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ORIGINAL PAPER

Validation of a school environment survey among Colombian teachers

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Abstract The article explores the validity and reliability of an instrument for measuring for the School Environment (SE) among 3610 teachers in Medellín, Colombia during 2011. A multilevel exploratory factorial analysis established through 20 items that the instrument identifies four dimensions of SE on an individual level: communication between school and teachers, between teachers and parents, teacher involvement in school decisions, sense of security (respect-safeness) and academic expectations. At a group level, the same items measure a general dimension of SE. Based upon these analyses, the instrument produced a valid and reliable school environment measure that differentiates among schools.

Keywords Environment · Multilevel Exploratory Factorial Analysis (MEFA) · Reliability · School teacher perceptions · Validity

Introduction

School Environment (SE) is a determinant of educational processes and outcomes, such as academic achievement and teacher professional development, among others (Thapa et al. 2013). According to UNESCO, generating a supportive, respectful and positive environment is one of the keys in promoting learning among students. The Second Regional Comparative and Explanatory Study (SERCE) (UNESCO 2000, 2008) found that SE was the main contributor in explaining student academic achievement. These studies concluded that one unit of SE improvement produces an increase in academic achievement differentiated by area and grade. However, there were significant differences among countries, mainly because of teacher conditions and actions.

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Despite the importance that has been given to SE as a factor of quality of education, there is no consensus about its meaning. This lack of consensus is attributable to the multidimensional nature of SE. In other words, SE is not directly observable and it consists of different elements which are based on perceptions among the school community. This is why there are several definitions of SE. For example, in Colombia, the Ten-Year Education Plan 2006–2016 establishes SE as a way to create engaging and democratic environments. On the other hand, UNESCO defined SE more broadly as including aspects such as enjoyment, feelings of comfort among students, a sense of belonging to the school, relationships among classmates and between student and teachers, discipline inside the classroom, and physical and verbal non-violence (UNESCO 2000). Besides, Bryck et al. (2010) defined SE as a fundamental factor for improving the academic achievement. For them, if a school has a high level of SE, students would perceive safety, teacher support and academic dedication.

In addition to the different definitions, there are also different SE measurements. In Medellín city, the government has implemented an SE instrument for assessing teacher, student and parent perceptions about academic expectations, involvement in school life, communication, safety and respect. The instrument was applied in public schools for four consecutive years without statistical validation, making it difficult to reach conclusions about the SE in Medellín city.

This article reports the internal validity of SE instrument for assessing teacher perceptions about the SE in schools in Medellín city. The method to address this validation was Multilevel Exploratory Factorial Analysis (MEFA) because it helps to capture individual and group perceptions. If the instrument is valid and reliable, it can be used to identify the SE in each school and among schools, as well as what aspects are related to a better SE.

SE definition and background

Although some studies indicated SE is a misconception (Maxwell and Thomas 1991), this concept has been defined and addressed by different disciplines and approaches. From an anthropological point of view, SE is part of the scholar culture. On the other hand, from a psychological perspective, the scholar culture is part of SE along with mental characteristics of each individual (Aldridge and Ala'i 1997). From a sociological perspective, according to Mitchell and Bradshaw (2013), SE is understood as the result of the interaction between individuals and institutions. Public policy and administration areas define SE as a necessary and unavoidable process derived from the interaction between agents and the environment inside of organisations, such as schools (Sweetland and Hoy 2000). In the field of the economics, SE is an input or output in the educational production function.

Beyond the definition, Moos (1973, 1974a, b, 1979) helped to clarify SE components based on an ecological point of view. This author acknowledged that SE is produced through the interaction between school characteristics, such as infrastructure, and school community (parents, teachers, students and administrative staff) characteristics such as level of respect. Through this interaction, personal development and students' quality of life can be fostered or impeded (Thien and Razak 2012); also, it can generate institutional changes.

The point of view of Moos that SE is related to psychosocial factors that are not directly observable makes it difficult to operationalise (Anderson 1982). The most common way to assess SE is through perception surveys (Aldridge and Ala'i 1997; Aron et al. 2012; Bear and Yang 2011; Brand et al. 2003; Haynes et al. 1997; Rentoul and Fraser 1983; Trianes

et al. 2006; Zullig et al. 2010, 2014); also see Fraser (1998) and Voight and Hanson (2012). But the distinction between SE and classroom environment has not been considered in some questionnaires (Prado et al. 2010) (Sweetland and Hoy 2000; Thien and Razak 2012). This distinction is important because the classroom environment is not the only aspect that interacts with SE (Dorman et al. 1997; Van Horn 2003); this means that each school has its own SE derived from dynamics and relationships beyond what happen in each classroom (Boocock 1978).

In summary, SE has been approached from different disciplines and definitions and with methodological difficulties, especially validity, that have affected the development of empirical studies on this topic. Although there are some studies that validate SE surveys (Aldridge et al. 2006; Bocchi et al. 2014; Brand et al. 1998; Johnson et al. 1987; Johnson and Stevens 2001; Johnson et al. 2007; Liu et al. 2014; Mitchell and Bradshaw 2013; Mitchell et al. 2010; Rentoul and Fraser 1983; Voight and Hanson 2012; West 1985), few of them acknowledged the multilevel nature of SE (Johnson and Stevens 2001; Johnson et al. 2007; Mitchell and Bradshaw 2013; Voight and Hanson 2012) and the different kinds of statistical errors (Schweig 2014).

In Colombia, this type of study and surveys are still relatively unexplored (Ávila et al. 2014; Bermúdez et al. 2013; de Giraldo and Mera 2000; Prado et al. 2010; Secretaría De Educación Distrital 2013). Throughout these studies, the validity and inclusion of teachers as research subjects only have been considered in Bermúdez et al. (2013), but this author did not take into account the nested structure of data.

Instrument design

In order to develop an instrument to measure SE in Medellín city, we reviewed several SE surveys such as School Climate Survey (Ontario Ministry of Education 2009), Secondary School Climate Assessment (Alliance for the Study of School Climate 2004), California School Climate (California Department of Education 2004), Great Place to Learn (Search Institute 2006), the SE part of the NYC School Progress Report (NYC Department of Education 2011), Comprehensive School Climate (National School Climate Center 2015), and *Evaluación del Programa Escuelas de Calidad para la Equidad y la Convivencia* (Secretaria de Educación de Medellín –ProAntioquia– Universidad EAFIT 2009).

The revision of surveys allowed us to define SE as the specific way in which school community members relate and communicate, as well as the way in which the school involves them in the student learning process (Universidad EAFIT 2012). The revision also allowed designing surveys for students, parents and teachers by selecting four categories: academic expectations, communication, engagement, safety and respect.

The academic expectations category involves the perceptions of students, parents and teachers about the level of student motivation provided through the school for having rigorous and coherent academic goals. The academic expectation category is relevant for SE because of its positive correlation with academic success (Johnson et al. 2000; Marzano 2003; Ozturk and Debelak 2005; Stronge 2002).

The communication category involves the perceptions that students, parents and teachers have about the information on academic goals and academic progress provided by the school. According to Swick (2003), it is important to create effective communication channels among school community members. The engagement category focuses on the involvement level promoted by the school in order to involve school community with the student learning process. Therefore, engagement is the result of the school community's commitment to foster student learning and it depends on school incentives.

The safety and respect category involves school community perceptions in relation to physical and emotional safety, which are essential to guarantee the learning process. The significance of this category lies in its direct link to academic success. According to Wynne (2008), students have better academic results if they feel emotional support. Furthermore the physical resources should promote a feeling of wellbeing as well as a comfortable, peaceful and smooth development of scholarly activities (Alolah et al. 2014).

Method

In order to assess the capacity of this instrument to measure SE in a valid and reliable way through teachers perceptions, Multilevel Exploratory Factorial Analysis (MEFA) was used to evaluate the psychometric characteristics of data while recognising its nested structure. Below are described the data characteristics, the instrument and the analysis technique.

Sample and fieldwork

The sample was representative at the school level and involved 3610 school teachers in 209 schools in Medellín city. Mean job tenure was 7.36 years (SD = 7.5), whereas mean occupational tenure was 17.23 years (SD = 11.58). All of the participant schools were public and selected from a list delivered by the regional office of the Colombian Ministry of Education. As with other cities and towns of the Department of Antioquia, Medellín has been the object of a continuous educational reform for several years now. This educational reform has been directed towards the enhancement of the quality of education in Antioquia. It is noteworthy that different stakeholders from the public, private and third sectors have participated in the initiative. This study is part of this effort in that it helped to measure the school environment which, as outlined before, is a critical factor for students' personal development and education.

Estimation of the sample size was performed by simple random sampling with an error margin of 10% and a confidence interval of 90%. Teachers were randomly selected to obtain a representative sample within each school. The number of institutions met the requirement for the multilevel analysis, which consists in a variation between 50 and 100 schools (Hox and Maas 2001; Muthén 1994). The survey was in self-report and paper format during 2011, ensuring confidentiality. Because participation was mandatory, self-selection wasn't a problem.

The instrument involves demographic information and four sections with statements related to each SE category: teacher academic expectations (nine items); communication (seven items); engagement (nine items); and safety and respect (13 items, but eight items were selected for analysis). Teachers could express their level of agreement or disagreement for each item through a Likert scale ranging from 1 'totally disagree' to 4 'totally agree' or through a frequency scale consisting of 'never or hardly ever', every 3–4 months, every month to 2 months, weekly or daily. Table 1 shows some sample items.

Analysis

This study used a multilevel analysis technique that allowed exploring individual and group latent dimensions of teacher perceptions about School Environment (SE) in Medellín

Table 1 Typical items in SE survey

Category	Typical items
Academic expectations	Working to improve the quality of education is a priority for the directive staff I have enough resources to teach such as books, audiovisual equipment, maps, calculators, etc.
Communication	The directive staff supports open communication to address important issues You have had communication with parents about student academic progress
Engagement	To what extent do you feel supported by directive staff in order to achieve academic activities? You receive feedback from colleagues
Safety and respect	Alcohol and illegal drug consumption are a problem in the school There is discrimination in the school based on ethnicity, skin colour, gender, disability or sexual orientation

city public schools. This technique is useful to study SE because, as Dorman (2009) states, variance in teacher answers is divided in individual and group levels.

Multilevel analysis has advantages over traditional factorial analysis when validating group-level instruments of measurement. Traditional factorial analysis consists of two steps: making an exploratory or confirmatory factorial analysis; and then calculating the factor scores thus established for each of the groups. This traditional approximation does not consider dependency between the scores given by individuals regarding the group to which they belong (D'haenens et al. 2010). Traditional factorial analysis processes the answers of individuals as observations of individual perceptions separated from the context. According to Dorman (2009), the answers of teachers, students or administrative staff about SE include aspects pertaining to membership to a particular school. Meanwhile D'haenens et al. (2010) point out that hopefully the answers of teachers from the same school look more similar compared with answers of teachers from another school, which would be the case when teachers evaluate SE.

Another aspect that limits the use of traditional factorial analysis in environment studies is that when, studying group latent factors, it is assumed that individual-level latent dimensions come exactly into the group-level latent factors. In this case, assuming that would be like saying that SE factors extracted from the perceptions of each teacher correspond exactly with the same SE dimensions perceived by the set of teachers of each school. This assumption was discarded in some studies that involved factorial analysis of both individual- and group-level perceptions, demonstrating the existence of different factors in each of them (Den Brok et al. 2006; Holfve-Sabel and Gustafsson 2005; Westling 2002).

To evaluate items with respect to assumptions of normality and multicollinearity, we used SPSS software (v 21; IBM). To evaluate normality, symmetry and kurtosis coefficients were divided by their respective typified errors. Values between −2.58 and 2.58 indicate that the normality assumption could be accepted (Hair et al. 2008). Normal probability graphs and box-and-whiskers diagrams were used complementarily to evaluate reagent normality. The multicollinearity evaluation was undertaken through tolerance coefficients and a variance inflation factor (VIF). The critical values for these coefficients are 0.10 and 10, respectively (Hair et al. 2008).

Multilevel exploratory factorial analysis (MEFA) technique (Van de Vijver and Poortinga 2002) was used to confirm the psychometric properties of the SE instrument and was

conducted using the Mplus software (v 6.12; Muthén and Muthén 2010). Inasmuch as the research on SE is currently under development, it is difficult to establish a priori a factorial structure. Then, it is preferable to use MEFA than multilevel confirmatory factor analysis (D'haenens et al. 2010).

MEFA was tested using the maximum likelihood method of estimation. With MEFA results, Mplus (v 6.12) returns intra-class correlations coefficients $(\hat{\rho})$, which account for the proportion of variance corresponding to the grouping of participants, in this case, the schools. These coefficients and the mean size of the groups are used to calculate the design effect (DEFF):

$$DEFF = \hat{\rho}\left(n_g - 1\right) + 1$$

where $\hat{\rho}$ = intra-class correlations and n_g = mean size of the groups.

If *DEFF* coefficient equals 1, the scores given by individuals are independent of their group membership. Otherwise, if DEFF is higher than 1, the scores given by the individuals depend on their group membership and multilevel analysis is indicative (Kline 2010).

Mplus (v 6.12) includes the correlation matrices of individual responses (teachers) and these grouped in classes (schools) in MEFA results. These matrices are returned for a series of models that change the number of factors in the individual (teacher) level and group (school) level. The model with the best general adequacy indices and with load factors bigger than the 0.3 critical value in a unique factor is selected from the ones generated; the 0.3 critical value is acceptable in exploratory scope studies (Hair et al. 2008).

We present the MEFA competitive models coefficients that have theoretical meaning in terms of number of factors in an individual group level—MEFA 1-1: a general SE factor at the individual level and at group level; MEFA 4-1: four individual-level SE factors and one group-level factor; MEFA 4-4: four general SE individual-level factors and four group-level factors. Multilevel studies have shown generally that, at the group level, there emerge more global/general dimensions than at the individual level (D'haenens et al. 2010; Holfve-Sabel and Gustafsson 2005; Westling 2002). MEFA 1-4 (one individual-level factor and four group-level factors) has not been included.

General model fit was evaluated through four coefficients: the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), with critical values close to or bigger than 0.95 indicating satisfactory fit to the data and values bigger than 0.90 suggesting an acceptable fit (Hu and Bentler 1999); the Root Mean Square Error of Approximation (RMSEA) with values less than 0.05 indicating an approximate model adequacy and values less than 0.08 indicating a reasonable adequacy (Browne and Cudeck 1993); and the Standardized Root Mean Residual (SRMR) with a limit value less than 0.08 (Hu and Bentler 1999).

In order to evaluate the internal consistency of the extracted factors at the individual and group levels, the Geldhof et al. (2014) Cronbach alpha coefficient (α) was used. The alphas from the individual and group level can be obtained separately. For this purpose, the fully saturated covariance matrix from the indicators of both levels must be obtained (Geldhof et al. 2014). Mplus (v 6.12) allows extracting those matrices. After that, it applies the Cronbach alpha formula for each level:

$$\alpha = \frac{n^2 \bar{\sigma}_{ij}}{\sigma_\chi^2}$$

where n^2 is the squared number of items; $\bar{\sigma}_{ij}$ is the mean of covariances and is found by adding the unique covariances from the items and then dividing them by the corresponding

number of covariances; and σ_x^2 is the scale covariance, estimated by adding the variance of all items and two times the unique covariances of the items. This formula is applied with the variance and covariance matrices from the items extracted for the individual and group levels.

Results

Because the analysis of the observed variables present in MEFA shows that distributions are into the critical values of tolerance and FIV, multicollinearity was discarded. Dividing the symmetry and kurtosis coefficients by their typical errors, it was found that none of the items met the normality assumption. According to Hair et al. (2008), this kind of statistical test is "too sensitive with big samples (above 1000 observations)" (p. 65). Hence, the normal probability and box-and-whiskers plots were used to evaluate the real degree of deviation from normality. The graph representations of the distributions show the existence of atypical cases that distort the statistical tests (Hair et al. 2008). However, atypical cases were kept because they represent teachers' answers from some specific schools. To solve the abnormality in the information, the maximum likelihood method of estimation with robust typical errors was used (MLR; Muthén and Muthén 2010). This method of estimation is used when distributions do not meet the normality assumption.

Table 2 shows the adjustment indices of the considered MEFA models. MEFA 1-1 with one general SE factor at the individual and group levels shows adjustment coefficients below recommended critical values and, hence, it was rejected. According to CFI coefficient, MEFA 4-4 with four theoretical individual- and group-level factors shows a better adjustment than MEFA 4-1 and MEFA 1-1 models. However, MEFA 4-4 results show the presence of Heywood cases between the group-level factor loadings. Heywood cases include correlations between factors and items with a value bigger than one and make the solution inadmissible (Kline 2010). Additionally, the fourth group-level factor extracted in MEFA 4-4 model explains only two items. Those items belong to two different theoretical factors: communication and participation. Therefore, MEFA 4-4 was also rejected. Finally, because other multilevel studies have discarded the existence of equal numbers of factors in both the individual and group levels (Den Brok et al. 2006; Holfve-Sabel and Gustafsson 2005; Westling 2002), and also given that MEFA 4-1 showed acceptable general adjustment coefficients, this model was retained.

As shown in Table 3, in MEFA 4-1 with four individual level factors and a general SE group-level factor, items have acceptable factorial loads in the respective theoretical factors and without crossed loads or Heywood cases. Added to this, MEFA 4-1 has theoretical coherence in both individual and group levels and, as was mentioned before, it is congruent with findings in similar studies that show more general factors at the group level

Table 2 Adequacy indices for MEFA models

Model	CFI	TLI	RMSEA	SRMR
MEFA 1-1	0.81	0.78	0.06	0.06
MEFA 4-1	0.95	0.94	0.03	0.02
MEFA 4-4	0.96	0.93	0.03	0.02

Table 3 MEFA 4-1 factorial loadings at individual (geomin rotation) and group levels

Item	Individual level					Group level			
	AE	COM	PART	SR	Residual variance	SE	ICC (school)[a]	Residual variance	DEFF
1ae	**0.53**	−0.09	0.12	0.09	0.68	**0.77**	0.06	0.4	1.97
2ae	**0.54**	0.24	−0.02	0.02	0.48	**0.97**	0.13	0.05	3.11
3ae	**0.53**	0.32	−0.12	0.03	0.41	**0.97**	0.12	0.06	2.95
4ae	**0.85**	0.01	−0.01	−0.05	0.32	**0.97**	0.09	0.06	2.46
5ae	**0.74**	−0.02	0.08	−0.01	0.44	**0.92**	0.1	0.15	2.62
6ae	**0.49**	0.05	0.01	0.21	0.71	**0.92**	0.07	0.16	2.13
7ae	**0.34**	0.14	0.1	0.03	0.74	**0.69**	0.12	0.52	2.92
8ae	**0.52**	0.17	0.01	−0.03	0.61	**0.79**	0.18	0.36	3.92
9com	−0.01	**0.72**	0.19	−0.03	0.38	**0.96**	0.15	0.08	3.44
10com	0.11	**0.49**	0.03	0.05	0.63	**0.86**	0.11	0.27	2.79
11com	0.01	**0.42**	0.31	0.01	0.64	**0.71**	0.12	0.5	2.95
12com	−0.01	**0.74**	0.05	0.01	0.42	**0.91**	0.2	0.16	4.25
13com	0.06	**0.65**	−0.07	0.05	0.53	**0.87**	0.25	0.25	5.06
14part	0.09	−0.01	**0.37**	0.01	0.84	**0.44**	0.07	0.81	2.13
15part	0.03	0.04	**0.58**	−0.01	0.63	**0.51**	0.04	0.74	1.65
16part	0.09	0.1	**0.31**	0.15	0.77	**0.66**	0.05	0.56	1.81
17part	−0.04	−0.01	**0.59**	0.02	0.66	**0.37**	0.04	0.86	1.65
18sr	−0.04	0.07	−0.01	**0.61**	0.6	**0.67**	0.3	0.56	5.88
19sr	0.01	−0.03	−0.01	**0.77**	0.43	**0.71**	0.23	0.5	4.74
20sr	0.08	0.02	0.47	**0.47**	0.72	**0.59**	0.14	0.66	1.97

$n = 3610$

[a] Reagent intra-class correlation. Mean size of the groups = 17. = 1-residual variance

Figures in bold represent factor loadings above the rule of thumb > .03

(D'haenens et al. 2010; Holfve-Sabel and Gustafsson 2005; Westling 2002). Finally, because MEFA 4-1 adjustment indices (except the CFI coefficient) reach the same values as those in MEFA 4-4, MEFA 4-1 was retained instead of MEFA 4-4.

In Table 3, all DEFF coefficients are superior to the established critical value (>1; Kline 2010). This suggests that MEFA analysis is useful for exploring the psychometric properties of the SE instrument. Otherwise, it can be seen that except in the case of 17-part reagent, factorial loads are higher at the group level than at the individual level. Other researchers have obtained similar results (Reise et al. 2005). According to D'haenens et al. (2010), this suggests the factorial structure is stronger at the group level and suggest that the retained items would be more able to measure one dimension of school environment at the school level than would the four theoretical SE dimensions from the point of view of each teacher. However, this does not mean that the instrument cannot be used to measure teachers' perceptions on the SE of their school: the acceptance of MEFA 4-1 indicates that the instrument has both uses. Although some factor loadings exceed normal values for traditional factor analysis (<0.80; Hair et al. 2008), the corresponding items were

maintained in the model. Results from other studies using MEFA suggest that indicators with loadings above 0.80 could be maintained in this kind of models (D'haenens et al. 2010).

The residual variances at the individual level in Table 3 are between 0.32 and 0.84. The four factors explain over 50% of the variance in seven of the 20 items. In these cases, the measurement error would be inferior to the variance explained by the factors. At the group level, residual variances are between 0.05 and 0.86. The extracted factor explains around 50% of the variance in 13 of the 20 items. In these cases, the measurement error would be inferior to the variance explained by the factor. In the D'haenens et al. (2010) study, in which a school environment instrument was validated through the MEFA technique, communities are reported up to 0.32 and 0.005 at the individual and group levels, respectively. Therefore D'haenens et al. (2010) maintained indicators even though the extracted factors explained a low proportion of variance in some indicators.

Given this background, and the existence of few studies using MEFA to validate school environment instruments, it was decided to maintain items whose residual variance exceeded 50%. It is noteworthy that, in the case of the results in this article, the variance explained by the factors for each reagent did not fall to levels as low as those reported in D'haenens et al. (2010) for some of the reagent of their instrument. Therefore, the proportion of variance explained by the factors of the SE instrument presented here is bigger that the ones from the instrument in D'haenens et al. (2010).

If the residual variances of the indicators are compared at the individual and group level (see Table 3), it is noted that, in the majority of cases, the measurement error diminishes significantly. This finding, together with the fact that the factorial loads are higher at the group level, give rise to thinking the indicators are better for measuring SE than for measuring the SE dimensions at the individual level.

If correlations between factors at the individual level are observed, it shows that they were positive and statistically significant. This would suggest the existence of a dimension of second order that brings together the four first-order factors at the individual level. This would be the SE dimension at the individual level. However, the exploratory factor analysis only allows extracting first-order factors. With reference to these, MEFA indicates that, at the individual level, factors show internal consistency. The four dimensions' Cronbach alphas were satisfactory (see Table 4). In the PART factor case, its Cronbach alpha was comparatively lower, but other research about SE in which MEFA was used shows that factors with more items still have lower internal consistency indices ($\alpha = 0.52$; D'haenens et al. 2010). Therefore the PART factor was maintained in the instrument. The unique SE factor at the group level has satisfactory internal consistency ($\alpha = 0.95$).

Table 4 Correlations between factors (individual level; geomin rotation)

Factor	Correlations			
	AE	COM	ENG	SR
AE	0.85			
COM	0.65	0.80		
ENG	0.34	0.32	0.56	
SR	0.43	0.47	0.23	0.66

All correlations are significant at $p < 0.01$. Cronbach alpha coefficients are reported in diagonal. The correlation matrix at the group level is not reported because MEFA 4-1 only includes one group factor

Discussion and conclusions

This article reported the validation of a school environment instrument supplied to public school teachers in Medellín—Colombia. Results indicate the instrument is useful for measuring individual perceptions about some aspects of schools. According to the findings, the instrument has the psychometric properties needed to account for the public school teachers' perceptions, at the individual level, about the four expected SE factors: academic expectancies, communication, participation, safety and respect. These perceptions could be related to microclimates within the groups in which each teacher works. Future investigations must inquire about the individual and group perceptions at the school level, as well as shared perceptions at the classroom level.

Likewise, teachers who receive feedback about their educational work in a pertinent and objective way will feel that the school takes them into account as valuable contributors to the student learning process. Moreover, they must replicate this exercise with their students and their parents, analyzing the academic progress of the student, as recommended by Fraser (2012).

Among possible future studies, it should be checked whether, as in Medellín case (in which students spent most of the time in the same classroom, with the same partners and sometimes with the same teachers –especially in elementary school), it could be possible that at least part of the perceptions that both students and teachers have about the school depends on what happen in the classroom, as Mitchell and Bradshaw (2013) and Koth et al. (2008) argue. That could imply that SE will be perceived similarly for students and teachers, independently.

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