was confronted with some sorts of limitations, like research volume, its providing method and the methods of gathering information for evaluating the effectiveness of the educational program, which have been done by utilizing self-reporting scales and the control variables

were genders and several short teaching courses. This research was only implemented for the boy students of Kerman City, Iran. To some extent, there were inabilities in controlling all the environmental factors of the situation related to implementing interventions.

- The used instrument in this research was questionnaire and the subjects might have not reflected the realities due to different reasons, for eliminating this shortage, it would be better to use interview, observation or other cases if possible, but because of the limitation in time, sources and facilities, it would not have been possible.
- This research was cross-sectional. Because of this, it will be difficult to generalize the results to other case.
- Inability in controlling all the environmental factors of the situation related to the situation of implementing interventions.
- A kind of reluctance was observable in the participants because of the large amount of the volume items of the questionnaire.

5- CONCLUSION

Generally, we assert that teaching emotional processing to the students is useful and effective in academic adjustment and engagement and its dependent components. Moreover, from the results of this research, it could be concluded that by teaching emotional processing strategies to the students besides the education process, the students' academic adjustment and engagement level could increase school teaching and learning processes.

6- CONFLICT OF INTEREST: None.

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