The Revised Educational Context Perception Questionnaire (ECPQ II): Psychometric Proprieties

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LE PROPRIETÀ PSICOMETRICHE
DEL QUESTIONARIO REVISIONATO DI PERCEZIONE
DEL CONTESTO EDUCATIVO (ECPQ II)

Abstract

The revised Educational Context Perception Questionnaire (ECPQ II) is used to assess six dimensions of the students' classroom perception: cohesion, didactics, mutual appreciation, psychological insecurity with teachers and classmates and discrimination. Bronfenbrenner's (1979) ecological theory served as a guide for the definition of the research process and the identification of dimensions to explore. The aim of the present study was to analyze the psychometric properties of the ECPQ II. The 26-item version of the ECPQ II was administered to a sample of 1079 students enrolled in upper-secondary schools (9th and 10th grades) in Rome. An Exploratory Factor Analysis (EFA) was applied and the factor model structure was tested for model fit using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) on two samples: the full and half random sample. The six-factor model showed a good fit to the data for both samples and had good reliability and factor score determinacy. The current research confirmed the factor structure of the measure and showed that the ECPQ II has supportive psychometric properties of validity and reliability.

Keywords: Classroom perception, Confirmatory factor analysis, ECPQ II, Reliability, Validity.

1. Introduction

How social context affects the growing child has been deeply investigated in the psychological and pedagogical literature (Dewey, 1916; Vygotsky, 1926; Piaget, 1932; Lewin, 1935; Bronfenbrenner, 1979 and 1986; Apter, 1982). In the words of John Dewey (1916), «we never educate directly, but indirectly by means of the environment» and «the environment involves a personal sharing in common experiences» (pp. 24, 90), and in those of Vygotsky (1930-1931): «it is enough to change the social environment so that human behavior instantly changes. […] The social environment is the real lever of the educational process» (p. 95). As school is probably the most influential social institution in the world (Meece & Schaefer, 2010), for most of young people influences from school settings tend to be normative. Social contexts have been found to have an impact on young people ability to adjust to the expectations of school, to learn how to become successful students and achieve ends such as academic performance, educational attainment and professional status (Duncan & Raudenbush, 1999; Wentzel, 1999). Perceptions of classroom environment revealed to be associated with student cognitive and affective outcome measures (Fraser, 1994 and 1998) and strong predictors of achievement and attitudes (Walberg, Fraser, & Welch, 1986). Furthermore, the organization and quality of the classroom activities and interactions have a significant impact on the development of attitudes such as responsibility, cooperation, self-awareness and leadership (du Mérac, 2015).

For Vygotsky (1926), the teacher educates the student by varying his educational environment (p. 49). Efforts at improving teaching are often seen only as a matter of teaching prospective teachers the right academic content and the most effective pedagogical skills. The OECD report (2004) *Learning for tomorrow's world* insists that the school cannot restrict its mission only to the promotion of knowledge, but should also provide social and life skills training. UNESCO (2005) analyzes the quality of education through two indicators. The first relates to the student's cognitive development. The second indicator concerns the promotion of values and attitudes of citizenship, and conditions that promote emotional well-being and creativity. Among the key competencies outlined in the document *Europe 2020 strategy for smart, sustainable and inclusive growth* social skills, together with the sense of initiative and enterprise, are considered favorable to stimulate an active and positive participation of young people in social and professional life (European Commission, 2010).

Gronlund's (1959) suggests that teachers need to know how to establish relationships with students and to guide children's development of their social

attitudes. School settings affect deeply the personal development; therefore researchers need to focus their attention on its most relevant aspects, such as social relationships that play a significant role in the classroom (Kindermann & Vollet, 2014). Bronfenbrenner suggests, in fact, that social interactions are the «engine of development» (Bronfenbrenner & Morris, 1998; Eccles & Roeser, 2010). Social constructivists assert that knowledge is constructed through social interaction in communities of practice (Vygotsky, 1978; Kuhn, 1996). The evidence of the relevance of the student-teacher relationship was also provided by Kathryn Wentzel (1998), who coined the term «pedagogical caring» to describe classrooms in which teachers support students' needs for feeling related to teachers. Students do better in school when teachers care about them, when they care about their teachers, and care about each other (Kindermann & Vollet, 2014). Student perceptions of teachers' interpersonal behavior have a significant impact on students' attachment to school (Hallinan, 2008) and students' wellbeing (Van Petegem *et al.*, 2008). Student perceptions of teacher-student relationships are themselves influenced by the level of trust they have established with their teachers (Ennis & McCauley, 2002; Tschannen-Moran, 2004; Mitra, 2009). Interpersonal relationships, didactic interactions and levels of trust are all dimensions included in the revised *Educational Context Perception Questionnaire*.

2. Theoretical framework

The interrelationship between all the factors of education at the many various layers that impact student's development is clearly illustrated in Bronfenbrenner's approach. Bronfenbrenner was influenced by the «field theory» concepts of the social psychologist Kurt Lewin (1935). He modified Kurt Lewin's Change theory to suit straight development description needs (Härkönen, 2007) and adapted the social ecological theory to the field of education (Bronfenbrenner, 1976). Bronfenbrenner's (1979) ecological theory of human development refers to the body of work originating in developmental and community psychology that examines the relationship between varied structures and processes in the social environment and individual thought, feeling and behavior (McKown, 2005). As noted by Bijou and Baer (1978): «The interaction between the child and environment is continuous, reciprocal, and interdependent. We cannot analyze a child without reference to an environment, nor is it possible to analyze an environment without reference to a child. The two form an inseparable unit consisting of an interrelated set of variables, or an interactional field» (p. 29).

According to ecological theory, an individual's environment consists of four interrelated and nested levels that interact to influence human development (Bronfenbrenner, 1979; Eamon, 2001; Becker & Luthar, 2002). These system levels are the micro, meso, exo, and macro-system levels. The latter encompasses the physical, social, and cultural features of the immediate settings in which human beings live (e.g., family, school, and neighborhood), as well as the broader historical time period in which these settings are embedded (e.g., social and historical circumstances in which an individual lives) (Moen, Elder, & Luscher, 1995).

In this study, it is the microsystem level factors which are examined. The microsystem is described as a pattern of activities, social roles, and interpersonal relations experienced by an individual or a group of individuals in a direct setting (e.g., family, school) that contains and directly influence the individual (Bronfenbrenner, 1977), such as the student-teacher relationship and the classroom. The ecological systems perspective emphasizes the importance of social relationships for youth across key microsystems such as home and school. Development occurs as result of active participation in progressively complex, reciprocal interactions with persons, objects, and symbols in the individual's immediate environment. Bronfenbrenner referred to these interactions in the immediate environment as proximal processes (Bronfenbrenner & Morris, 1998). Proximal processes vary continuously according to the characteristics of the developing individual and of the environment in which the processes are occurring.

In most schools, the traditional approach of teaching and a reductive view of the school outcomes, generated by an evaluation culture that continues to consider the product of the school only in terms of literacy and numeracy, is likely to lose sight of important objectives such as the development of attitudes and skills such as participation, collaboration, citizenship or leadership (Lucisano & du Mérac, 2015). Faced with this challenge, the *Educational Perception Questionnaire* (ECPQ), was constructed to observe the impact of some aspects of the educational context in providing opportunities for the development of value-based attitudes and skills (du Mérac, 2013 and 2014a). The students themselves were considered to be in the best position to assess their own learning environment.

The items of the *Educational Context Perception Questionnaire* (ECPQ) were developed based on a careful review of the literature, that include previously published instruments of which the *Learning Environment Inventory* (LEI) (Anderson & Walberg, 1968; Walberg, 1968), which was found to be too long and complex, with an inadequate extraction of 15 factors and half of the items used with a reverse scored; a simplified version of the LEI, the *My Class Inventory* (MCI) (Fisher & Fraser, 1981; Fraser, Anderson, &

Walberg, 1982; Fraser & O'Brien, 1985), which is designed for the elementary school level; the *Classroom Environment Scale* (Rudolf Moos, 1974 and 1979), a true-false test designed to assess the social climate of secondary school classrooms; the *Individualized Classroom Environment Questionnaire* (ICEQ) (Trickett & Moos, 1973), which is used to distinguish traditional teacher-centered classrooms from those favoring the individualized, student-centered instruction; and the *What is Happening in This Class?* (WIHIC), developed by Fraser, McRobbie and Fisher (1996), that attempted to include those scales that previous studies had shown to be predictors of student outcomes in past research.

3. Aim

The first version of the instrument ECPQ has been used in a previous research in Italy (du Mérac, 2014b and 2015) and showed acceptable, but not high, reliability. Based on the findings, a revised subsequent version was made. The ECPQ was composed initially of seven scales and 40 items in the Italian language. This second version contains 26 items and has six scales: Cohesion, Didactics, Mutual Appreciation, Psychological Insecurity with teachers, Psychological Insecurity with mates and Discrimination. The aim of the present study was to develop and test the psychometric properties of the revised *Educational Context Perception Questionnaire* (ECPQ II).

4. Method

4.1. *Preliminaries on the first version of the ECPQ*

In the first study, the survey was conducted on a sample population of students and Scouts, aged 15 and 16, enrolled in upper secondary schools (9th and 10th grades) in Rome. The research objective was to analyze the differences in terms of acquisition of leadership attitudes between 15-16 year olds in school and Scouting contexts, in order to measure the relationship between their development and the educational model. We analyzed how these adolescents perceived what happened in their classes or Scout groups to evaluate whether, and to what extent, these perceptions of some aspects of the educational context have an impact on their leadership attitudes. The

comparison between Scouting and high school contexts allowed us to understand to what extent the leadership attitudes of the 15-16 year olds could vary, to measure the impact of an educational context different from that of the school on these attitudes and to identify the practices that seem to foster this development (du Mérac, 2015). To create valid and reliable outcome measurements focusing on the specific target of the students, some necessary adjustments were conducted and a new version of the instrument was designed.

In the Italian school system, the traditional, or passive, approach is still widely used. However, Scouting uses an active learning approach and, due to the lack of an equivalent interaction and shared responsibilities at school, the ECPQ required some modifications to investigate the impact of the actual upper-secondary school model on the development of the student's attitudes.

4.2. *Subjects*

In the present study, the sample was composed of 1079 students enrolled in upper secondary schools in Rome. Mean age of the sample was 15.5 years (SD = .70), 42% were males and 58% were enrolled in 9th grade. *Table 1* reports sample descriptive statistics.

Table 1. – Sociodemographic characteristics of the sample (N = 1079).

	MALES		FEMALES		TOTAL	
	N	%	N	%	N	%
Grade						
9th	280	45	345	55	625	58
10th	173	38	281	62	454	42

With respect to the type of schools, 75% of the students were enrolled in grammar schools, 5% in another type of senior high school, 9% in technical institutes and 11% in vocational trainings.

The choice of the subject age is consistent with theories that identify adolescence as a phase of identity formation (Erikson, 1968; Marcia, 1980; Palmonari, 2001) and development of a personal value system through the formation of a more acute social conscience (Havighurst, 1972; Kohlberg & Hersh, 1977), which is shaped by the interaction with the environment.

The ninth grade year is also a critical transition for students in high school (Styron & Peasant, 2010), which makes this period of life particularly

interesting to study. Ninth grade students are introduced to a new school environment, they must negotiate new social relationships with their teachers and peers and adapt to the practices and routines of the new school.

4.3. *Procedure*

School leaders and teachers were contacted in order to get their written permission. Confidentiality of data was guaranteed. Electronic questionnaires were submitted through Google Forms in the classroom, and a trained researcher was present during the application, which took about 15 minutes.

4.4. *Measures*

Students' perception of their classroom environment was assessed with the 26 items of the revised version of the *Educational Context Perception Questionnaire*. The ECPQ II comprises
    Six scales:
1. Cohesion relates to the group cohesiveness and the feeling among members that they are part of it. Cohesion is high when the group supports individuals and provides mutual help and the classroom climate is friendly.
2. Didactics is understood as the feeling that teachers tend to welcome and stimulate the students' interests and speak about topics of current interest.
3. Mutual Appreciation relates to a positive teacher-student relationship, based on mutual trust, confidence and pride.
4. Psychological Insecurity with Teachers relates to the perception of a stressful interaction with the teachers, in which the students can feel teased, ignored or mistreated.
5. Psychological Insecurity with classmates indicates the students have a difficult relationship with their peers and can be teased, ignored or mistreated by them.
6. Discrimination indicates the students feel one can be judged or refused based on his gender identity, sexual orientation, social status, national origin, color, physical appearance or for being disabled.
    For each item, participants rated the extent to which each statement would be true for them in general, from 1 (strongly disagree) to 5 (strongly agree).

5. Data analysis

Different research approaches were used for this study.

Descriptive analyses of socio-demographic variables of the sample were calculated. Normality of the items of the ECPQ II was measured considering both skewness and kurtosis indices.

An Exploratory Factor Analysis (EFA) to assess possible underlying dimensions of ECPQ II was applied, whereupon the factor model structure derived in the EFA was tested for model fit using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to test parameters and goodness of fit of the hypothesized factor model. These analysis were conducted on the entire sample, since «if CFA cannot confirm results of EFA on the same data, one cannot expect that CFA will confirm results of EFA in a different sample or population», and also on the random split-half sample, to analyze if CFA could confirm results of EFA in a different sample (Van Prooijen & Van Der Kloot, 2001).

To test the hypothesized model, a Robust Maximum Likelihood method of estimation (MLR estimator) was applied because, as frequently occurs in education and psychological data (Micceri, 1989; Sawilowsky & Blair, 1992), items presented a moderate violation of normality (Chou & Bentler, 1995). The model fit was tested using Chi-square ($\chi2$), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR).

The quality of the factors was analyzed through factor score determinacy coefficients and reliability through Cronbach's alpha coefficients. Correlation between the resulting six factors was evaluated by Pearson' correlation coefficient. Statistical analyses were performed using SPSS 22 (IBM Corp. Armonk, NY, USA) and Mplus 7 (Muthén and Muthén, Los Angeles, CA, USA).

6. Results

6.1. *Descriptive statistics and reliability analysis*

ECPQ items presented non negligible skewness and kurtosis. In fact, skewness ranged from -1.68 to 1.93 with a mean of 0.30 (SD = 0.71), and kurtosis ranged from -1.29 to 2.89 with a mean of -0.37 (SD = 0.88).

Reliability of the six scales was examined by calculating Cronbach's alpha on the whole sample. Alpha coefficients were .83 for Cohesion, .70

for Didactics, .78 for Mutual Appreciation, .73 for Psychological Insecurity with Teachers, .76 for Psychological Insecurity with classmates and .91 for Discrimination. Corrected item-total correlations were all higher than .30, ranging from .43 to .83. These results suggest a good degree of reliability of the scales. *Table 2* reports ECPQ scores, standard deviations and alpha coefficients.

Table 2. – ECPQ scores, standard deviations and alpha coefficients.

	Score	SD	α
Scales			
Cohesion	3.49	0.91	.83
Didactics	3.06	0.88	.70
Mutual Appreciation	2.89	0.86	.78
Psy. Insec. Teachers	1.91	0.95	.73
Psy. Insec. Classmates	2.21	1.05	.76
Discrimination	1.80	0.99	.91
SD, Standard Deviation			

As psychometric literature suggested that Cronbach's alpha may not be a consistent estimator of scale reliability (Raykov, 1997 and 2013), it was decided to apply an alternative option to test reliability. The measures used were the factor score determinacy coefficients that represent the correlation between the estimated and true factor scores and give an indication of how well each factor is measured. Scores greater than .80 indicate good fit (Muthén & Muthén, 2006) and the larger the coefficient, the more stable are the factors (Tabachnick & Fidell, 2013).

In the present study, the internal consistency of the solution was corroborated by factor scores determinacy coefficients, which were .92 for Cohesion, .86 for Didactics, .91 for Mutual Appreciation, .90 for Psychological Insecurity Teachers, .93 for Psychological Insecurity Classmates and .97 for Discrimination. These fit indices indicate a good fit of the data.

6.2. *Exploratory factor analysis*

For this study, I applied Exploratory Factor Analysis (EFA) using maximum likelihood extraction with direct oblimin rotation as method of estimation to assess possible underlying dimensions of ECPQ. Oblique rotation was chosen because the scales were expected to be correlated (Fabrigar *et al.*, 1999).

*Table 3. – Exploratory factor analysis results
for ECPQ measure using maximum likelihood estimation (N = 1079).*

	F1	F2	F3	F4	F5	F6
In my classroom						
Social status	.944					
National origin	.941					
Sexual orientation	.837					
Physical appearance	.691					
Color	.598					
Gender identity	.454					
We all get along with each other		.819				
There is a friendly atmosphere		.722				
We feel part of a group		.658				
We can count on our classmates to help us with our schoolwork		.622				
We care about our classmates' problems		.472				
You can be mistreated by a teacher			.890			
You can be teased or insulted by a teacher			.574			
You can be ignored by a teacher			.307			
You can be teased or insulted by your classmates				.865		
You can be mistreated by your classmates				.618		
You can be ignored by your classmates				.347		
We discuss topical issues					.630	
Our teachers encourage us to discuss certain topics with our classmates					.601	
What we are studying helps us understand topical issues					.531	
To help us understand, our teachers use examples from daily life					.5	
Our teachers are proud of us						-.458
Our teachers trust us						-.609
We are proud of our teachers						-.704
We trust our teachers						-.761
% OF VARIANCE	27.75	10.38	5.47	4.29	2.41	2.42
TOTAL VARIANCE			52.71			

The primary exploratory factor analysis was performed on 86 items. Regarding the previous ECPQ version, the number of factors was reduced from seven to three. New items, intended to measure new hypothesized dimensions, were added to these three factors, of which the Psychological Insecurity scale items that were inspired by the *Psychological Safety Scale* (Antonnova, Chumakova, & Stanzione, 2016). Based on the factor loadings, the list was reduced to 26 items. Entire hypothesized scales were excluded as they did not show a minimally adequate level of content validity. The Italian upper-secondary school system did not present a sufficient variety of practices to allow a measure of some aspects of the school life as field trips, interaction with experts, group work, student participation in classroom management and different classroom settings. In fact, the excluded scales, with low psychometric properties, were related to those subjects. The 6-factor solution provided the best model fit. The factor loading matrix for this final solution is presented in *Table 3*.

6.3. *Correlations among the ECQP scales*

The correlations among the six scales of the *Educational Context Perception Questionnaire* are presented in *Table 4*. As can be observed, Psychological Insecurity with Classmates was mostly positively related with Psychological Insecurity with Teachers and Discrimination. The two dimensions of Psychological Insecurity and Discrimination showed a negative correlations with Cohesion, Mutual Appreciation and Didactics, which were significantly and positively correlated among them.

Table 4. – Correlations among the ECPQ scales.

	Cohesion	Didactics	Mut. Appre.	Ins. Teach.	Ins. C.mates	Discri.
Cohesion	1					
Didactics	.336**	1				
Mut. Appre.	.436**	.451**	1			
Insec. Teach.	-.226**	-.299**	-.425**	1		
Insec. C.mates	-.461**	-.215**	-.308**	.504**	1	
Discri.	-.331**	-.158**	-.301**	.457**	.598**	1

** Correlation is significant at the 0.01 level (2-tailed).

6.4. *Confirmatory factor analysis*

In order to properly assess the model, several fit indices were examined in both the total sample (N = 1079) and random split-half sample (N = 543). The CFA method enables making comparisons of differing factor structures for a given set of data and can be used for both developing and refining measurement instruments (Floyd & Widaman, 1995).

To test the hypothesized model, a Robust Maximum Likelihood method of estimation (MLR estimator) was applied.

In order to properly assess the model, several fit indexes were examined: the χ2 Goodness-of-Fit Index (GFI), Incremental Fit Index (IFI) (Bollen, 1989; Jöreskog & Sörbom, 1989), Tucker and Lewis Index (TLI) (Tucker & Lewis, 1973), Comparative Fit Index (CFI) (Nentler & Bonett, 1980), Standardized Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA) (Steiger, 1990). The χ2 describes how well a statistical model fits into a set of observations and summarizes the discrepancy between the observed values and the values expected under a statistical model. A non-significant χ2 suggests that a model fits the data well, however a significant χ2 indicates a poor fit of the model to the data. The Chi-square fit index is very sensitive to sample size and tends to inflate in large samples, implying a poor model fit incorrectly (Schumacker & Lomax, 2004). Several fit indices have been proposed to address the limitations of the χ2 statistic. The RMSEA, less affected by sample size (Floyd & Widaman, 1995), is an indicator of the amount of unexplained variance or residual and examines the probability of close model fit. A value of .05 or less indicates a good fit, a value of .08 or less is indicative of a «reasonable» error of approximation and values greater than 0.10 indicate a poor fit (Browne & Cudek, 1993). The RMSEA is used jointly with its related Confidence Interval (CI), which includes the sampling error associated with the estimated RMSEA. A lower bound of 90% CI less than 0.05, as well as an upper limit less than 0.08, indicate a good fit (Browne and Cudek, 1993), whereas the model should be rejected if the higher bound exceeds 0.10 (Kline, 2005). The SRMR Root Mean Squared Residual (SRMR), is an estimate of the average of standardized residuals between the observed and the hypothesized covariance matrices (Chen, 2007). Covariance residuals are the differences between the observed and model-implied covariances. SRMR values equal to or less than 0.08 are considered good (Hu and Bentler, 1999). CFI and TLI indicate how much better a model fits the data compared to a baseline model where all variables are uncorrelated. Values of CFI and TLI close to 1 indicate a very good fit, values less than 0.95 but greater than 0.90 indicate an adequate fit, and values less than 0.90 indicate a poor fit (Whitley & Kite, 2013).

CFA results showed that a six-factor structure yielded a good fit for the six-factor ECPQ II model in the total sample: $\chi2$ (260, N = 1079) = 847.704, p < 0.001; RMSEA = 0.046, 90% CI [0.042; 0.049], p = 0.98; CFI = 0.936; TLI = 0.926; SRMR = 0.044.

As previously noted, to confirm validity of the construct, the CFA was also performed on a random split-half sample. The six-factor solution was fit to the half sample (N = 543) data: $\chi2$ (260, N = 543) = 565.387, p < 0.001; RMSEA = 0.047, 90% CI (0.041; 0.052), p = 0.86; CFI = 0.929; TLI = 0.918; SRMR = 0.047.

The path diagram illustrating the final ECPQ II model estimates from total sample (N =1079) is presented in *Figure 1*. The 26 items of the ECPQ II measure cohesion (five items), didactical approach (four items), mutual appreciation (four items), psychological insecurity with teachers (three items), psychological insecurity with classmates (three items) and discrimination (seven items). Parameter estimates are standardized using the variances of the continuous latent variables as well as the variances of the outcomes (i.e., Mplus StdYX). All parameters are significant at p < .001.
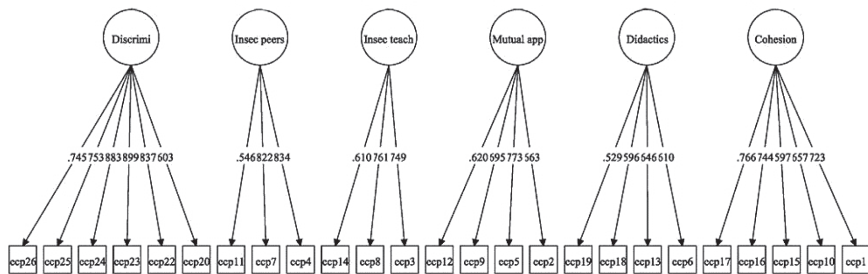

Figure 1. – Path diagram illustrating the final ECPQ II model estimates from total sample (N = 1079).

6.5. *Discussion*

The current research was designed to improve the first version of the ECPQ and validate the second version of it, by providing exploratory and confirmatory factor analyses of the ECPQ II. The ECPQ was built to measure the perception of the educational context of the upper secondary school students. Bronfenbrenner's (1979) ecological theory has served as a guide for the definition of the research process and the identification of dimensions to explore. Six dimensions, Cohesion, Didactics, Mutual Appreciation, Psycho-

logical Insecurity with Teachers, Psychological Insecurity with Classmates, and Discrimination, served for this second version of the classroom perception measure.

The instrument is parsimonious in that it has a limited number of items, but a satisfactory degree of internal consistency and provides a reliable and valid general indicator of the classroom perception. The six-factor model showed a good fit to the data for both the full and half samples. The current research confirmed the factor structure of the measure and showed that the ECPQ II Italian version has supportive psychometric properties of validity and reliability.

Thus, the new version of the instrument offers a means of conceiving and operationalizing educational context perception of the students as a six-dimension construct, while guaranteeing content validity, by taking into account some aspects of the didactical approach and interaction between teachers and students and among classmates.

Further analyses have been carried out in order to evaluate relationships among ECPQ scales. The obtained results are consistent with logical expectations. Findings showed a moderate negative correlation between the two dimensions of Psychological Insecurity and Discrimination on the one part and Cohesion, Mutual Appreciation and Didactics on the other part, while these three last scales showed a moderate positive correlation. Moderate positive correlations have been also found between Psychological Insecurity with Classmates, Psychological Insecurity with Teachers and Discrimination.

In spite of the strengths of this study, there are some limitations to my conclusions. My sampling method was non-probabilistic. Future studies with probabilistic sampling procedures will be useful to avoid bias in estimating ECPQ scores. In addition, only self-report measures were used to assess the students' classroom perception. Therefore, future research efforts need to consider using multiple methods and measures to control for common method biases. Moreover, future studies could be extended to other age groups and cultural contexts.

Despite these limitations, the results of the present study showed that the ECPQ II Italian version has good psychometric properties and could be used to assess the educational context perception. Thus, the current research findings supported the usefulness of the ECPQ both for research and applied purposes. This study suggests its usefulness for identifying problems inside the classroom, encouraging a dialogue with teachers about classroom interventions and may help to determine interventions that address discontinuity between classroom environments and allow to improve less positive classroom environments.

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Riassunto

La seconda versione del Questionario di percezione del contesto educativo (ECPQ II) è stata costruita per misurare sei dimensioni relative alla percezione dell'ambiente di classe da parte degli studenti: Coesione, Didattica, Riconoscimento, Insicurezza psicologica nei confronti degli insegnanti e dei compagni e Discriminazione. La teoria ecologica di Bronfenbrenner è servita da guida per la definizione del processo di ricerca e l'identificazione delle dimensioni da analizzare. Lo scopo della presente ricerca è stato di analizzare le proprietà psicometriche dell'ECPQ II. I 26 item di tale strumento sono stati somministrati

a un campione di 1079 studenti iscritti al primo e secondo anno di scuole secondarie di secondo grado di Roma. È stata condotta un'analisi fattoriale esplorativa (EFA). È stato, inoltre, testato il modello fattoriale tramite l'analisi fattoriale confermativa (CFA) e i modelli di equazioni strutturali (SEM) sia sul campione intero sia su metà del campione casuale. Il modello, composto da sei fattori, si adatta bene ai dati della ricerca e presenta buoni coefficienti di affidabilità e di determinazione fattoriale (Factor Score Determinacy). La ricerca ha confermato la struttura fattoriale del modello e ha dimostrato che l'ECPQ II ha proprietà psicometriche rilevanti, tra cui una buona affidabilità e validità.