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Emotional Intelligence Evaluation of Tecnológico Nacional de México Campus Tepeaca' Students

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ABSTRACT: Emotional intelligence (EI) has long been treated as a skill. Almost all researchers claim that this ability promotes emotional and intellectual growth. The questionnaire was randomly applied to 400 students at the National Technological Institute of Mexico Tepeaca campus (206 women and 194 men). The Likert scale from 1 to 5 was used. Pearson's correlation was applied for multivariate analysis. With this correlation, the questionnaire was validated. As a result, the variable Anger and Anger is the lowest (15% approval). That is because the question asked was the only negative out of 19 positive ones. The second lowest variable was defiance, with 70% approval in all its inferences. Three variables were the highest with 95%: 1) Participation. "I express my points of view honestly" 2) Contribution to society. "I believe that the work I do every day adds value to society" and 3) Let go of the past. "I can leave behind my problems and memories of the past to move forward" In general, it is concluded that the students of the TecNM Tepeaca campus apply EI very well.

KEYWORDS: Emotional intelligence, Students, National Technological Institute of Mexico, Tepeaca, University Education.

INTRODUCTION

EI has long been treated as a skill. Salovey and Mayer (1991) redefine EI as an ability to perceive, assimilate, understand, and regulate one's emotions and those of others. They claim that this ability promotes emotional and intellectual growth.

Miranda et al. (2022) analyze the incidence of formal and non-formal emotional training received in acquiring emotional skills by Early Childhood and Primary Education teachers. The results show the significant influence of the training received by teachers in the acquisition of the emotional ability to repair self-esteem. The findings of this study allow us to notice the training needs of teachers in IE. On the other hand, Olvera-Juanico and Ángeles-Arteaga (2022) describe the effect of traditional ideas about masculinity on the EI and peer relationships of university men. They identify the presence of traditional ideas about being a man and limitations in emotional expression towards their peers, other men, in family and social relationships, and towards themselves; In addition, they identify a relationship with risk behaviors and other costs of practices associated with the limitation of expression of emotions.

Luzuriaga (2022) studies the teaching practices that favour the development of EI in university students. In particular, he performed a frequency analysis of the practices obtained. The starting point was the responses of the focus groups in a sample of 337 students through the questionnaire to detect teaching practices for the development of EI. As a result of the research, students report that only 11 of the 26 practices identified by the instrument are frequently applied in higher education classrooms.

Montoya et al. (2022) conducted a systematic review of neuro didactics related to the learning process. These researchers conclude that teaching strategies could promote student learning or prevent it. These strategies are based on the management of emotions that the teacher performs.

Datu et al. (2022). They investigate how positive emotions are related to achievement goals and objective measures of school engagement. Their results highlight the emotional and academic benefits associated with students' intrinsic drive to learn in school contexts. Furthermore, they tell us that commitment dimensions are not related to positive emotions and the goals of approaching the posterior domain.

The institution where this research was carried out was the National Technological Institute of Mexico, Tepeaca campus. This technological institution trains professionals who promote regional productive activity, scientific research, technological innovation, and entrepreneurship.

The general objective was to evaluate the EI of the students of the Technologic Nacional campus Tepeaca (TecNM campus Tepeaca).

METHODOLOGY

The questionnaire was randomly applied to 400 students (206 women and 194 men). A Likert scale from 1 to 5 was used

Scale

Never	From time to time	Often	Almost always	Always
1	2	3	4	5

N	Variable, Topic, indicator	Ítem	Option
1	Reflection and meditation.	I constantly reflect and do meditation.	
2	Awareness.	I know my body, the air I breathe, and the flavors.	
3	Goals present.	I keep my goals in my mind.	
4	Humility.	I am humbled and ask for help when I need it.	
5	Understanding others.	I put myself in other people's shoes to understand them.	
6	Attention to others.	I focus all my attention on the other person when listening to him.	
7	Challenges.	I find it too challenging to take prudent risks.	
8	Initiative.	I take the initiative and follow through with the tasks that need to be done.	
9	Comfort.	I feel comfortable in new situations.	
10	Participation.	I express my views honestly.	
11	Enthusiasm.	Several essential things in my life excite me, and I make it clear.	
12	Positivism.	I try to find the positive side of any situation.	
13	Contribution to society.	I believe that the work I do every day adds value to society.	
14	Let go of the past.	I can leave behind my problems and memories of the past to move forward.	
15	Opening safely.	I open myself to people to the appropriate extent, showing security.	
16	Opinion.	I refrain from forming an opinion on the issues and from expressing that opinion until I know all the facts.	
17	Anger and anger.	When I get angry or upset, I take it out on others.	
18	Moods	I can control my moods and rarely bring negative emotions to work or school.	
19	Extroversion.	It is easy for me to meet or initiate conversations with unknown people.	
20	Empathy.	Others respect me and like me, even when they disagree with me.	

Pearson's correlation was applied for a multifactorial analysis. With this correlation, the questionnaire was validated. This validation was carried out by applying the five postulates to locate writing errors and relevance.

A chi-square goodness test was applied to find out if the respondents answered conscientiously and not randomly.

By ordering items taken two by two, 400 inferences were generated (hypotheses to be tested).

A Likert scale dichotomization was then applied. The mean of each item was taken as the dichotomization criterion.

The chi-square test was applied for the association of items, and each non-linear hypothesis was validated.

Metodology: Juárez-Hernández (2021), Gómez-Márquez (2018), López-Trejo (2018), Sánchez-Flores (2017), Parra-Sánchez (2017).

RESULTS AND DISCUSSION

Table 1. shows us the results of a multifactorial analysis. This table shows a new validation of the questionnaire based on fivepostulates

Table 1. Results of the multifactorial analysis. Pearson's correlation coefficient

	Item1	*Item2*	*Item3*	*Item4*	*Item5*	*Item6*	*Item7*	*Item8*	*Item9*	*Item10*	*Item11*	*Item12*	*Item13*	*Item14*	*Item15*	*Item16*	*Item17*	*Item18*	*Item19*	*Item20*
Item1	1.00																			
Item2	0.34	1.00																		
Item3	0.25	0.32	1.00																	
Item4	0.19	0.30	0.38	1.00																
Item5	0.18	0.23	0.30	0.43	1.00															
Item6	0.13	0.33	0.36	0.30	0.41	1.00														
Item7	0.07	0.00	0.08	0.10	0.21	0.16	1.00													
Item8	0.26	0.33	0.49	0.27	0.23	0.32	0.08	1.00												
Item9	0.24	0.25	0.26	0.28	0.20	0.15	0.10	0.40	1.00											
Item10	0.23	0.35	0.38	0.34	0.36	0.35	0.02	0.45	0.38	1.00										

Item11	0.29	0.35	0.56	0.40	0.32	0.28	0.09	0.48	0.38	0.51	1.00									
Item12	0.33	0.37	0.49	0.27	0.27	0.24	0.01	0.36	0.37	0.46	0.52	1.00								
Item13	0.34	0.39	0.48	0.35	0.37	0.35	0.14	0.44	0.38	0.43	0.52	0.51	1.00							
Item14	0.30	0.31	0.41	0.32	0.26	0.30	0.05	0.36	0.33	0.37	0.42	0.46	0.45	1.00						
Item15	0.39	0.41	0.38	0.30	0.28	0.33	0.08	0.40	0.36	0.45	0.46	0.48	0.48	0.56	1.00					
Item16	0.26	0.27	0.29	0.30	0.30	0.30	0.07	0.33	0.29	0.38	0.35	0.36	0.48	0.39	0.46	1.00				
Item17	0.00	-0.10	0.01	0.02	-0.01	-0.09	0.22	0.00	0.02	-0.07	0.01	-0.08	0.03	-0.09	0.05	0.12	1.00			
Item18	0.17	0.19	0.19	0.13	0.16	0.22	0.07	0.25	0.33	0.31	0.25	0.32	0.27	0.30	0.35	0.24	0.07	1.00		
Item19	0.18	0.17	0.27	0.26	0.24	0.17	0.03	0.23	0.31	0.29	0.28	0.30	0.36	0.26	0.41	0.28	0.11	0.34	1.00	
Item20	0.24	0.20	0.21	0.26	0.29	0.19	0.14	0.26	0.30	0.30	0.33	0.27	0.41	0.32	0.33	0.36	0.12	0.24	0.45	1.00

Validation by multifactorial correlation and five postulates.

This validation method involves looking at solid correlations above 0.7 and carefully reviewing postulate by postulate.

Here there was no case of a strong correlation between items except with themselves (table 2).

Table 2. Validation postulates. Pearson's multifactorial correlation coefficient.

N	Postulate	Result.
1	Repeated items.	No item was repeated.
2	Paraphrased items.	There are no paraphrased items.
3	Items repeated on purpose.	There are no items repeated on purpose.
4	Items correlated by chance.	There is no strong correlation, above 0.7
5	Items correlated by their very nature.	There is no linear Pearson correlation in this table.

The questionnaire is consistent and there is no linear correlation between the items (work variables).

The goodness of fit test.

Items = 20

Likert scale options = 5

Respondents = 400

Degrees of freedom = (19)(4) = 76

Significance = 0.05

Observed experimental chi square = 1932.66.

Theoretical or critical chi-square = 97.35.

"The null hypothesis is rejected; the Likert options and the items are sensitive."

That is, the questionnaire was answered consciously. It was not answered randomly.

Chi-square contrast test. Nonlinear association.

Rules for validating hypotheses (inferences) using chi-square tests:

1. If experimental or observed chi-square > 3.81, the null hypothesis is rejected, and the variables are associated.
2. If experimental or observed chi-square < 3.81, the null hypothesis is accepted, and the variables are not associated.
3. Significance level 0.05.

Table 3. Inferences are selected for reasons of space, proven hypotheses, or thesis.

No	Pair	Syllogism or inference	Chi square
1	(1,2)	If I take the initiative and follow through with the tasks that need to be done, then several essential things in my life excite me and make it clear.	22.00
2	(2,15)	If I take the initiative and go ahead with the tasks that need to be done, then I believe that the work I do every day adds value to society.	34.06
3	(3,5)	If I feel comfortable in new situations, I open up to people appropriately, showing security.	30.19
4	(3,12)	If I feel comfortable in new situations, I can control my moods and rarely bring negative emotions to work or school.	42.50
5	(4,5)	If I express my views honestly, I open myself up to people appropriately, showing confidence.	49.35
6	*(7,19)*	*If several essential things in my life excite me and I make it clear, then I believe that the work I do every day adds value to society.*	*1.1*
7	(8,11)	If I try to find the positive side of any situation, then I believe that the work I do every day adds value to society.	70.20
8	(8,13)	If I try to find the positive side of any situation, I can leave behind my past problems and memories to move forward.	53.06
9	(9,15)	If I try to find the positive side of any situation, I open myself to people appropriately,	30.49

		showing security.	
10	(9,18)	If I believe that the work I do every day adds value to society, I open myself to people to the appropriate extent, showing security.	37.38
11	(10,15)	If I can leave behind my problems and memories of the past to move forward, I open myself to people appropriately, showing security.	61
12	(11,13)	If I refrain from forming an opinion on issues and expressing that opinion until I know all the facts, then others respect and like me, even when they disagree with me.	55.83
13	(12,13)	If I can control my moods and rarely bring negative emotions to work or school, I have an easy time meeting or starting conversations with strangers.	82.03
14	(12,14)	If I am easy to meet or start conversations with strangers, then others respect me and like me, even when they disagree with me.	44.14
15	(12,15)	If I take the initiative and follow through with the tasks that need to be done, then several essential things in my life excite me and make it clear.	44.44
16	(13,15)	If I take the initiative and go ahead with the tasks that need to be done, then I believe that the work I do every day adds value to society.	63.46
17	(14,15)	If I feel comfortable in new situations, I open up to people appropriately, showing security.	81.78
18	(16,20)	If I feel comfortable in new situations, I can control my moods and rarely bring negative emotions to work or school.	28.67
19	(18,19)	If I express my views honestly, I open myself up to people appropriately, showing confidence.	32.75
20	(19,20)	If several essential things in my life excite me and I make it clear, then I believe that the work I do every day adds value to society.	70.13

Chi-square hypothesis contrast test interpretation.

Emphasis is placed on inference 6 (italics); these items are not associated.

(7.19) "If it is too difficult for me to take prudent risks, then it is easy for me to meet or start conversations with unknown people" Observed Chi-square = 1.1

We observe that the items are opposed:

A) The meaning of the independent variable "it costs me too much to take prudent risks" is negative.

B) Dependent variable "I find it easy to meet or start conversations with unknown people" the meaning is positive.

"If I try to find the positive side of any situation, then I believe that daily work adds value to society."

We observe that the items are not opposed:

A) Independent variable "I try to find the positive side of any situation" the sense is positive.

B) Dependent variable "I believe that the work I do every day adds value to society" the meaning is positive.

Inference 13, items (12,13), this inference has the highest value of the chi-square table 82.03. If we divide it by 3.81 (limit), we have 21.53 times the expected degree of freedom. The significance goes to 0 and the confidence interval to 100%.

Summary of the 400 inferences (working hypotheses).

In table 4, we can see a summary of the inferences, tested hypotheses, or theses. Column 1 shows us the number of the working variable involved in the inference. These inferences were calculated as rankings took two at a time.

Inferences = n2 = 202 = 400. Equation 1.

Where n = the dependent or independent variable. Equivalent to the item involved in data collection (questionnaire).

Column 2 lists the variable. Columns 3, 4, and 5 show the frequency of approval depending on the case. Column 6 shows us the sum of frequencies.

Table 4. Summary of the inferences or hypotheses tested.

N	Variable	Approval			Total
		Yes	Not	Does not apply	
1	Reflection and meditation	16	3	1	20
2	Awareness	17	2	1	20
3	Present goals	18	1	1	20
4	Modesty	18	1	1	20
5	Understanding others	18	1	1	20
6	Attention to others	16	3	1	20
7	Challenges	14	5	1	20

8	Initiative	18	1	1	20
9	Comfort	18	1	1	20
10	Stake	19	0	1	20
11	Enthusiasm	18	1	1	20
12	Positivism	18	1	1	20
13	Contribution to society	18	1	1	20
14	Let go of the past	19	0	1	20
15	Safe opening	18	1	1	20
16	Opinion	19	0	1	20
17	Anger and annoyance	3	16	1	20
18	Moods	19	0	1	20
19	Extroversion	17	2	1	20
20	Empathy	18	1	1	20
	Totals	339	41	20	400

Figure 1 shows the variables in % approval, according to their frequencies. These calculations are based on chi square tests for hypotheses.

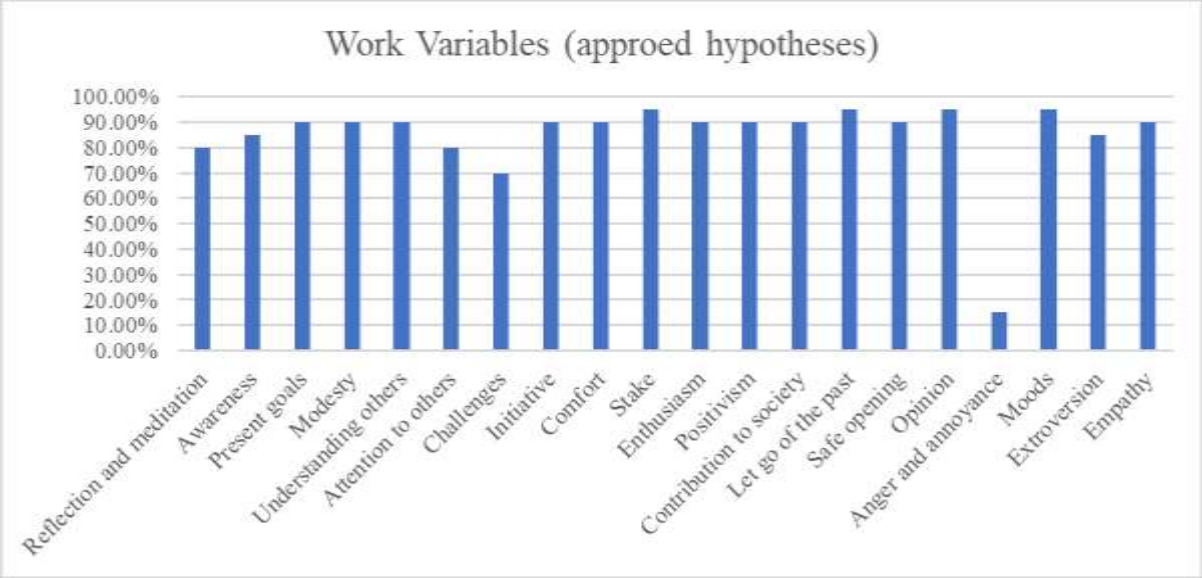

Figure 1. **Histogram of working variables or approved working hypotheses**.

The variable Anger and Anger is the lowest (15% approval). This is because the question asked was the only negative out of 19 positive ones.

The second lowest variable was defiance, with 70% approval in all its inferences.

7 Challenges "I find it too difficult to take prudent risks."

This is an area of opportunity to teach young people to take risks prudently. Three variables were the highest with 95%.

10 Participation I express my views honestly.

13 Contribution to society I believe that the work I do every day adds value to society.

14 Let go of the past. I can leave behind my problems and memories of the past to move forward.

CONCLUSIONS

OBJECTIVE.

We evaluated the EI of the students of the Tecnológico Nacional campus Tepeaca (TecNM campus Tepeaca).

Thesis or conclusions.

1. It is concluded that the variable "anger and anger" was the lowest, with an approval rate of 15%. This is because the question's wording was negative out of 19 positives.

2. Three variables were the highest, with 95% approval. "Participation," "Contribution to society," and "Let go of the past."
3. The other variables range between 80 and 92% approval.
4. In general, it is concluded that the students of the TecNM Tepeaca campus apply EI very well.

Corollary and arguments

We to reach these results and conclusions:

1. We designed a questionnaire from the authors' experience (more significant logic) and an operationalization matrix.
2. We validate the applied questionnaire (400 respondents) with the five postulates technique and Pearson's linear correlation. Brand new validation test.
3. We did a goodness-of-fit test which was sensitive to the Likert density scale. That is, the respondents did not answer randomly but conscientiously.
4. We chose 20 tested inferences or hypotheses. 19 approved and one disapproved.
5. The failing inference was chosen to show that a single negative question significantly changes the passing percentages.
6. We made the summary of the 400 inferences and concluded.

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