

Classroom Relationships Questionnaire: Confirmatory Factor Analysis and Validation

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ABSTRACT

The aim of this study is to validate the Classroom Relationships Questionnaire for the Romanian high school students. The present study examines the psychometric properties in a sample of 118 high school students from Braşov County. The questionnaire has 28 items, grouped into four scales such as student cohesiveness, teacher support, cooperation and equity. Results showed that the questionnaire had good internal consistency; Alfa Cronbach coefficient obtained is 0.894. The findings are consistent with many previous studies and shows good psychometric properties including validity, internal consistency, and test – retest reliability.

KEYWORDS: *classroom relationship questionnaire, confirmatory factor analysis, high school students.*

1. INTRODUCTION

The politics of an inclusive education are more visibly present during the last few years than ever before in the teacher education literature [1] [2]. The schools are at different stages in developing an inclusive culture [3].

Researchers and scientist have studied and developed numerous ways to improve learning and considered numerous factors that can improve and can favor a real inclusion. Studies [4] had demonstrated that teachers who are effective overall with their classes are also effective in working individually with students with disabilities. Researchers noted that the difference between early career teachers and experienced teachers may be due to different nonverbal behavior which may determine and explain the difficulties encountered by early career teachers to create positive relationships between teacher and student [5]. Interaction with the whole class seems to be important in shaping the image that students have about the didactic staff [6]. The teacher is a leader in the classroom, he or she is the one that can shape students interactions through personal example.

The best way, the most effective and cost-free way to ensure performance, achievement and inclusion in schools is for teachers to collaborate, to share form own experience [8]. In that way teachers can help one another to create a favorable learning context, share information and ways on effective teaching methods. When the teacher is the one who has a certain value orientations, then the class will be a real and inclusive context.

In this research the starting point is represented by previous studies that investigated dimensions like Student Cohesiveness, Teacher Support, Cooperation and Equity. According to the specialty literature these dimensions are the most relevant for determining the quality of classroom relationships.

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2. OBJECTIVES

The aim of this study was the validation of the Classroom Relationship Questionnaire. Our main objectives were:

- to analyze the psychometric properties of the scale
- to evaluate the factor structure of the CRQ in a Romanian sample using confirmatory factor analysis.

3. METHOD

3.1. PARTICIPANTS

The research was conducted with the participation of 118 students. The lot contains 2 students aged 15, 49 students aged 16, 52 students aged 17, 15 students aged 18 years. 68 respondents meaning 57.6% are from rural areas and 42.4% respectively 50 participants are from urban areas, 96 female respondents (81.4%) and 22 of respondents are male (18.6%).

Regarding family composition 22% of respondents, 26 respectively, have a single child status while 51 (43.2%) of respondents have one brother, three respondents (2.5%) have two brothers, 45 (38.1%) of the participants have a sister, two (1.7%) of respondents have 2 sisters respectively three sisters. 84.7% of respondents mothers have completed compulsory education and only 18 (15.3%) attended university studies, which is also the case for fathers' educational level.

3.2. INSTRUMENT

The questionnaire is designed to measure students' perception of their classroom environment, and it incorporates scales that have been used and proven to be significant predictors of quality of educational relationships.

The questionnaire includes 28 items rated on a five-point Likert scale (1 = Strongly disagree, 5 = Strongly agree). We obtained a good internal coefficient for all of the 4 scales Student Cohesiveness (.798), Teacher Support (.883), Cooperation (.901) and Equity (.865).

4. RESULTS

The Classroom Relationships Questionnaire was tested on a sample of 118 students. The reliability is very high, the Alfa Cronbach coefficient obtained for the entire questionnaire is .894, the correlations of each item with the total score are higher than .50 (Table 1).

Table 1. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.894	.894	28

Regarding the construct validity, there are no differences between boys and girls on either scales: Student_cohesiveness $t(116) = 1.598$, $p = .113$, for Teacher_support $t(116) = 1.149$, $p = .253$, Cooperation $t(116) = .279$, $p = .781$, and Equity $t(116) = -.973$, $p = .332$.

The exploratory factor analysis revealed a four factor solution that explains 55.66% of the variation with the items presenting a saturation of these factors between 0.70 and 0.85. In order to test the factorial structure of the CRQ, we used exploratory factor analysis. The 28 items of the CRQ were expected to load onto 4 factors. (Table 3).

We have eliminated from exploratory factor analysis 8 items that had saturation below the threshold of .70. In the factor analysis remained 20 items that presented saturation above the threshold of .70.

In order to test the factorial structure of the CRQ, we used the SEM approach (Structural Equation Modeling) by applying the CFA method (Confirmatory Factor Analysis).

Table 3. Composition of factors

Component 1		Component 2		Component 3		Component 4	
Items		Items		Items		Items	
CRQ26	.857	CRQ11	.816	CRQ17	.734	CRQ1	.762
CRQ28	.838	CRQ12	.752	CRQ19	.725	CRQ4	.756
CRQ24	.793	CRQ7	.736	CRQ14	.721	CRQ2	.732
CRQ25	.781	CRQ8	.734	CRQ15	.709	CRQ3	.721
CRQ27	.761	CRQ10	.720				
CRQ23	.705	CRQ9	.712				

As we can see in table 4 the model is valid. Chi square test reveals the values of $\chi^2 = 3.019$, $df = 2$, $p < 0.539$. Other model quality indices have values that fall within the threshold values: CFI = .983, GFI = .987. The value of the RMSEA coefficient is statistically significant = 0.025, having a threshold of .05.

Table 4. Goodness-of-fit measures for the tested model

Model	$\chi^2(df)$	GFI	CFI	AIC	RMSEA (90%CI)
	3.019(2)	.987	.983	18.006	.025
	p = .539				(.000 – .076)

Note. GFI: Goodness-of-Fit Index, CFI: Comparative Fit Index, AIC: Akaike Information Criterion, RMSEA: Root Mean Square Error of Approximation, 90% CI: 90% confidence interval for RMSEA.

The structure of CRQ and the standardized estimates are presented in Figure 1. The standardized estimates of all items were significant.

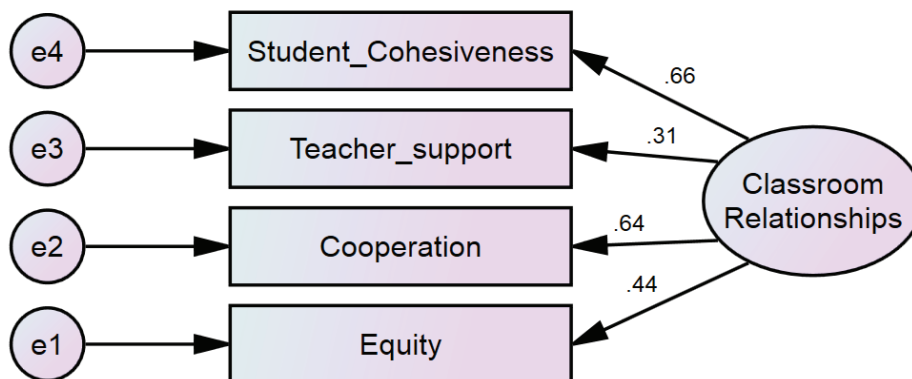


Figure 1 Structure and the standardized estimates of CRQ

5. CONCLUSIONS

The Classroom Relationship Questionnaire was successfully developed and tested for Romanian population, and shows good psychometric properties including validity, internal consistency, and test–retest reliability. The grouping of the 28 items into four factors are consistent with previous findings. The results showed a good level of model quality, confirming the research model, showing that measured factors help crystallize the researched model. Although indicators prove the validity of the model, it is required that the model to be reassessed and validated on other datasets. Thus, a line of research is to test the model and its validation in other circumstances.

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