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11 July 2025

School Climate Research: Italian Adaptation and Validation of a Multidimensional School Climate Questionnaire

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School Climate Research: Italian Adaptation and Validation of

a Multidimensional School Climate Questionnaire

Abstract

In this article, we present a multidimensional school climate questionnaire, based on an adaptation and validation of the Socio-educational Environment Questionnaire (SEQ), which is an instrument developed in Canada assessing several dimensions of school climate. In particular, the aim of this research was to create a Multidimensional School Climate Questionnaire, which is adding to the original measure by testing a second order factor model. We conducted two studies with different samples of middle school students (aged from 10 to 16) from northern Italy (Study 1: 575 students; Study 2: 1070 students), and collected data on the psychometric features of the instrument, its reliability and validity. In particular, in Study 1 we carried out the adaptation process and an exploratory factor analysis. In Study 2, we conducted first and second order confirmatory factor analysis and tested the associations with school engagement and burnout scales. Overall, our results supported the stability of the adaptation and offered further insights on the original instrument. Assessment implications are discussed.

Keywords: school climate, Multidimensional School Climate Questionnaire, measurement, middle school students

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School climate is commonly defined as "the quality and character of school life. School climate is based on patterns of people's experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures" (Cohen et al., 2009, p. 182). This definition highlights the multidimensional and complex nature of school climate, which includes aspects ranging from didactic practices, to relational quality, discipline and safety. Research in the field is thus inspired by an approach meant to capture the school environment in its various nuances and features.

While multidimensionality is a strong feature of the construct, it is also a weakness. Scholars still struggle to come to an agreement on which dimensions are essential for school climate research. Some reviews contributed to the issue by offering a theoretical ground on which domains represent school climate (Zullig et al., 2010) and which dimensions should be included in such domains (Wang & Degol, 2016). However, agreement is far from being reached in empirical research, as there is still an abundance of different conceptualizations of school climate, and the considered dimensions vary to a great extent in the various studies (Grazia & Molinari, 2020).

In this regard, Ramelow et al. (2015) claimed that an important step forward for research in the field would be the adoption of multidimensional and psychometrically sound instruments. Up until now, however, only a few instruments, among the many currently employed, satisfy these requirements. There is also another feature that, from our point view, should characterize school climate research, namely the use of instruments able to identify, within each school, strengths and weaknesses on which to build interventions.

In this article, we validated a multidimensional school climate questionnaire based on the Italian adaptation of a questionnaire developed in Canada. For choosing the instrument to adapt, we first conducted a thorough analysis of the existing instruments presented in systematic reviews on

school climate research (Grazia & Molinari, 2020; Zullig et al., 2010), then identified those covering all the domains indicated as essential in the literature (Wang & Degol, 2016), and eventually selected the *Socio-educational Environment Questionnaire* (SEQ, Janosz & Bouthillier, 2007). There are several reasons why we chose to adapt and validate the SEQ: a) the questionnaire was multidimensional and comprehensive; b) it was grounded within a systemic approach (Janosz et al.,1998) particularly suitable for intervention-oriented research that would help school managers to exploit the potential of their school strengths, individuate the weaknesses and addressing them through focused actions; c) for its systemic framework and the many dimensions it comprises, it seemed flexible enough to be adapted to different contexts; d) it was developed in two versions, one for students and one for teachers, and therefore could be used for multi-informant studies (for the purpose of the present work, however, we adapted the student version only).

The original student version questionnaire is a complex and long protocol (78 items grouped in two scales plus 63 single items), described in Table 1. The stronger and most important feature of the original questionnaire is the presence of two scales, namely *Practices* and *Climate*, which allow to address distinctive aspects of school climate separately, i.e., the characteristics of everyday concrete classroom activities (*Practices*), and the more abstract features of the larger school environment (*Climate*). As we aimed to create an adaptation with sound factorial structure, in this article we left the single items behind and focused on the *Practices* and *Climate* scales, on which we conducted an in-depth factorial analysis, beyond what was done for the original instrument.

The Present Research

The aim of our work was to validate a Multidimensional School Climate Questionnaire starting from the adaptation of the SEQ *Practices* and *Climate* scales to the Italian school context. This passage was needed, as the Canadian and Italian school contexts present some structural or organizational differences. For example, in Italy most schools do not organize after school activities or do not have personnel dedicated to surveillance. As a consequence, some items or subscales of the questionnaire might sound inappropriate or obscure to Italian students. We carried out two

studies. In Study 1, we adapted the questionnaire and carried out an exploratory factor analysis for testing the factorial structure and evaluating each item. In this study we addressed content and face validity. In Study 2, moving beyond what was done for the original instrument (Janosz & Bouthillier, 2007), we validated the adaptation with a confirmatory factor analysis and tested the two scales as second order factors. In this study we also addressed predictive validity.

Study 1. Translation, Adaptation and Exploratory Analysis

Our first aim was to create a thoughtful adaptation of the instrument for the Italian context, by paying attention to both linguistic and contextual features. We accomplished this aim by means of two steps. The first consisted in the translation and back-translation of all items comprised in the original questionnaire from French to Italian language and item selection based on content validity considering the peculiarities of the Italian school context. Secondly, we addressed face validity through informal interviews to school actors.

For content validity, two independent researchers evaluated each item with regard to its adequacy to the Italian school context, relevance, clarity and susceptibility to social desirability. At this stage, in the light of their expected lack of relevance to the Italian school system, we decided to completely eliminate a subscale of the questionnaire (After-School Activities) and a few items from other subscales (i.e., those on surveillance at school in the Rules Implementation and Clarity subscale, one from the Student Support subscale and one from the Home-school Relations subscale). On the contrary, in the light of their relevance we decided to keep two items in the Didactic Practices subscale that the authors of the original questionnaire instead removed.

After the item selection, we addressed face validity by contacting two middle schools and informally asking teachers (two representatives for each school) and principals to evaluate each item of the questionnaire with regard to its relevance to the Italian school context, clarity for students and completeness. As a whole, teachers and principals positively evaluated our selection on all aspects, and advanced only minor lexical adjustments that were promptly incorporated. Overall, both researchers and teachers noted that, in the translation, the label "climate" referring to

both the measured construct (school climate) and one of the scales (*Climate*) could create some ambiguity. To improve clarity, we decided to adopt different labels for the main scales: *Classroom Practices* and *School Atmosphere*.

We eventually obtained a 66-item adaptation. It included eight subscales (38 items) in the *Classroom Practices* scale and six subscales (28 items) in the *School Atmosphere* scale. We then conducted the first data collection aimed at evaluating the psychometric properties of the adapted questionnaire.

Method

Participants and Procedure

The study was conducted with a convenience sample from four middle schools situated in Northern Italy. The participating schools were all mixed-gender, ranged from small to large-sizes and were located in a small city and the surrounding towns. Participants were 575 8th grade students (Mean Age=13.02, SD=.48; 51% females; 94% born in Italy). Participants' socio-economic status (SES) was not assessed directly for this study; the Italian Ministry of University and Research (MIUR), which provides information on each school in its official website, indicates that these four schools are attended by students from a medium socio-economic context, with a relevant percentage (between about 10 and 20%) of immigrant students, coming mainly from Northern Africa and East-Europe, mostly second-generation. After obtaining parental consent (only 1% of parents refused), we administered the questionnaire during class hours, using computers and an online software which allowed the randomization of the item order for each participant. The researcher was always present, so that all students received the same instructions: they were briefed about the research and assured of the voluntariness of participation and anonymity of the data. The research was conducted in agreement with the Italian National Psychological Association's ethical norms.

Measures

Participants were asked to complete the 66-item adaptation of the SEQ (Janosz & Bouthillier, 2007). They responded on a 6-point Likert scale, which ranged from "Completely

agree" to Completely disagree". Items were formulated so that lower scores indicate better school climate perceptions.

Data Analysis

To explore the factorial structure of the instrument and, if needed, to identify critical items, we carried out an exploratory factor analysis (EFA) using the SPSS software, version 24. As originally done by Janosz and Bouthillier (2007), at this stage we conducted the analysis separately for the *Classroom Practices* and *School Atmosphere* scales, adopting the method of principal axis factoring with oblimin rotation criteria because the factors were expected to correlate with each other. For each section, prior to the exploratory factors analysis we conducted a Kaiser-Meyer-Olkin (KMO) test for sampling adequacy and the Bartlett test of sphericity. We also conducted Horn's parallel analysis (Horn, 1965) with one thousand permutations of our data sets to provide further support for the number of factors identified. We then analyzed the psychometric properties of the identified factors by checking for normality of distribution and computing Cronbach's alphas and item-total correlations for each factor. Lastly, we calculated descriptive statistics and intercorrelations.

<div align="center">

Results

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For the *Classroom Practices* scale, the KMO was .91 and the Bartlett test was significant at $p < .001$, indicating that the sample was adequate for our analysis. The EFA showed that eight factors had an eigenvalue higher than one. Horn's parallel analysis consistently indicated that eight factors had higher eigenvalues in the real data set as compared with those in the simulated data sets. However, after going through the factor structure and factor loadings, we decided that a few changes were needed: (a) the Rules Implementation and Clarity and Rules Application subscales converged in a single factor, which we called Rules, while one item showed unclear loading and was eliminated; (b) we removed the Home-School Relations scale, whose items did not clearly load on one factor but were rather distributed in different factors; (c) two separate subscales, which we called Positive Teaching and Encouragement, were better fitting than the Didactic Practices

subscale (originally composed of 10 items and longer than all other scales), as the items clearly loaded on two different factors. Two items with unclear loadings were eliminated from these subscales. After removing all critical items, we again ran the exploratory factorial analysis, which identified the expected 7 factors that explained 54% of the total variance. We kept two items with very low factor loadings due to their theoretical significance.

The results of the EFA conducted on the *School Atmosphere* scale were closer to the original model. The KMO was .94 and the Bartlett test was significant at $p < .001$, again indicating sample adequacy. As in the original questionnaire, we found six factors with eigenvalues higher than one and the parallel analysis indicated the same result. Two items were removed because of unclear loadings; we instead decided to keep one item with very low factor loading due to its theoretical significance. The identified factors explained 63% of the total variance.

As for the psychometric properties, all the 13 factors, with the exception of Rules, reported skewness and kurtosis values between + and – 2, considered acceptable to indicate normality of data distribution (Gravetter & Wallnau, 2014). As for internal reliability, Cronbach's alphas for each factor are reported in Table 2. At this stage, we found one factor (Safety) that did not show an adequate internal reliability ($\alpha < .60$), thus we decided not to retain this factor. All the other factors reported values from moderate to good, acceptable when considering the small number of items for each factor (max. four or five items per factor). As for item-total correlations, all items reported values >.30, which are considered acceptable (Green & Lewis, 1986). Descriptive statistics and intercorrelations are reported in Table 2; factor loadings are reported in Table 3 and 4.

In the end, after an accurate examination of the factorial structure and psychometric properties, our adaptation led us to have a 53-item questionnaire: 31 for the *Classroom Practices* scale distributed in seven factors (Rules; Student Support; Student Involvement; Teaching Time; Positive Teaching; Encouragement; Class Management) and 22 for the *School Atmosphere* scale distributed in five factors (Student Relations; Student-Teacher Relations; Educational Climate; Sense of Belonging; Interpersonal Justice).

Discussion

As a whole, the exploratory factor analysis revealed that the adaptation was only partially overlapping with the original questionnaire. The changes needed concerned mostly the *Classroom Practices* scale, which represents what happens in everyday classes and as such it is more easily subject to the contextual features. This is consistent with a systemic approach to the study of school climate, which supports the importance of grounding the construct in the specific school system.

The decision to remove two whole factors, Home-School Relations and Safety was due to their unsatisfactory psychometric properties. More in general, the removal of some items was motivated by their low or unclear factor loadings. These changes ultimately led us to obtain a shorter Multidimensional School Climate Questionnaire, easier to administer in schools. However, some cross-loadings still remained and our factor structure did not always perfectly align with a simple structure. Study 2 was meant to overcome this limitation by confirming the factorial structure of the questionnaire.

Study 2. Validation of a Multidimensional School Climate Questionnaire

This study aimed to strengthen the 53-item questionnaire's factorial structure. We also aimed to verify the theoretical assumption that *Classroom Practices* and *School Atmosphere* scales can be considered as second order factors. Further, in order to address predictive validity, we analyzed the correlations between school climate scales and other two previously validated scales, that is, student engagement and school burnout. We expected both scales to be correlated with school climate factors, one in a positive and the other in a negative direction.

Method

Participants, Procedure and Measures

This study included 1070 new participants (49% females, 93% born in Italy) from the same four middle schools as in Study 1, with no student participating in both Study 1 and 2. Participants were enrolled in 6th and 7th grade (Mean Age=11.77, SD=.72). The administration of the questionnaire was conducted with the same procedure as in Study 1.

Participants were asked to complete the 53-item version of the Multidimensional School Climate Questionnaire emerged from Study 1. To measure *student engagement*, which refers to student's involvement in learning activities, we used a scale already validated on an Italian population (Mameli & Passini, 2017). In agreement with the authors, we used a short 12-item version comprising affective, behavioral and cognitive engagement (sample item: "I enjoy learning new things in class"). *School burnout* was assessed with the 9-item Italian adaptation of the School Burnout Inventory (Fiorilli et al., 2014), comprising three dimensions of psychological discomfort, namely emotional exhaustion, cynicism and sense of inadequacy toward school activities (sample item: "I feel that I am losing interest toward school"). For both scales, the students answered on a 6-point Likert Scale from Completely agree to Completely disagree, so that lower scores indicate higher engagement and higher burnout. We then computed a general score for each scale (respectively α = .87 and .83).

Data Analysis

Using the Mplus software version 8 (Muthén & Muthén, 1998-2010), we conducted a first order confirmatory factor analysis on the 12 factors identified in Study 1. While specifying the model, we allowed factors to correlate with each other, as expected in the theoretical model. To test the theoretical assumption that the *Classroom Practices* and *School Atmosphere* scales can be considered as two separate superordinate areas, we conducted a second order confirmatory factor analysis, with them as second order factors. For the overall evaluation of the model fit, we relied on several fit indices: the comparative fit index (CFI), the standardized root-mean-square residual (SRMR), and the root-mean-square error of approximation (RMSEA), for which we included 90% confidence interval. Consistently with the recommendation of Hu and Bentler (1999), cut-offs were used to indicate acceptable (CFI > 0.90, SRMR < 0.10, RMSEA < 0.08) and excellent fit (CFI > 0.95, SRMR < 0.08, RMSEA < 0.06). We also tested a model with one second order factor (comprising both *Classroom Practices* and *School Atmosphere*) to exclude the possibility that one second order factor would provide a better fit to our data than two. For the comparison of these non-

nested models we used Akaike information criterion (AIC) and Bayesian information criterion (BIC); for both indices, smaller values indicate better fit. For all models we used the robust maximum likelihood estimator (MLR) and employed the full information likelihood method (FIML) to deal with missing data.

As in Study 1, we then analyzed the psychometric properties of the 12 factors: we checked for normality of distribution and computed Cronbach's alphas, item-total correlations, descriptive statistics and intercorrelations for each factor. To test for predictive validity, we verified whether our 12 factors correlated to scores of *student engagement* and *school burnout* using a two-tailed Pearson coefficient.

Results

The first order confirmatory factor analysis showed good or acceptable indices of fit to our data (MLR $\chi^2(1259) = 2507.56$, $p < .001$, RMSEA = .030, 90% CI [.029, .032], CFI = .92, SRMR =.05), AIC was 174629.83 and BIC 175748.66. The second order model yielded acceptable fit indices (MLR $\chi^2(1313) = 2963.31$, $p < .001$, RMSEA = .034, 90% CI [.033, .036], CFI = .90, SRMR =.06) but higher AIC and BIC values (respectively 175121.77 and 175972.09. Moreover, the Teaching Time factor reported non-significant loading on *Classroom Practices*. Given this and previous critical findings on this factor (i.e., the absence of correlations with many other factors found in Study 1), we decided to remove it. After removal, the model obtained better fit indices (MLR $\chi^2(1115) = 2337.06$, $p < .001$, RMSEA = .032, 90% CI [.030, .034], CFI = .92, SRMR =.04) and lower AIC and BIC values (respectively 161143.03 and 161933). Lastly, we tested the model with only one second order factor, for which fit indices were still good or acceptable (MLR $\chi^2(1116) = 2402.60$, $p < .001$, RMSEA = .033, 90% CI [.031, .035], CFI = .91, SRMR =.05) but AIC and BIC values were higher (respectively 161229.21 and 162014.88), supporting the choice of the model with two second order factors. This complete model, with factor loadings, is reported in Figure 1.

As in Study 1, all factors except Rules reported skewness and kurtosis scores indicating normality of distribution. Cronbach's alphas for each factor can be found in Table 2. As in Study 1, they varied from acceptable to good, indicating reliability of the scale. Again, item-total correlations were all > .30. Descriptive statistics and intercorrelations can be found in Table 2. Correlations with student engagement and school burnout were as expected: almost all the factors were positively correlated to the former and negatively correlated to the latter (Table 5), thus supporting predictive validity.

Discussion

Study 2 allowed us to confirm the factorial structure of the Multidimensional School Climate Questionnaire, with one exception. The Teaching Time factor was in fact removed because it was critical in several ways. One possible explanation for this result is that students might have found difficulties in answering some of the items comprised in this dimension. For example, students might have been confused in answering to the item "Teachers often have to stop their lessons to ask students to be quiet", as this practice may concern some teachers and not all of them. Future research will address this issue by re-thinking the items in order to possibly reintroduce this important dimension of the *Classroom Practices.* More importantly, we were able to validate a questionnaire composed of *Classroom Practices* and *School Atmosphere* as separate second order factors. This finding is innovative and significant, as it supports the theoretical assumption that they are two facets of school climate, capturing different aspects: the scale on *Classroom Practices* includes factors related to everyday choices and behaviors during classroom activities while the *School Atmosphere* scale concerns the quality of the individual's general experience in school.

Finally, as expected we found that better perceptions of all school climate factors were related to higher student engagement, while worse perceptions of almost all school climate factors, with the exception of Student involvement, were related to higher school burnout. This finding supports the predictive validity of the questionnaire on important outcomes of the school environment.

12

Conclusion

The purpose of this research was to adapt a complex measure of school climate for the Italian context, and then validate it. We based our work on the idea that a questionnaire on school climate should be tailored to the specific context it seeks to measure, and should proceed toward a thoughtful process of adaptation while providing evidence for various sources of validity. Our results confirm that our validated Multidimensional School Climate Questionnaire is a psychometrically grounded instrument based on an articulate theoretical model that could be used not only by researchers but also by teachers and educators (the complete questionnaire is reported in the Appendix).

Limitations and Future Directions

There are some limitations that have to be considered. Firstly, the participants were from a convenience sample; future research could include different populations in order to improve the possibility to generalize results. Secondly, we do not have data on test-retest reliability: the involved schools deemed a second administration of the questionnaire during school hours too invasive, even if restricted to a smaller sample. Further, it should always be remembered that the questionnaire is of self-report nature, so it can only provide individuals' perceptions of school climate and that this is only the student version of the questionnaire, while also teacher and parent-versions should be needed for allowing researchers to conduct multi-informant studies. Lastly, given that ultimately the instrument should be used to work with schools in the identification of areas for intervention and improvement, it must be able to pinpoint school-specific strengths and weaknesses, so future studies should further explore this aspect.

Notwithstanding these limits, we believe that owing to its characteristics this multidimensional questionnaire is a valid and appropriate tool to be used in an action research framework, where repeated use in collaboration with teachers and schools will allow to constantly monitor school-specific strengths and weaknesses. Moreover, our findings indicate that this questionnaire is a promising instrument for school climate research, as it can be useful for

researchers wishing to study school climate and for teachers and educators wishing to better

understand their own environment and to work on self-awareness and improvement.

Appendix

The Italian-version of the validated multidimensional school climate questionnaire.

Scale 1. Classroom Practices

Rules (R)

Pensando alle regole della tua scuola, diresti che…

R1   Gli alunni conoscono le conseguenze per chi non le rispetta
R2   La maggior parte delle persone (alunni, insegnanti, altri adulti) le conosce
R3   A scuola si dedica del tempo per spiegarle bene agli alunni
R4   È facile ottenere informazioni sulle regole di questa scuola
R5   Sono chiare e facili da capire
R6   Gli insegnanti le fanno rispettare
R7   Gli insegnanti intervengono quando si accorgono che un alunno non le rispetta

Student Support (SS)

Nella tua scuola…

SS1   Ci sono delle persone (educatori, psicologi e pedagogisti) apposta per aiutare gli alunni che sono in difficoltà scolastica o personale
SS2   Quando ci sono delle difficoltà, gli alunni si rivolgono ad un adulto della scuola per avere sostegno
SS3   Se gli alunni hanno difficoltà personali trovano facilmente aiuto dagli adulti della scuola
SS4   Se gli alunni vanno male a scuola ricevono facilmente aiuto dagli insegnanti

Student Involvement (SI)

Nella tua scuola…

SI1   Viene chiesto il parere degli alunni sul buon funzionamento della scuola
SI2   Quando è importante, gli insegnanti chiedono il parere degli alunni prima di prendere delle decisioni che li riguardano
SI3   Ci sono momenti o situazioni in cui gli studenti possono esprimere la loro opinione sulla scuola
SI4   Gli alunni partecipano a definire le regole

Positive Teaching (PT)

Pensando alle ore di lezione diresti che…

PT1   La maggior parte degli insegnanti sembra insegnare con piacere
PT2   La maggior parte degli insegnanti sembra amare davvero il proprio mestiere
PT3   Gli insegnanti ci spiegano cosa stiamo per imparare di nuovo
PT4   Gli insegnanti spiegano perché gli argomenti che studiamo sono importanti
PT5   Gli insegnanti usano metodi di insegnamento che rendono la materia interessante

Encouragement (E)

Pensando alle ore di lezione diresti che…

E1   Gli insegnanti ci dicono che siamo in grado di farcela
E2   Gli insegnanti ci incoraggiano a fare del nostro meglio
E3   Gli insegnanti ci fanno i complimenti quando ci impegniamo per imparare

Class Management (CM)

Pensando alle ore di lezione diresti che…

CM1   La maggior parte degli insegnanti non sembra più apprezzare l'insegnamento
CM2   La maggior parte degli insegnanti ha l'aria scoraggiata
CM3   Gli insegnanti si arrabbiano facilmente
CM4   Gli insegnanti passano più tempo a punire gli alunni che a mostrare approvazione

Scale 2. School Atmosphere

Students Relations (SR)

In questa scuola…

SR1   Gli alunni si aiutano a vicenda
SR2   In generale, gli alunni vanno d'accordo tra loro
SR3   Gli alunni si trattano con rispetto tra di loro
SR4   Gli alunni possono contare gli uni sugli altri
SR5   In generale, le relazioni tra studenti sono amichevoli

Student-teacher Relations (STR)

In questa scuola…

STR1   Gli alunni e gli insegnanti stanno bene insieme
STR2   In generale, le relazioni tra gli alunni e gli insegnanti sono amichevoli

MULTIDIMENSIONAL SCHOOL CLIMATE QUESTIONNAIRE

STR3   Gli alunni si sentono vicini alla maggior parte degli insegnanti e si fidano di loro
STR4   In generale, gli alunni e gli insegnanti vanno d'accordo tra loro

Educational Climate (EC)
In questa scuola…

EC1   Si può davvero imparare e ricevere una buona educazione
EC2   Si sente che la buona riuscita degli studenti è il primo pensiero degli insegnanti
EC3   Si sente che studiare è importante
EC4   Ci si aspetta che gli alunni diano il meglio di sé
EC5   In generale, quello che si impara è interessante

Sense of Belonging (SB)
In questa scuola…

SB1   Preferirei essere in un'altra scuola
SB2   Mi sento davvero a mio agio
SB3   Sono orgoglioso di essere un alunno di questa scuola
SB4   Questa scuola è importante per me
SB5   Amo la mia scuola

Interpersonal Justice (IJ)
In questa scuola…

IJ1   Le punizioni sono giuste
IJ2   Gli alunni sono trattati in modo giusto
IJ3   Le regole sono giuste

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MULTIDIMENSIONAL SCHOOL CLIMATE QUESTIONNAIRE

Table 1. Organization and contents of the original student version of the SEQ (Janosz & Bouthillier, 2007).

Main Sections	Description	Format
Practices	What is actually done in everyday class activities	47 items grouped in 9 scales: Rules Implementation and Clarity; Rules Application; Student Support; Student Involvement; After-School Activities; Home-School Relations; Teaching Time; Didactic Practices; Class Management.
Climate	Intangible and abstract features of the school environment that students are supposed to internalize through repeated experiences	30 items grouped in 6 scales: Student Relations; Student-Teacher Relations; Educational Climate; Sense of Belonging; Safety; Justice. 5 single items describing the perception of Equal Treatment (e.g., "Teachers treat student equally whether they are male or female").
Problems	Frequency of problematic events	42 single items on target behaviors such as bullying, disengaged behaviors, thefts and vandalism
Additional items	Items on additional areas of interest	8 single items on perceived Safety of Places (e.g., "How safe is the cafeteria in your school with regard to vandalism and risk of aggression?") 8 single items on the behavior of the respondent in school (e.g., "How often have you been suspended?") 1 single item on the frequency of homework ("How often do you have homework?")

Table 2

Bivariate correlations, descriptive statistics, Cronbach's alphas for Study 1 (S1) and Study 2 (S2)

		1	2	3	4	5	6	7	8	9	10	11	12	M(SD) S1	M(SD) S2	α S1	α S2
	Classroom Practices																
1	Rules	-	.45**	43**	.03	.44**	.41**	.29**	.32**	.36**	.44**	.40**	.42**	2.09 (.69)	1.94 (.61)	.72	.63
2	Student Support	.49**	-	.49**	.09*	.51**	.52**	.35**	.33**	.55**	.49**	.41**	.43**	2.43 (.99)	2.12 (.93)	.68	.66
3	Student Involvement	.45**	.50**	-	.12**	.47**	.48**	.26**	.24**	.47**	.41**	.27**	.41**	3.20 (1.10)	2.87 (1.19)	.66	.74
4	Teaching Time	-	-	-	-	.06	.06	.21**	.23**	.14**	-.01	.09*	.02	4.63 (.92)	-	.69	-
5	Positive Teaching	.51**	.53**	.46**	-	-	.63**	.54**	.37**	.68**	.68**	.51**	.56**	2.56 (.99)	2.27 (.95)	.78	.76
6	Encouragement	.44**	.50**	.46**	-	.63**	-	.47**	.38**	.60**	.66**	.46**	.51**	2.28 (1.06)	2.02 (1.02)	.73	.72
7	Class Management	.24**	.22**	.19**	-	.41**	.26**	-	.23**	.51**	.51**	.44**	.48**	3.50 (1.10)	3.43 (1.16)	.72	.68
	School Atmosphere																
8	Student Relations	.37**	.32**	.33**	-	.31**	.33**	.14**	-	.45**	.37**	.48**	.32**	2.55 (.99)	2.51 (1.08)	.83	.86
9	Student-Teacher Rel.	.45**	.48**	.44**	-	.66**	.56**	.38**	.45**	-	.65**	.55**	.61**	3.01 (1.19)	2.79 (1.16)	.87	.85
10	Educational Climate	.52**	.48**	.36**	-	.67**	.59**	.33**	.39**	.64**	-	.59**	.64**	2.29 (.87)	2.10 (.89)	.76	.76
11	Sense of Belonging	.40**	.40**	.33**	-	.48**	.41**	.32**	.50**	.54**	.55**	-	.52**	2.54 (1.24)	2.30 (1.21)	.88	.86
12	Interpersonal Justice	.50**	.42**	.38**	-	.54**	.47**	.35**	.34**	.59**	.63**	.54**	-	2.72 (1.15)	2.45 (1.21)	.76	.76

Note. Study1 above the diagonal; Study 2 below the diagonal. The Teaching Time factor was removed in Study 2, so means and correlations are reported only for Study 1.

$*p < .05.$ $**p < .01.$

Table 3
Factor loadings for the *Classroom Practices* scale from the EFAs in Study 1

	Factors						
	S	TT	CM	R	PT	I	E
SS3. If students have personal problems, they can easily get help from adults in the school	**.72**	-.01	-.07	-.09	-.03	-.04	-.05
SS2. When they have problems, students seek the help of adults in the school	**.56**	.03	.04	.02	.13	.06	.01
SS4. If students have academic problems, they can easily get help from teachers	**.46**	.03	-.05	.09	.00	.08	-.14
SS1. There are professionals meant to help students with academic or personal problems	**.37**	.03	.00	.09	.02	.12	.04
TT3. Students create disruption during classes	-.04	**.64**	-.02	-.05	-.00	.03	-.02
TT4. We waste a lot of time because of disruptive students	-.01	**.62**	-.02	-.11	-.08	-.02	.02
TT2. Teachers often have to stop their lessons to ask students to be quiet	.08	**.62**	-.07	.09	-.08	.02	.18
TT1. Students are mostly calm and attentive	.00	**.56**	.12	.06	.22	.02	-.20
CM1. Most teachers give the impression they don't like teaching anymore	.04	-.11	**-.65**	.04	.19	-.00	.07
CM2. Most teachers seem demoralized	.05	.08	**-.57**	.16	.09	-.13	.00
CM4. Teachers spend more time punishing students than complimenting them	-.05	.12	**-.54**	-.01	-.08	.17	-.26
CM3. Teachers lose their temper easily	.10	.15	**-.41**	-.09	-.04	.13	-.20
R2. Most people know the school rules	-.09	-.03	-.02	**.56**	.06	.11	.12
R6. Teachers enforce the rules	-.10	.07	-.06	**.54**	.15	.04	-.15
R4. It is easy to obtain information about the school rules	.11	-.07	.01	**.51**	-.18	.08	-.15
R1. Students know the consequences for breaking the rules	-.01	-.03	-.02	**.47**	-.07	.06	-.02
R5. The rules are clear and easy to understand	.17	-.01	.01	**.45**	.02	-.16	.01
R7. Teachers intervene when a student doesn't keep to the rules	.12	.09	-.06	**.41**	.13	-.12	-.05
R3. At school, some time is spent to explain the rules clearly to students	.19	.00	.07	**.32**	.07	.28	-.09
PT2. Most teachers appear to love their job	.08	.01	-.23	-.00	**.62**	-.02	-.09
PT1. Most teachers appear to draw pleasure from teaching	.07	.03	-.32	-.01	**.54**	.00	-.10
PT3. Teachers explain what we are about to learn	.08	-.13	-.00	.09	**.40**	.14	-.07
PT4. Teachers explain why what we study is important	.19	-.05	-.05	.01	**.34**	.19	-.02
PT5. Teachers use methods that make their subject interesting	.08	-.01	-.17	-.00	**.27**	.19	-.26
SI1. Students are asked their opinion on the school functioning	.06	.02	-.12	-.01	.03	**.71**	.07
SI3. There are moments or situations when students can express their opinion on the school	.15	-.02	.02	.11	.01	**.42**	-.13
SI4. Students participate to define rules	.06	.11	.17	.04	.15	**.36**	-.09
SI2. When it is important, teachers ask students' opinions before making decisions for them	.19	.00	-.01	.18	-.02	**.30**	-.09
E1. Teachers tell us that we can do it	.08	.01	-.06	.11	.07	-.05	**-.63**
E3. Teachers compliment us when we work hard to learn	.09	-.07	-.12	.02	.06	.06	**-.60**
E2. Teachers encourage students to do their best	.28	-.11	-.06	-.04	.15	.09	**-.29**

Note. R = Rules; SS = Student Support; SI= Student Involvement; TT = Teaching Time; PT = Positive Teaching; E = Encouragement; CM = Class Management.

Table 4
Factor loadings for the *School Atmosphere* scale from the EFAs in Study 1

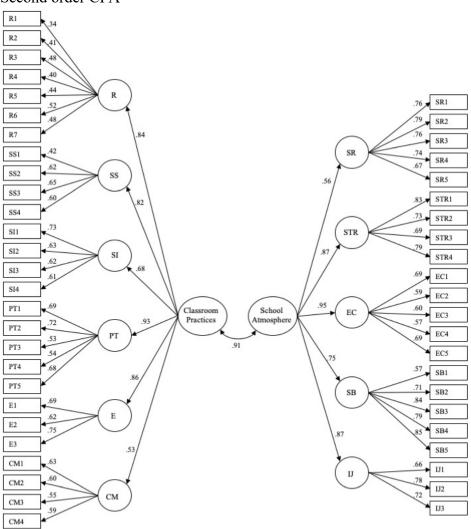|	Factors				
	STR	SR	SB	J	EC
STR1. Students and teachers feel good together	**.78**	.06	-.05	.13	-.09
STR4. In general, relations between students and teachers are friendly	**.76**	-.04	-.01	.13	-.02
STR2. In general, students and teachers get along with each other	**.71**	.06	.01	.03	.10
STR3. Students feel close to most of their teachers and they trust them	**.68**	.03	-.06	-.02	.11
SR2. In general, students get along with one another	.01	**.75**	.05	.08	-.08
SR4. Students can count on each other	-.03	**.74**	-.03	-.05	.07
SR1. Students help each other	-.04	**.69**	-.07	-.01	.03
SR5. In general, relations among students are friendly	-.04	**.62**	-.09	.10	.04
SR3. Students treat one another with respect	.21	**.60**	.02	-.03	-.06
SB3. I am proud to be a student of this school	.03	.04	**-.82**	.01	.03
SB4. This school is important for me	.09	.04	**-.76**	-.05	.06
SB5. I love my school	.14	.04	**-.74**	-.02	.03
SB1. I would rather be in a different school	-.12	.01	**-.69**	.11	-.05
SB2. At my school, I feel at ease	.07	.25	**-.47**	.10	.06
IJ3. The rules are fair	.04	.05	-.04	**.78**	-.02
IJ1. Punishment is fair	.08	.01	.00	**.54**	.14
IJ2. Students are treated with justice	.33	.05	-.02	**.34**	.15
EC4. At my school, we are expected to do our best	.05	.02	.03	-.01	**.54**
EC3. At my school, you can feel that studying is important	-.02	.00	-.09	.11	**.51**
EC1. At my school, you can really learn and get a good education	.06	.10	-.11	.23	**.43**
EC5. In general, what we learn is interesting	.23	-.08	-.28	.03	**.33**
EC2. At my school, you can feel that students' success is the priority for teachers	.21	.06	-.13	.22	**.26**

Note. SR = Student Relations; STR = Student-Teacher Relations; EC = Educational Climate; SB = Sense of Belonging; IJ = Interpersonal Justice.

Table 5

Two-tailed Persons' Correlations for predictive validity in Study 2

	Student engagement	School burnout
Classroom Practices		
Rules	.45**	-.21**
Student Support	.44**	-.13**
Student Involvement	.38**	-.04
Positive Teaching	.57**	-.19**
Encouragement	.45**	-.13**
Class Management	.25**	-.40**
School Atmosphere		
Student Relations	.38**	-.12**
Student-Teacher Rel.	.59**	-.21**
Educational Climate	.66**	-.25**
Sense of Belonging	.58**	-.40**
Interpersonal Justice	.54**	-.32**

** $p < .01$.

Figure 1
Second order CFA

Note. R = Rules; SS = Student Support; SI= Student Involvement; PT = Positive Teaching; E = Encouragement; CM = Class Management; SR = Student Relations; STR = Student-Teacher Relations; EC = Educational Climate; SB = Sense of Belonging; IJ = Interpersonal Justice.