

Adaptación psicométrica de la Escala de Sentido de Comunidad (SCI-II) en escuelas públicas chilenas

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Resumen

El presente estudio tuvo como objetivo adaptar la Escala de Sentido de Comunidad (SCI-II) a escuelas chilenas y analizar sus propiedades psicométricas. Se utilizó una muestra compuesta por 2871 estudiantes que cursaban entre 6.º de enseñanza básica y 4.º de enseñanza media de la comuna de Calama al norte de Chile. El 52.4 % (n = 1506) se identificó con el género femenino y la edad promedio de la muestra fue de 14.64 (DE = 2.046). Como resultados, el análisis factorial exploratorio indicó una solución de tres factores: conectividad escolar, pertenencia valorada y membresía-reciprocidad; la fiabilidad de la escala fue adecuada ($\alpha = .879$ para conectividad escolar, $\alpha = .884$ para pertenencia valorada y $\alpha = .716$ para membresía-reciprocidad); y los análisis confirmatorios indicaron índices de ajuste adecuados (CFI = .939; TLI = .933). Se concluye que el modelo propuesto de la versión adaptada es válido y es utilizable en futuros estudios sobre el sentido de comunidad en el contexto escolar. Al final se discute el valor de este instrumento para las políticas públicas y los procesos de innovación de la educación pública.

Palabras claves: sentido de comunidad, comunidad escolar, validación de instrumentos

Psychometric adaptation of the Sense of Community Index (SCI-II) in Chilean public schools

Abstract

This study aimed to adapt the Sense of Community Index (SCI-II) in Chilean schools and to examine its psychometric properties. The validation process was conducted with 2871 students from 6th grade of elementary school to 4th grade of high school in a city of Northern Chile. A 52.4 % (n = 1506) of the sample identified with the female gender and the average age of the sample was 14.64 (SD = 2.046). An exploratory factor analysis indicated a three-factor solution: school connectivity, valued belongingness, and membership-reciprocity. The reliability of the scale was adequate ($\alpha = .879$ for school connectivity, $\alpha = .884$ for valued belongingness and $\alpha = .716$ for membership-reciprocity), and confirmatory analyzes indicated adequate adjustment rates (CFI = .939; TLI = .933). It was concluded that the proposed model of the adapted version is valid and is appropriate to be used in future studies on the sense of community in the school context. Finally, the article discusses the value of this instrument for public policies and innovation processes of public education.

Keywords: sense of community; school community; instrument validation

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Adaptação psicométrica da Escala de Sentido de Comunidade (SCI-II) em escolas públicas chilenas

Resumo

Este estudo teve como objetivo adaptar a Escala de Sentido de Comunidade (SCI-II) a escolas chilenas e analisar suas propriedades psicométricas. Participaram 2871 estudantes que cursavam entre o 6º do ensino básico e o 4º do ensino médio [nomenclatura usada no Chile] da comunidade de Calama, no norte do Chile. 52.4 % (n = 1506) foram identificados com o gênero feminino e idade média da amostra de 14.64 (DP = 2.046). A análise fatorial exploratória indicou uma solução de três fatores: conectividade escolar, pertencimento valorizado e filiação-reciprocidade. A confiabilidade da escala foi adequada ($\alpha = .879$ para conectividade escolar, $\alpha = .884$ para pertencimento valorizado e $\alpha = .716$ para filiação-reciprocidade). As análises confirmatórias apresentaram índices de ajuste adequados (CFI = .939; TLI = .933). Conclui-se que o modelo proposto da versão adaptada é válido e é útil em futuros estudos sobre o sentido de comunidade no contexto escolar. Discute-se o valor desse instrumento para as políticas públicas para os processos de inovação da educação pública.

Palavras-chaves: sentido de comunidade, comunidade escolar, validação de instrumentos

Introduction

Schools are not merely a source of knowledge transmission, but also a community space that promotes encounters between people, the development of support networks, belongingness and friendship (Puddifoot, 1994; Moscardino, Scrimin, Capello, & Altoé, 2010; Witten, McCreanor, & Kearns, 2007). In this line, the sense of community has shown to be relevant for the socio-emotional development of the students. Students with a high sense of school community enjoy school more, are more motivated, maintain optimal attendance, participate in school activities, have better academic performance (Battistich, & Hom, 1997; Pereda, 2003; Elvas & Moniz, 2010) and are less likely to have mental health problems (Battistich & Hom, 1997; Bond et al., 2007).

The conceptualization of the school as a community combines sociological and psychological perspectives, assuming it as an antidote to the managerial tendencies of mass society and as a learning space proper for human beings. In this sense, it is understood that the school community transcends the doors of the school operating not on the basis of tasks, rules and hierarchies, but on values, trusts, expectations and shared obligations, as well as on learning about community leadership, links and the collective management of change (Redding, 2001; Watson & Bogotch, 2016).

For this reason, the promotion of the sense of school community has been one of the fundamental axes of curricular and coexistence policies in recent decades (Baumeister & Leary, 1995; Frederickson & Baxter, 2009). However, there are few instruments available to measure this construct and those that exist, focus specially on discrete dimensions

of the sense of community at school such as connectivity (Goodenow, 1993) or belongingness (Rostosky, Owens, Zimmerman, & Riggle, 2003).

Having reliable, valid, accurate and sensitive instruments for the needs of school communities is an essential requirement for successful interventions (Dowdy, Furlong, Eklund, Saeki, & Ritchey, 2010). In this context, one of the instruments most used to measure the sense of community is the Sense of Community Index-II (SCI-II) based on the well-known model of McMillan and Chavis (1986) who define four interdependent dimensions: *belongingness*, *influence*, *satisfaction of needs and shared emotional connection* (Chavis, Lee & Acosta, 2008, Chavis & Pretty, 1999, Peterson, Speer & McMillan, 2008). *Belongingness* refers to the feeling of having invested personal resources in the community and the feeling of being part of it; *influence* refers to the power that members exercise among themselves; *the satisfaction of needs*, to the values shared by the members and the benefits of belonging to the community; *the emotional connection*, to the recognition of shared bonds, where the bond is the result of positive contact and a common history (Chavis & Pretty, 1999).

The original scale has 12 items that evaluate the four components of the model, but in subsequent revisions, 12 additional items were added to deepen the dimensions of the sense of community. Research on the factor structure of this instrument has cast doubt on its original configuration (Obst & White, 2004; Peterson, Speer & Hughey, 2006), showing empirically that the definition of four dimensions cannot be conclusive (Flaherty, Zwick & Bouche, 2014), in front of which three (Long & Perkins, 2003) and two factor solutions have been proposed (Sayer, Beaven, Stringer & Hermena, 2013). These contradictory results have also

been observed in Ibero-American studies, which emphasize the need to deepen the theoretical-empirical foundations of the sense of community (Sanchez-Vidal, 2001, Sanchez-Vidal, 2009).

This inconsistency is in accordance with the consensus that the sense of community is a multidimensional construct that specifically combines the elements described by the McMillan and Chavis model according to the specific characteristics of the communities in which it is evaluated (Hombrados, 2011; Jason, Stevens & Ram, 2015; Wright, 2004). This is a necessary situation to consider when analyzing the sense of community at school, given its special particularities and social contexts that overlap, such as the classroom, recreation area and school management.

This research sought to adapt the SCI-II to Chilean public schools and review the psychometric properties in a sample obtained by means of an online platform, in order to obtain a version adjusted to the peculiarities of the Chilean school communities and thus have an instrument that contributes to the design of promotional and preventive interventions that allow to effectively strengthen the academic and emotional development of the students, as well as to better understand the characteristics that it acquires of the sense of community when it is evaluated in school communities.

Method

Participants

An intentional non-probabilistic sampling was applied by means of the participation of 2871 students from 11 municipal educational establishments of the municipality of Calama in the north of Chile, covering from 6th grade of elementary school up to 4th grade of high school.

The municipality of Calama is recognized as the mining capital of the country. Its main production is copper, where export supports large part of the Chilean economy. According to a study by the Association of Municipalities of Chile (2016), Calama would be among the second group (out of five) providing the best quality of education in the country. This group is characterized by concentrating 15% of poverty and 17.8% of rural population. 44.8% of the students of districts in this group attend municipal establishments to which 8.7% of the total communal budget is allocated. Research in infant-adolescent mental health has shown that problem prevalence does not differ meaningfully from that in the rest of the country (Haquin, Larraguibel, & Cabezas, 2004; Rojas-Andrade, & Leiva, 2015).

Of the participants, 52.4% ($n = 1506$) identified as belonging to the female gender while 0.7% ($n = 20$) reported not identifying with either the female or male gender. The average age of the sample was 14.64 years ($SD = 2.046$) and 10.60% ($n = 305$) declared to belong to a nationality different from the Chilean one.

Instruments

The Sense of Community Index (SCI-II) was used, which originally evaluated the dimensions of *belongingness*, *influence*, *satisfaction of needs* and *shared emotional connection* based on the McMillan and Chavis model (1986).

The SCI-II is a self-report of 24 items responded on a Likert type scale of 4 options with scores ranging from 0 to 3. For the purposes of this research, the language and wording of the items were modified to bring them closer to the discursive reality of the schools, for which three experts in education and school psychology provided assistance and advice, and in front of each item evaluated the pertinence of the construct and the language used.

Thus, it was decided to change the words "community" to "school" and "know" to "locate" (local Chilean slang) and divide item 10 into two, to specify symbolic dimensions of Chilean schools associated with the recognition of common characteristics. In this way, the original item "People who belong to this community have our own ways of dressing, talking, fixing our houses, behaving" was separated into: "In this school we talk, dress and behave in a similar way that others can recognize" and "In this school we have things like a hymn, badges, uniforms, banner, etc. that others can recognize."

Reliability indexes obtained in previous SCI-II investigations have been adapted varying in values from .70 to .90 (Chavis et al., 2008; Pretty, Andrews & Collett, 1994; Sarriera et al., 2015; Peterson, Speer & Hughey, 2006); nevertheless, the factorial structure of the instrument is still under discussion by the researchers. Regarding the criterion validity, studies have shown adequate relationships between the total score and behavioral, social, emotional and academic variables of the members of communities in which they have been studied (e.g., Battistich & Hom, 1997; Bond et al., 2007).

Process

Data collection

The SCII was applied as part of a battery of instruments used for screening in school mental health, which were applied in public educational establishments using an online platform.

The implementation process comprised the following sequence: (1) contact with municipal authorities; (2) invitation to establishments; (3) face-to-face training, supervision and online tutoring to applicators using instant messaging to solve implementation questions; (4) sending and receiving negative consents (explicit expression of the desire not to participate); (5) signature of student's consent; (6) supervised application of the instrument through an open and free digital platform, which was available in the computer laboratories of the establishments and; (7) analysis and sending of reports per child, course and establishment.

Ethical aspects

The research relied on the approval of an ethics committee of one of the sponsoring universities, on the consent of parents and the agreement of participating children and adolescents. For the latter, standard letters of agreement, signed by the students, and "negative consents" for the parents were used; i.e., those who did not accept that their sons and daughters participated in the research had the opportunity to express it in black and white.

All the information collected was confidential but not anonymous. Although the identification numbers of each child and adolescent were obtained, these data were dissociated from the names, and were only used together to organize the material for the reports, according to the needs of the screening process agreed with the centers. In this same framework, as a way of returning information to school communities, reports were delivered at the end of the process, both at a general level and per child and adolescent. In this way, the students' personal information was treated in such a way that it was not available for access by third parties.

Design of Data Analysis

An instrumental design was followed (Ato, López & Benavente, 2013) and the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) backed by the SPSS-IBM 22.0 and MPLUS 7 software were used as analytical techniques. In each of the analyses, independent subsamples were randomly drawn from the general sample (1426 for EFA and 1445 for CFA).

The EFA analyzes the statistical structure of the responses of an instrument and is used to determine the internal structure of generally large numbers of factors that underlie the data, allowing all factors to be correlated due to the saturation of all indicators in all the factors.

The EFA is very useful in cases where the researcher does not know in advance the structure that can be expected

from the sample responses and given the scant agreement of the SCI-II configuration, it was decided to use it to identify the empirical factorial structure of the obtained data matrix.

The CFA is used to determine if the number of factors obtained are adjusted to those that correspond to a postulate or previous theory on the data, to confirm empirically the conceptual structure established a priori. In this case, the CFA was used to calculate goodness and fitness indicators and compare them with those that arose from the original proposed factors. It was considered that the model that showed the best fit values would be the one that best reflected the empirical structure of the instrument in the population studied.

As a first phase of analysis, the item distributions, the correlation matrix and the Kaiser-Meyer-Olkin sample adequacy index (KMO-whose values close to one indicate adequacy to the AFE model) were calculated, the contrast of Barlett's sphericity (whose significance under 5% indicates the absence of an identity matrix) and sampling adequacy measures (MSA-whose values close to 1 show that items can be predicted without error by other items) in order to evaluate the relevance of carrying out a factorial analysis.

Both for the EFA and CFA the factors were estimated considering the generalized least squares method WLSMV (Weighted Least Squares Means and Variance Adjusted) by the ordinal level of measurement and the non-fulfillment of the assumption of normality of the items.

To evaluate the goodness of fit of the models detached from the EFA and CFA, the indicators χ^2 / gl (chi-square / degree of freedom), CFI (comparative fit index), TLI (Tucker-Lewis Index), RMSEA were taken into account (Root Mean Square Error of Approximation) and SRMR (Standardized Root Mean Square Residual) for being recognized as highly robust indicators for the estimation of factorial models (Bandalos & Finney, 2010).

The χ^2 / gl is a measure of absolute adjustment. Proportions under 2 or 3 are acceptable; however, the contrast of this index becomes more sensitive as the parameters increase, so it is advisable to analyze it in conjunction with other measures of adjustment (Tanaka, 1998). The CFI and the TLI are measures of incremental adjustment and values close to one are considered indicative of good fit. The RMSEA is a measure of parsimony and values under .08 are considered adequate. The SRMR is a measure of absolute adjustment and values under .08 are considered indicative of good global adjustment (Bandalos & Finney, 2010).

Finally, the reliability of each dimension was calculated by means of Cronbach's α and estimated as descriptive by dimension.

Results

This section presents the results of the research. First, there is a report on the analysis of each of the items and the analysis of the correlation matrix between them. Subsequently, the analysis of the dimensionality of the scale is reported by means of EFA and CFA. Finally, the results of the reliability analyses are reported, and descriptive statistics of the scales are presented.

Item analysis

Table 1 shows the descriptors of each item of the SCI-II scale adapted to Chilean schools. The general average of the items was 1,835 (DS = .917). The items that presented averages close to three points were items 1, 4, 11, 21, 23 and 24. Of them, item 11 stands out ("In this school we

have things like a hymn, badges, uniforms, standard, etc.) that other people can recognize"), and item 21 ("I spend a lot of time with other people in the school and enjoy being with them"). Regarding item distribution, Kolmogorov-Smirnov tests were performed, by means of which it was observed that none of them fitted the parameters of a normal distribution. The descriptive statistics of asymmetry and targeting are presented in table 1.

Item correlations

Table 2 shows the matrix of polychoric correlations. In that it can be observed that all of them are correlated adequately. However, those with high correlations, of which the correlations between items 13-20 ($r = .783$) and 19-22 ($r = .786$) stand out, refer to the dimension of belongingness to school.

Table 1.

Descriptions of items SCI-II Adapted to Chilean schools

	Items	MEAN	DS	A	k	D
1	In this school, needs that are important to me can be met.	2.010	.831	-.507	-.351	.248*
2	Everyone at school values the same things.	1.369	.885	.153	-.694	.236*
3	This school has been able to meet the needs of its members.	1.980	.814	-.414	-.425	.249*
4	Being part of this school makes me feel good.	2.228	.894	-.959	-.029	.287*
5	When I have a problem, I can talk to people at this school.	1.750	1.100	-.292	-1.261	.207*
6	People in this school have similar needs, priorities and goals.	1.956	.857	-.451	-.493	.243*
7	I can trust people in this school.	1.617	.990	-.146	-1.012	.209*
8	I recognize most people in this school.	1.796	.905	-.216	-.827	.213*
9	Almost everyone in this school recognizes me.	1.394	.882	.152	-.682	.239*
10	In this school we talk, dress and behave in a similar way that others can recognize.	1.747	.908	-.292	-.702	.241*
11	In this school we have things like a hymn, badges, uniforms, banners, etc. that others can recognize.	2.639	.681	-1,962	3.380	.439*
12	I invest a lot of time and effort in being part of this school.	1.956	.837	-.486	-.326	.259*
13	Belonging to this school is part of who I am.	1.868	.981	-.425	-.872	.215*
14	Being like the people in this school is important to me.	1.408	1.030	.061	-1.170	.193*
15	What we do in this school has an impact elsewhere.	1.860	.885	-.380	-.597	.243*
16	I'm worried about what other people in the school think of me.	0.974	1.080	.687	-.924	.283*
17	I have influence in the things that happen in my school.	1.145	.931	.326	-.841	.211*
18	If there is a problem in this school, people can solve it.	1.955	.923	-.457	-.742	.213*
19	This school has good leaders.	1.928	.980	-.491	-.831	.210*
20	It is very important for me to be part of this school.	1.907	.992	-.470	-.879	.208*
21	I spend a lot of time with other people in the school and I enjoy being with them.	2.263	.890	-.987	.018	.305*
22	I hope to feel part of this school for a long time.	1.957	1.010	-.555	-.839	.226*
23	The members of this school have shared good things and bad things, like celebrations or disasters.	2.270	.808	-.869	.032	.284*
24	I feel that the future of this school will be good.	2.244	.881	-.948	.001	.293*
25	The members of this school are taken care of and protected.	1.662	.939	-.199	-.845	.227*

Note. The highest values are in bold; DS = Standard deviation A = Asymmetry; K = Kurtosis; D = Statistic contrast test Kolmogorov-Smirnov; * $p < .05$

Table 2.
Matrix polychoric correlations between items SCI-II Adapted to Chilean schools

Items	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2		.494																						
3		.597	.506																					
4		.592	.461	.570																				
5		.413	.371	.421	.462																			
6		.383	.420	.459	.398	.364																		
7		.463	.453	.496	.554	.620	.422																	
8		.250	.229	.264	.313	.298	.253	.338																
9		.281	.284	.288	.310	.308	.255	.322	.717															
10		.378	.419	.393	.387	.378	.372	.407	.355	.376														
11		.304	.220	.330	.290	.202	.294	.256	.226	.204	.278													
12		.482	.436	.464	.577	.406	.377	.445	.279	.324	.381	.300												
13		.506	.454	.515	.700	.463	.417	.529	.330	.335	.407	.302	.665											
14		.443	.495	.465	.578	.425	.402	.534	.322	.348	.399	.235	.565	.675										
15		.365	.340	.405	.389	.337	.378	.371	.285	.268	.348	.287	.401	.440	.421									
16		.168	.226	.195	.198	.181	.164	.250	.185	.183	.208	.065	.252	.267	.379	.207								
17		.324	.349	.329	.346	.345	.243	.373	.358	.382	.331	.144	.375	.411	.435	.358	.398							
18		.425	.412	.523	.478	.451	.399	.514	.292	.289	.419	.308	.411	.475	.449	.394	.244	.389						
19		.510	.463	.578	.545	.451	.423	.544	.275	.283	.401	.348	.465	.534	.490	.425	.231	.361	.659					
20		.539	.454	.527	.758	.477	.413	.560	.311	.333	.388	.257	.649	.783	.695	.449	.297	.409	.534	.600				
21		.315	.217	.326	.423	.367	.287	.400	.347	.322	.310	.320	.348	.442	.361	.308	.118	.295	.355	.375	.446			
22		.508	.403	.501	.711	.444	.404	.540	.329	.320	.390	.280	.584	.718	.622	.424	.246	.380	.485	.542	.786	.507		
23		.326	.239	.391	.389	.313	.323	.329	.284	.253	.340	.387	.367	.416	.316	.381	.164	.269	.421	.406	.432	.392	.450	
24		.505	.437	.576	.624	.452	.423	.541	.312	.316	.405	.342	.528	.582	.536	.454	.200	.326	.591	.653	.641	.409	.649	.471
25		.459	.487	.518	.521	.440	.418	.552	.301	.310	.437	.290	.450	.503	.511	.406	.242	.375	.583	.603	.548	.350	.536	.374
																								.646

Note. In bold letters $r > .5$

Dimensionality Analysis: EFA and CFA

Exploratory factor analysis

The KMO index was .959, evidencing the relevance of performing factorial analysis among the 35 items of the SCI-II. Bartlett's spherical contrast showed adequate values ($\chi^2_{(465)} = 124106.959$; $p < .001$) and the MSA were in the range of .873 and .982, which is considered satisfactory.

The results of EFA are shown in table 3. As can be seen, the 3-factor model is the one that presents the best fit indicators between the models tested. With adequate absolute adjustment indexes ($\chi^2/\text{gl} = 5.78$; SRMR=.036; RMSEA=.058) and acceptable comparative fit indexes close to one (CFI = .970; TLI = .960). Although the discarded models show adequate indexes, it was decided to maintain the three factors both for theoretical reasons (trying to maintain the original structure) and for the competition between the indicators with respect to their rival models and the adjustment to the empirical distribution of the data.

Table 3.

Goodness indicators of the EFA SCI-II adjustment adapted to Chilean schools

Model	χ^2	gl	χ^2/gl	CFI	TLI	RMSEA	SRMR
1 Factor	4189*	275	15.23	.891	.881	.100	.062
2 Factors	2100,478*	251	8.36	.949	.939	.072	.047
3 Factors	1319,729*	228	5.78	.970	.960	.058	.036

Note. Bold indicators with better fit; * $p < .001$

In order to analyze the configuration of the factors, the GEOMIN oblique rotation method (G) was used so as to improve the interpretation of the model and favor the local factorial solution (Hattori, Zhang & Preacher, 2017). To locate the items in the different factors, theoretical as well as statistical criteria were used. The first tried to protect the theory of McMillan and Chavis (1986) and the second to highlight the statistical significance of the factorial loads ($p < .05$).

As shown in Table 4, the items with highest load in factor 1 were 18 ("If there is a problem in this school, people can solve it"; $G = .860$) and 19 ("This school has good leaders"; $G = .833$). Loads in factor 2 were 13 ("Belonging to this school is part of who I am"; $G = .888$) and 20 ("It is very important for me to be part of this school"; $G = .920$). Finally, those with the highest factorial load in factor 3 were 8 ("I recognize most people in this school"; $G = .859$) and 9 ("Almost everyone in this school recognizes me;"; $G = .804$).

Based on the conformation of items, it was decided to name factor 1 *School Connectivity*. This factor includes elements associated with the satisfaction of shared needs, which allows defining it as the factor related to

Table 4.

Loads of each item for the 3 factors

Items	Factor 1	Factor 2	Factor 3
1	.515*	.239*	-.091
2	.561*	.079*	.008
3	.775*	.016	-.098*
4	.189*	.694*	-.024*
5	.537*	.053*	.124*
6	.568*	-.012	.040*
7	.607*	.083*	.090*
8	-.007	.001	.859*
9	.003	.058	.804*
10	.511*	.066	.253*
11	.483*	-.062	.055*
12	.092	.678*	.018*
13	-.016*	.888*	.009*
14	.094	.654*	.084*
15	.406*	.163*	.075*
16	.051	.315*	.190*
17	.142*	.255*	.279*
18	.860*	-.140*	.007
19	.833*	-.013	-.063*
20	-.011	.920*	-.006
21	.282*	.207*	.187*
22	.093	.775*	.010
23	.460*	.084*	.102*
24	.687*	.182*	-.060*
25	.710*	.005	.026

Note. In bold the corresponding loads to the conformation of items of the 3 factors

the ability to put into practice leadership for the solution of problems, the sense of security, the projection of the school community, the articulation of trust and common goals, providing social support and emotional connection, which is consistent with the international definition of this construct (Goodenow, 1993).

Regarding factor 2 it was decided to name it *Valued Belongingness*. This factor refers to the feeling of being part of the community and the affective contribution that the community has for oneself, which includes the feeling of a stable relationship with the community which is projected over time. This factor has been associated with the emotional and academic well-being of the students (Rostosky, Owens, Zimmerman & Riggle, 2003, Israelashvili, 1997), while factor 3 was named *Membership-Reciprocity*. This refers to the relationships of mutual recognition, the feeling of being considered and the validation among members of the school community. In this factor, it was decided to keep item 15 despite its low load due to the conceptual importance in the model, investigating its final load in the CFA.

Confirmatory Factor Analysis

When comparing the CFA indicators of the original model (4 factors) with the proposed model of 3 factors (table 5), it can be observed that the latter reflects with larger goodness the empirical distribution of local data.

Figure 1 shows the regression weights of the selected model. It can be observed how the three dimensions show a high level of relationship, particularly valued ownership and school connectivity.

Regarding the items with the highest loads in each dimension, item 24 stands out for *School Connectivity* ("I feel that the future of this school will be good"), item 13 for *Valued Belongingness* ("Belonging to this school is part of who I am"), Item 15 for *Membership-Reciprocity* ("What we do in this school has an impact elsewhere").

Reliability analysis and descriptive statistics.

Reliability coefficients were calculated by means of Cronbach's α . It was observed that the three dimensions showed a high consistency of $\alpha = .879$ for *School Connectivity*, $\alpha = .884$ for *Valued Belongingness* and $\alpha = .716$ for *Membership-Reciprocity*.

The final score of the dimensions of the sense of community was obtained from the sum of the items identified for each. To evaluate its distribution, Kolmogorov-Smirnov tests were carried out, by means of which it was observed that none of them follow a normal distribution. The descriptive statistics of the dimensions are shown in table 6.

The Kruskal-Wallis nonparametric test was used to compare scores according to age groups. It showed a significant difference in relation to age cohorts, both for *School Connectivity* ($\chi^2_{(3)} = 452.255$; $p < .001$), *Valued Belongingness* ($\chi^2_{(3)} = 379.851$; $p < .001$) and *Membership-Reciprocity* ($\chi^2_{(3)} = 259.313$; $p < .001$), showing lower values in the older groups. The percentiles by age range are shown in table 7

Regarding gender, by means of the Mann-Whitney U test, it was found that there were no significant differences between men and women in any dimension of sense of community ($U = 975747.5$; $p > .05$ for *School Connectivity*; $U = 998203$; $p > .05$ for *Valued Belongingness* and; $U = 1002160.5$; $p > .05$ for *Membership-Reciprocity*). Those who claimed to belong to another gender, because of the small size of the group, were excluded from the analyses.

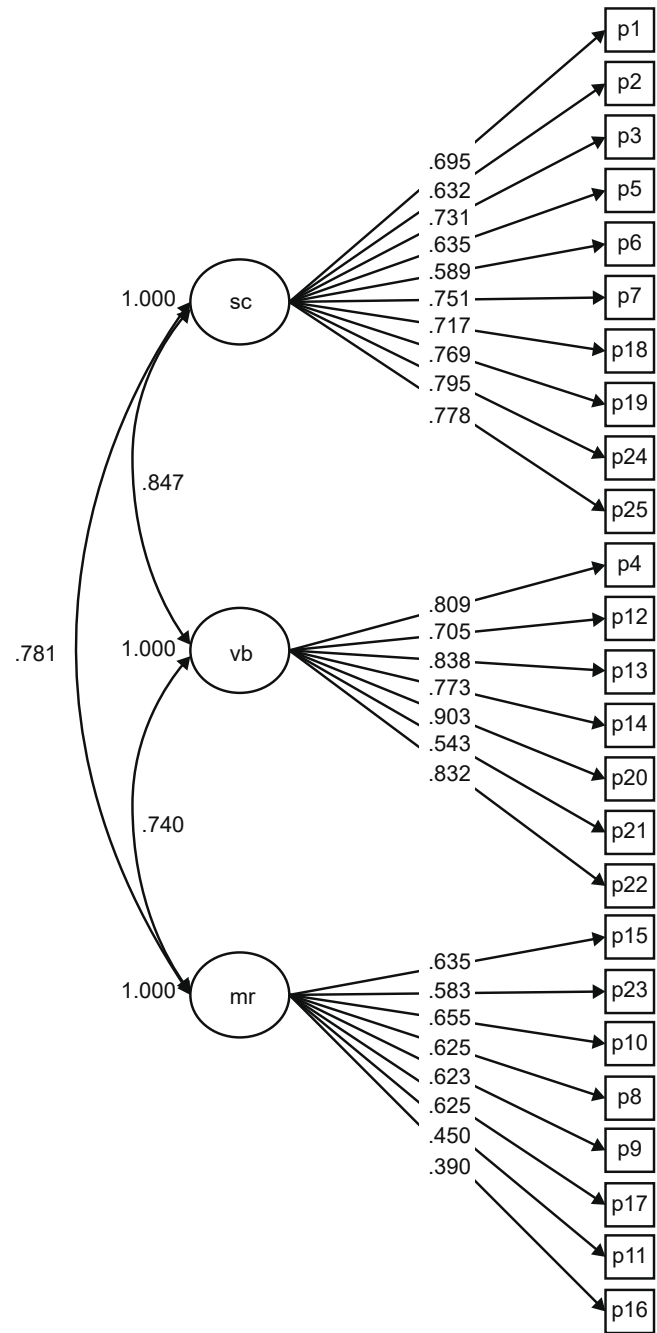


Figure 1. Model of 3 SC-II Factors. Adapted to Chilean schools. sc = School Connectivity; vb= Valued Belongingness; mr= Membership-Reciprocity

Table 5.

Comparison of adjustment indicators between the original model and the SCI-II adapted to Chilean schools

Model	χ^2	gl	χ^2/gl	CFI	TLI	RMSEA
McMillan and Chavis model (4 factors)	21237.393*	269	78.94	.410	.342	.232
Model 3 Proposed factors	2428.755*	272	8.92	.939	.933	.074

Note. In bold indicators with better fit; * $p < .001$

Table 6.

Descriptive statistics of the SCI-II scales adapted to Chilean schools

Dimensions	Media	D.E	A	K	D	Percentiles		
						P25	P50	P75
School Connectivity	18.471	6.388	-.351	-.481	.069*	14.0	19.0	24.0
Valued Belongingness	13.587	5.114	-.540	-.479	.101*	10.0	14.0	18.0
Membership-Reciprocity	13.825	4.137	-.104	-.104	.061*	11.0	14.0	17.0

Note. D.E = Standard deviation A = Asymmetry; K = Kurtosis; D = Test statistic Kolmogorov-Smirnov test; * $p < .05$

Table 7.

Percentiles of SCI-II scales adapted to Chilean schools in accordance with age range

Dimensions	Percentile						
	5	10	25	50	75	90	95
School Connectivity							
10 to 12 years	11.00	16.00	20.00	24.00	27.00	29.00	30.00
13 to 14 years	9.00	11.00	16.00	21.00	24.00	27.00	28.00
15 to 16 years	7.00	9.00	12.00	17.00	21.00	25.00	26.40
17 and over	5.00	8.00	11.00	16.00	20.00	24.00	25.80
Valued Belongingness							
10 to 12 years	7.50	11.00	15.00	18.00	20.00	21.00	21.00
13 to 14 years	5.00	7.00	11.00	15.00	18.00	20.00	21.00
15 to 16 years	3.00	5.00	9.00	13.00	16.00	19.00	20.00
17 and over	3.00	5.00	8.00	12.00	16.00	18.00	20.00
Membership-Reciprocity							
10 to 12 years	9.00	11.00	13.00	16.00	19.00	21.00	22.00
13 to 14 years	8.00	9.00	12.00	15.00	17.00	19.00	21.00
15 to 16 years	6.00	8.00	10.00	13.00	15.00	18.00	19.00
17 and over	6.00	8.00	10.00	13.00	15.00	18.00	19.00

Discussion

The present investigation had the objective of adapting the SCI-II scale to the context of Chilean public-school communities. As a result of the statistical validation of the instrument, adequate indicators of validity and reliability are revealed in terms of factor composition, internal consistency and also the properties of the items. It incorporates School Connectivity, Valued Belongingness and Membership-Reciprocity as the dimensions that underlie the sense of community of children and adolescents in schools.

In this version, the adapted scale presents a different dimensional structure than the original proposal, since the dimensions that emerged from the analysis of the measures were not grouped according to expectations; nevertheless, the adaptation preserves the structure of the items based on the conceptualization of the sense of community (McMillan and Chavis, 1986). These results are consistent with those reported in other studies that propose that the factorial configuration of the SCI-II does not conform to the original proposal, being necessary to review and update

the theoretical basis of the sense of community (Flaherty, Zwick & Bouchey, 2014; Long & Perkins, 2003; Sayer, Beaven, Stringer & Hermena, 2013).

The underlying dimensions of the Community Sense construct derived from the exploratory factor analysis were constructed considering the literature as reference. Thus, the first factor was called *School Connectivity*, emphasizing the perception of support and mutual concern among the members of a school (Goodenow, 1993); the second, *Valued Belongingness* (Rostosky et al., 2003, Israelashvili, 1997), emphasizing the positive emotional assessment that is granted to the belongingness to the school; and the last one, *Membership-Reciprocity*, highlighting the capacity of influence and mutual evaluation that the members of a school community have.

In this context, research results suggest that in order to experience a strong sense of school community, children and adolescents should mainly perceive the benefits of being a valued member of the community as well as receiving social support from members.

In relation to the psychometric properties, the results obtained from the analyses prove to be a reliable measure given the good internal consistency of the dimensions and the factors that make it up (Cronbach's $\alpha = .879$ for *School Connectivity*, $\alpha = .884$ for *Valued Belongingness* and $\alpha = .716$ for *Membership-Reciprocity*). It also has high adjustment indices which are shown to be adequate (CFI = .939, for TLI = .933). For this reason, it is considered that the scale presents good performance in the sample and can be used in future investigations with children and adolescents in school communities.

Due to the aforementioned, it is asserted that the school as a community is particularly important as a social means for the connection with the educational context of the children. It has become a key instance and a space to build protective factors for positive educational outcomes and lower rates of risk behaviors for mental health and well-being (Sayer et al., 2013). The benefits of a strong SC for children at school are multiple, while at the same time contributing to greater teacher satisfaction (Wright, 2004, Ariza, Quevedo-Blasco & Buela-Casal, 2014).

A limitation of this research is the territorial specificity of the sample used, so it is suggested to continue carrying out studies in school communities, to check the functioning of the instrument adapted in other territories or contexts, for example, in schools of different regions, vulnerability indexes and academic performance, which could be relevant factors to discuss differences in the configuration of the Community Sense. Likewise, later works could analyze the configural invariance of the instrument evaluating if the factorial structure is similar between different subpopulations associated to gender, age or socioeconomic level.

Finally, it is relevant to mention that it is the first instrument adapted and validated in the Latin American school context that integrally measures the Community Sense construct, and that is also applied via digital platform. Having this validated instrument is a contribution to the understanding of non-academic factors that can affect mental health and the academic performance of students, which is crucial for the discussion of public policies in education.

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