



EXPERIMENTAL STUDY OF THE EMOTIONAL DEVELOPMENT IN ADOLESCENTS

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Abstract

This article presents the results of the formative study regarding the increase in the level of emotional intelligence in adolescents. The formative experiment consisted in a total of 24 sessions, in which 24 teenagers were involved, 12 of whom were distributed to the intervention group, and the other 12 to the control group. The following psychological tools were used in the research: "Emotional Intelligence Diagnosis", developed by N. Hall, the "Emotional Intelligence" Test by D. Goleman (adapted by M. Roco), the Friedman Maturity Scale, the ABCD-M questionnaire and the CERQ cognitive-emotional coping questionnaire. The obtained results concluded that the adolescents in the intervention group recorded improvements in the level of intelligence and emotional maturity. It was also identified a significant increase in all Big Five personality factors, an improvement in self-blame coping strategies, rumination, blaming others and catastrophizing and an increase in the following strategies: positive refocusing, planning refocusing, positive reappraisal, putting into perspective.

Keywords: *emotional intelligence, teenagers, formative experiment, coping strategies, personality*

1. INTRODUCTION

Scientific research has persuasively demonstrated the undeniable advantages of developing emotional intelligence due to its beneficial impact on the quality of life, as well as its considerable role for success in various spheres of human existence. The 2005 study conducted by Lopes, Solevey, Cote and Beers concluded that people who have a high level of emotional intelligence show more harmonious social connections and relationships with others (Cote et al., 2005).

During adolescence, emotional discernment and regulatory systems continue their delicate process of crystallization, not yet stable. Because of this emotional fragility, teenagers are much more prone to various emotional imbalances and mental suffering during this period (Racu, 2013). Numerous researches conclude that the development of emotional intelligence has a important impact on the developmental processes of adolescents, participating in the formation of a balanced personality, the establishment of positive interpersonal relationships and an intense self-understanding. A study carried out in 2012 by Ruiz-Aranda et al. concluded that emotional intelligence development programs designed to improve

awareness, understanding and management of emotions have a considerable impact on the mental health of adolescents (Ruiz-Aranda et al., 2012).

2. OBJECTIVE AND HYPOTHESES

2.1 OBJECTIVE

The following objectives served as the basis for the development of the emotional intelligence program: Developing the ability to recognize, understand and manage emotions. Developing communication and interpersonal skills by improving assertive communication, developing empathy, managing and preventing conflicts, developing active listening. Acquiring skills to manage stress and emotions through the practice of progressive body relaxation techniques and breath control. Cultivating the ability to reflect in a positive way by promoting flexibility and cultivating optimism.

2.2 HYPOTHESES

We assume that through a program of psychological interventions it is possible to increase the level of emotional intelligence in adolescents.

3. METHOD

3.1. The participants

The formative experiment included a group of 24 subjects, aged between 14 and 17 years. The participants were separated into two distinct categories: one was the experimental group (GE), composed of 12 adolescents who followed the training program, and the other was the control group (GC), composed of 12 adolescents who did not participate in the training program. Also, the experiment contained 24 sessions of psychological intervention, with an average duration of two hours each session. Regarding the selection criterion for participation in the psychological intervention group, the lowest degree of emotional intelligence obtained by the participants who took part in the observational experiment was taken into account.

3.2. Instruments

Each participant was tested through several psychological tests: to evaluate the level of emotional intelligence, it was used the "Diagnosis of emotional intelligence" test, developed by N. Hall and the "Emotional Intelligence" test by D. Goleman (adapted by M. Roco). The Friedman Maturity Scale was used to test emotional maturity, the ABCD-M questionnaire was used for Big Five personality and the CERQ questionnaire was used to evaluate coping strategies.

In this stage of the research, to demonstrate the homogeneity of the groups, we used the U Mann-Whitney test, thus the result of the comparative analysis of the GC (control group) and the GE (experimental group) to the instruments used in the assessment: Diagnostics of emotional intelligence", elaborated by N. Hall, The "Emotional Intelligence" test by D. Goleman (adapted by M. Roco), the Friedman Maturity Scale, ABCD-M, CERQ, indicated the lack of statistical difference, which allowed us to conclude that the groups are homogeneous. Also, to evaluate the differences between GC and GE in the retest phase, the U-Mann Whitney test was used, and to demonstrate the effectiveness of the training program, the Wilcoxon statistical test was used, thus highlighting the differences obtained by the teenagers from the training group in the two phases of testing: GE test and GE retest and of the absence of significant statistical differences of the GC in the test/retest phases.

4. RESULTS

In order to highlight the changes that occurred as a result of participating in the intervention program, we will present the GE results in the test/retest phase.

Table 1. Comparison results Goleman, Hall, Friedman test/retest experimental group

Factor	Test		Retest		Z	P
	m	sd	m	sd		
Goleman –total score	69.58	13.95	84.17	14.28	-3.18	0.001
Hall –total score	26.83	9.23	47.33	2.74	-3.07	0.002
Friedman –total score	16.11	1.19	18.28	0.63	-3.07	0.002

Note: m – arithmetic mean, sd – standard deviation, Z – standard value of the Wilcoxon test, p – level of statistical significance

Based on the obtained results, significant increases were identified both for the levels of emotional intelligence (Goleman $m_1=69.58 \pm 13.95$ $m_2=84.17$, $Z=-3.18$, $p=0.001$; and Hall $m_1=26.83 \pm 9.23$ $m_2=47.33 \pm 2.74$, $Z= -3.07$, $p=0.002$) as well as for emotional maturity levels (Friedman $m_1=16.10 \pm 1.19$ $m_2=18.28 \pm 0.63$, $Z=-3.07$, $p=0.002$).

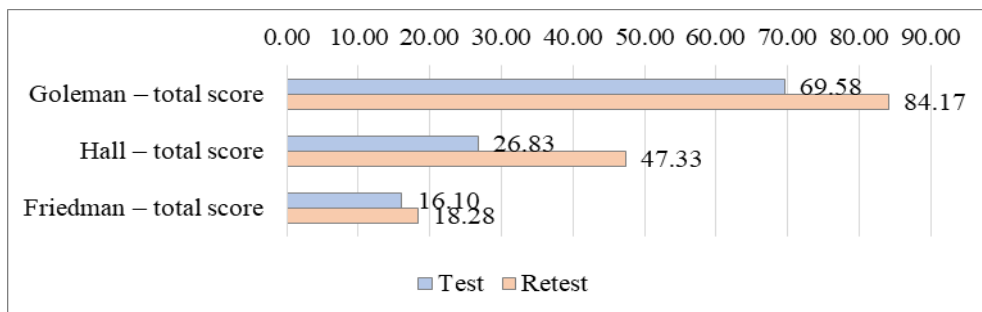


Figure 1. Average values of emotional intelligence (Goleman, Hall) and emotional maturity (Friedman) test/retest experimental group

The statistically significant changes acquired following the participation of the adolescents development program from the experimental group are due to the development of the capacity to identify, express, and understand one's own emotions as well as those around them. They are better able to control strong emotions without being overcome by them, which makes it easier for them to cope with difficult or stressful circumstances and helps them to remain stable and make wiser decisions. He also displays empathy, having the ability to understand other people's emotions and react appropriately to his emotional needs. A study conducted by Kaur in 2011 concluded that the implementation of an emotional intelligence development program has an essential role in the healthy and positive development of adolescents socially, educationally, cognitively (Kaur, 2011).

The efficacy of the training program is confirmed by the test/retest phase results obtained by the teens from the control group, which did not show any statistically significant changes.

The next step of the research of the formative experiment was the comparison of the results of the experimental group at the test/retest phase in the personality factors according to the ABCD-M personality questionnaire.

Table 2. Comparison results ABCD-M (E, M, A, C, AC) test/retest experimental group

ABCD-M	Test		Retest		Z	p
	m	sd	m	sd		
ABCD-M						
Extraversion-Introversion	92.00	8.42	104.50	8.11	-3.15	0.002
Maturity-Immaturity	85.83	10.22	101.17	9.93	-3.12	0.002
Agreeableness	90.33	5.87	105.00	5.43	-3.12	0.002
Conscientiousness	94.67	13.41	104.17	11.11	-3.07	0.002
Self-Update-Stagnation	95.50	11.61	107.33	10.71	-3.09	0.002

Note: m – arithmetic mean, sd – standard deviation, Z – standard value of the Wilcoxon test, p – level of statistical significance

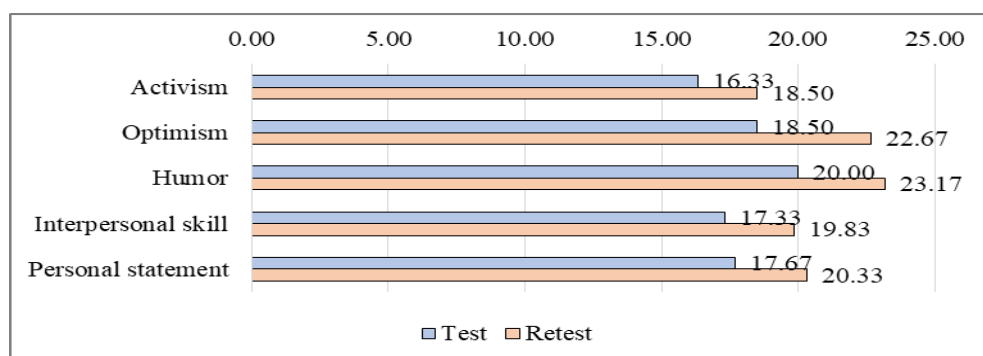


Figure 2. Average values of sub-factors (E) experimental group at test/retest.
Based on the results obtained, significant increases were identified for all

Based on the obtained results, significant increases were identified for all ABCD-M personality factors: (E) $m_1=92.00\pm 8.42$ $m_2=104.50\pm 8.11$, $Z=-3.15$,

$p=0.001$; (M) $m1=85.83\pm10.22$ $m2=101.17\pm9.93$, $Z=-3.12$, $p=0.002$); (A) $m1=90.33\pm5.87$ $m2=105.00\pm5.43$, $Z=-3.12$, $p=0.002$; (C) $m1=94.67\pm13.41$ $m2=104.17\pm11.11$, $Z=-3.07$, $p=0.002$; (AC) $m1=95.50\pm11.61$ $m2=107.33\pm10.71$, $Z=-3.09$, $p=0.002$.

Figure 2 shows the mean values of the Extraversion sub-factors (ABCD-M test) for GE at test/retest.

Extraversion (E) sub-factors: (E1) $m1=16.33\pm4.70$ $m2=18.50\pm4.38$, $Z=-3.28$, $p=0.001$; (E2) $m1=18.50\pm4.30$ $m2=24.67\pm1.78$, $Z=-3.17$, $p=0.002$; (E3) $m1=20.00\pm2.89$ $m2=23.17\pm1.95$, $Z=-3.12$, $p=0.002$); (E4) $m1=17.33\pm1.78$ $m2=19.83\pm1.64$, $Z=-3.15$, $p=0.002$; (E5) $m1=17.67\pm2.54$ $m2=20.33\pm2.81$, $Z=-3.28$, $p=0.001$. The results obtained by the subjects in the experimental group allow us to confirm the effectiveness of the training program, thus these teenagers show pro-social traits such as optimism and openness to interaction, they have pleasant and positive moods and a predisposition to see the good side of life. They also developed more adaptability, communication skills, confidence and ability to face challenges.

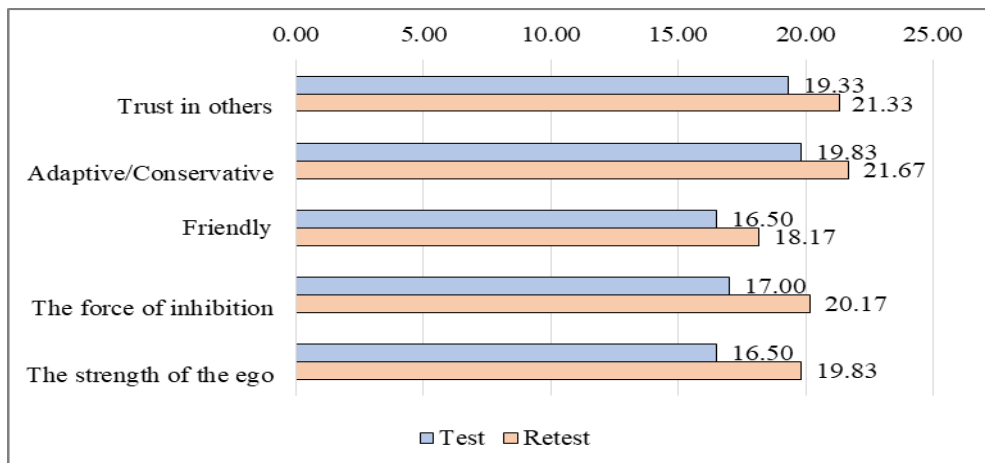


Figure. 3. Mean values of sub-factors (M) experimental group test/retest.

Based on the results obtained, significant increases were identified for most of the Maturity (M) sub-factors: (M1) $m1=19.33\pm3.85$ $m2=21.33\pm3.85$, $Z=-3.46$, $p=0.001$; (M2) $m1=19.83\pm2.92$ $m2=21.67\pm2.39$, $Z=-2.58$, $p=0.010$; (M4) $m1=17.00\pm3.91$ $m2=20.17\pm3.43$, $Z=-3.12$, $p=0.002$; (M5) $m1=16.50\pm3.12$ $m2=19.83\pm2.37$, $Z=-3.16$, $p=0.002$. Among the maturity sub-dimensions, the "Friendship" factor did not present a significant test/retest differentiation: (M3) $m1=16.50\pm4.03$ $m2=18.17\pm2.66$, $Z=-1.34$, $p=0.179$); The training program's efficacy is shown by the rise in the Maturity factor level, thus the teenagers began to show greater awareness and empathy towards the needs of others. They can control their emotions in a positive way because they are more aware of their own emotional responses. They are able to weigh the pros and cons of their choices and behave rationally before acting. They have a much more favorable self-image and are more confident in their own strengths. They have the ability to self-control and

self-discipline in terms of goals and desires. They are highly adaptable to change and have the power to postpone short-term pleasure in favor of greater long-term gains. They no longer feel the need to seek approval and are able to make judgments based on their own personal beliefs and ideals, rather than giving in to the pressure of others around them.

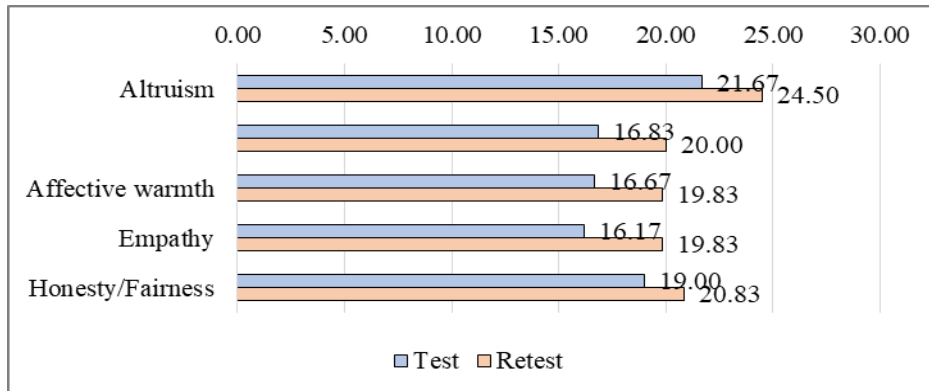


Figure 4. Mean values of the sub-factors (A) test/retest experimental group

Based on the obtained results, significant increases were identified for all Agreeableness (A) sub-factors: (A1) $m_1=21.67\pm 1.67$ $m_2=24.50\pm 1.45$, $Z=-3.28$, $p=0.001$; (A2) $m_1=16.83\pm 2.37$ $m_2=20.00\pm 2.63$, $Z=-3.08$, $p=0.002$; (A3) $m_1=16.67\pm 3.98$ $m_2=19.83\pm 3.69$, $Z=-3.28$, $p=0.001$; (A4) $m_1=16.17\pm 3.38$ $m_2=19.83\pm 2.98$, $Z=-3.12$, $p=0.002$; (A5) $m_1=19.00\pm 3.57$ $m_2=20.83\pm 3.27$, $Z=-3.28$, $p=0.001$. The statistical difference between the scores from the test and retest stage of the subjects in the experimental group on the Agreeableness factor proves that the teenagers have developed the ability to understand the emotions and points of view of others. Compared to the test stage, they are more affectionate and sensitive to the needs of those around them, offering them more support and understanding during difficult times. They are more open and genuine in their interactions, sharing their opinions and feelings honestly.

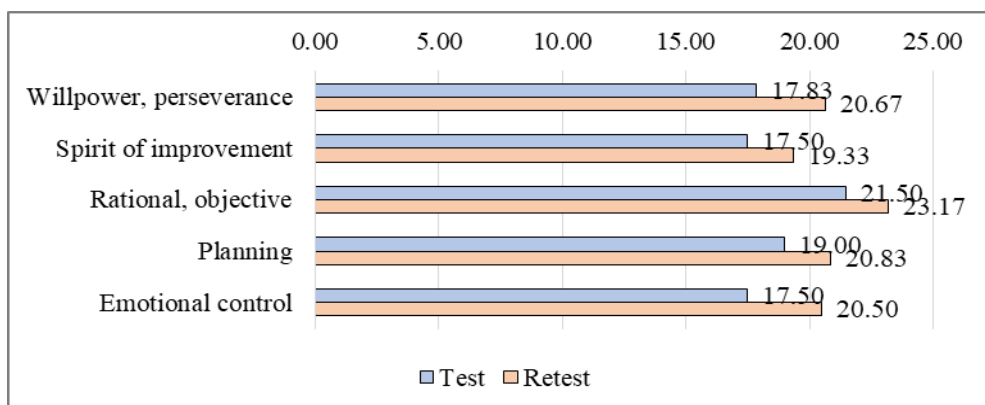


Figure 5. Mean values of the sub-factors (C) test/retest experimental group

Based on the results obtained, significant increases were identified for all Conscientiousness (C) sub-factors: (C1) $m_1=17.83\pm 2.86$ $m_2=20.67\pm 2.74$, $Z=-3.28$, $p=0.001$; (C2) $m_1=17.50\pm 3.90$ $m_2=19.33\pm 3.70$, $Z=-3.28$, $p=0.001$; (C3) $m_1=21.50\pm 3.12$ $m_2=23.17\pm 2.92$, $Z=-3.13$, $p=0.002$; (C4) $m_1=19.00\pm 3.36$ $m_2=20.38\pm 3.04$, $Z=-3.28$, $p=0.001$; (C5) $m_1=17.50\pm 4.42$ $m_2=20.50\pm 3.50$, $Z=-3.12$, $p=0.002$. The results from this stage on the Conscientiousness factor indicate that the adolescents who were part of the experimental group showed increased interest in personal development, highlighting an intense desire to improve in several areas of life. They prove that they have more confidence in their own abilities, which allows them to face obstacles with great ease, express their opinions honestly and be less affected by insecurities and anxiety. They manage to prioritize responsibilities, are reliable in keeping promises and understand the value of time management.

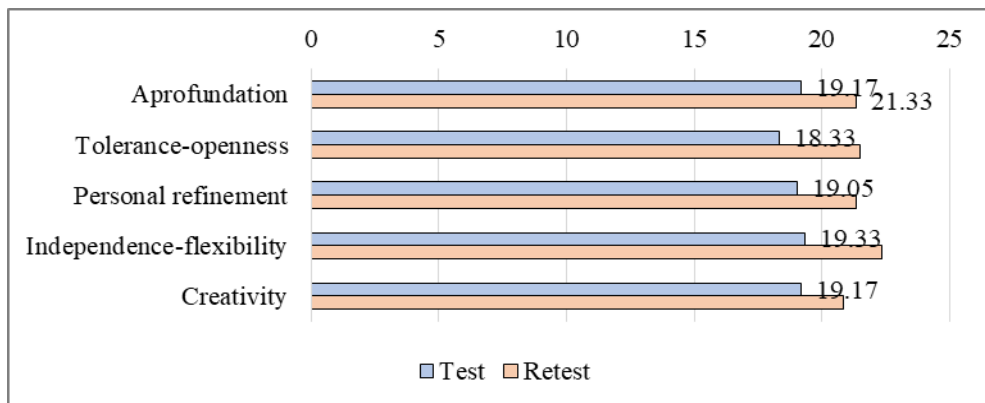


Figure 6. Mean values of sub-factors (AC) experimental group test/retest

Based on the results obtained, significant increases were identified for all Self-Actualization (AC) sub-factors: (AC1) $m_1=19.17\pm 2.72$ $m_2=21.33\pm 2.39$, $Z=-3.28$, $p=0.001$; (AC2) $m_1=18.33\pm 5.90$ $m_2=21.50\pm 5.00$, $Z=-3.17$, $p=0.002$; (AC3) $m_1=19.50\pm 2.39$ $m_2=21.33\pm 2.31$, $Z=-3.28$, $p=0.001$; (AC4) $m_1=19.33\pm 2.67$ $m_2=22.33\pm 2.67$, $Z=-3.46$, $p=0.001$; (AC5) $m_1=19.17\pm 1.40$ $m_2=20.83\pm 1.53$, $Z=-3.18$, $p=0.001$. The results obtained for the Self-Actualization factor conclude that after the application of the emotional intelligence development program, the adolescents who were part of the experimental group are more open, independent, adaptable, better able to express their thoughts and feelings and have the ability to avoid conflicts and judgments, taking responsibility for their own actions. They also take risks, learn from failures, and are committed to personal and professional growth. Ultimately, they are more motivated to reach their full potential.

After analyzing the data collected in the ABCD-M test, it was noted that there were no statistically significant variations seen in the personality profiles of the adolescents in the control group.

Next, we present the comparison of the results of the GE obtained in the test/retest phase for the level of cognitive-emotional coping, according to the CERQ questionnaire.

Table 3. CERQ test/retest experimental group comparison results

Coping mechanisms	Test		Retest		Z	p
	m	sd	m	sd		
Self-blame	14.50	2.88	10.33	0.98	-3.11	0.002
Acceptance	12.00	1.81	13.50	1.31	-3.17	0.002
Rumination	13.00	2.17	11.33	1.97	-3.16	0.002
Positive refocusing	10.17	1.11	13.50	1.00	-3.18	0.001
Refocus on planning	11.33	2.39	15.33	1.78	-3.10	0.002
Positive review	11.33	2.23	15.50	2.07	-3.28	0.001
Putting it into perspective	11.17	2.04	14.83	1.64	-3.18	0.001
Catastrophizing	13.33	2.23	10.33	0.98	-3.12	0.002
Blaming others	11.00	1.60	10.17	0.94	-2.64	0.008

The following significant level reductions were identified for maladaptive coping mechanisms: Self-blame ($m_1=14.50\pm 2.88$ $m_2=10.33\pm 0.98$, $Z=-3.11$ and $p=0.002$), Rumination ($m_1=13.00\pm 2.17$ $m_2=11.33\pm 1.97$, $Z=-3.16$ and $p=0.002$), Catastrophizing ($m_1=13.33\pm 2.23$ $m_2=10.33\pm 0.98$, $Z=-3.12$ and $p=0.002$) and Blaming others ($m_1=11.00\pm 1.60$ $m_2=10.17\pm 0.94$, $Z=-2.64$ and $p=0.008$). Significant level increases were also identified in the case of adaptive coping mechanisms: Positive refocusing ($m_1=10.17\pm 1.11$ $m_2=13.50\pm 1.00$, $Z=-3.18$ and $p=0.001$), Refocusing on planning ($m_1=11.33\pm 2.39$ $m_2=15.33\pm 1.78$, $Z=-3.10$ and $p=0.002$), Positive reappraisal ($m_1=11.33\pm 2.23$ $m_2=15.50\pm 2.07$, $Z=-3.28$ and $p=0.001$), Putting into perspective ($m_1=11.17\pm 2.04$ $m_2=14.83\pm 1.64$, $Z=-3.18$ and $p=0.001$).

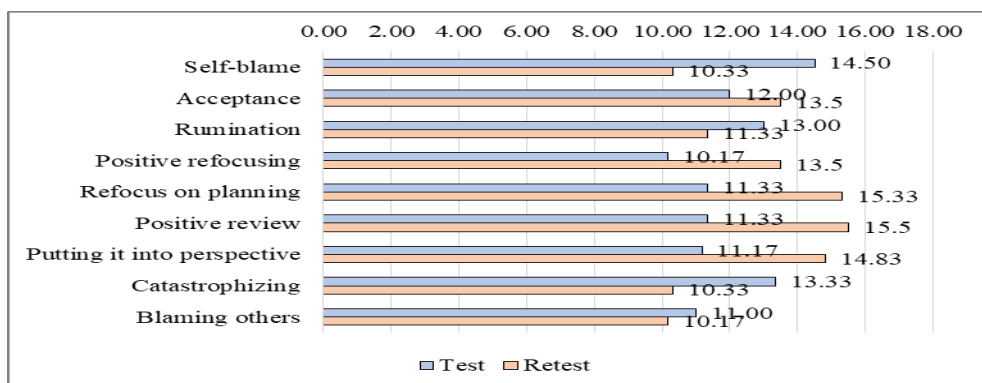


Figure 7. Questionnaire mean values - CERQ for the test/retest experimental group

The obtained results reflect the fact that the adolescents in the experimental group are willing to change and adapt to the circumstances without moving away

from their own goals. They are aware of the negative thoughts and anxieties that affect their well-being and have confidence in their ability to effectively manage challenges. By contrasting one negative or stressful event with another, they are able to relativize the incident. They no longer tend to hold themselves responsible for events that are out of their control, instead, they handle mistakes, failures and difficult circumstances in a healthier and more balanced way. They also recognize the importance of accepting responsibility for their own actions and have the ability to own up to their mistakes. In addition, they are able to make rational judgments in the midst of adversity, rather than acting recklessly or excessively, being calm and reasonable. According to the 2020 study carried out by Demeter and Breaz on "Coping strategies and emotional maturation: correlational study". It was shown that is a positive association between emotional maturity and adaptive coping strategies - positive reinterpretation as well as a negative correlation between denial, seeking out emotional support from others, and using psychoactive substances (Demeter & Breaz, 2020).

The results collected from the two testing phases: test/retest from the teenagers who were part of the GC, showed that there were no significant differences from a statistical point of view, thus strengthening the validity and effectiveness of the training program implemented.

5. CONCLUSIONS

The statistical results established by the group that participated in the intervention program in the test-retest stages showed a statistically significant increase, $p < 0.05$ in the level of emotional intelligence. The results of this research were in accordance with previous specialized research (Kaur, 2011), (Demeter & Breaz, 2020), (Cote et al., 2005), (Ruiz-Aranda et al., 2012), which attests the importance of developing the emotional side. It was demonstrated that emotionally intelligent teenagers are more optimistic, positive, more aware of their own emotions, more affectionate and more sensitive to the needs of those around them. They have the ability to avoid conflict and judgement, taking responsibility for their own actions.

Adolescents who were not part of the intervention program did not achieve statistically significant changes in the development of emotional intelligence, in terms of personality factors or cognitive-emotional, coping mechanisms, they continue to control their emotions with difficulty, not they fail to perceive problems clearly and realistically, they show no empathy or understanding towards the needs and viewpoints of those around them, and when the going gets tough, they become agitated, tense and impulsive. They also continue to adapt with difficulty to stressful situations.

The results obtained allow us to confirm that the implementation of an effective and well-structured emotional intelligence development program that uses therapeutic techniques and activities corresponding to this purpose has a positive impact on emotional intelligence, the optimization of personality traits and the efficiency of coping mechanisms used by teenagers.

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