Psicothema

Psicothema 2015, Vol. 27, No. 2, 151-158
doi: 10.7334/psicothema2014.224

ISSN 0214 - 9915 CODEN PSOTEG

www.psicothema.com

Construction and psychometric characteristics of the Self-Concept Scale of Interaction in the Classroom

Karla Lobos Peña, Alejandro Díaz Mújica, Claudio Bustos Navarrete and María Victoria Pérez Villalobos
Universidad de Concepción (Chile)

Abstract

Background: Both construction and psychometric characteristics of a self-concept scale associated with observable behaviors by students and teacher, useful to guide a pedagogic intervention in the classroom are presented. **Method:** A total of 1,385 primary school students, aged between 8 and 12 years, from 24 high-social vulnerability schools of the Province of Concepción, Chile, participated in the study. The scale was constructed, including a theoretical review of the construct, pilot application with students and interjudge reliability. For the study of psychometric characteristics, exploratory factorial analysis (EFA), confirmatory factorial analysis (CFA), factorial invariance and recurrent validity were performed. **Results:** A self-report instrument with 22 items shows a three-factor structure, with an explained variance of 44.71% and a high level of fit for the model. CFA in two different samples showed fit indicators for configural invariance. It also has concurrent validity. **Conclusions:** The scale has good psychometric properties to assess the academic self-concept in the dimensions of Capacity, Work Procedure, and Participation in class. This can be useful to guide an educational intervention in the context of the teacher-student interaction in the classroom, in primary schools with high socio-economic vulnerability.

Keywords: Self-concept, student, teacher, classroom, scale.

Resumen

Construcción y características psicométricas de la Escala de Autoconcepto de la Interacción en el Aula. **Antecedentes:** se presentan la construcción y las características psicométricas de una escala de autoconcepto, asociado a comportamientos observables por alumnos y profesor, funcional para orientar una intervención pedagógica en el aula. **Método:** participaron 1.385 estudiantes de enseñanza básica, entre 8 y 12 años, de 24 escuelas de alta vulnerabilidad social, de la Provincia de Concepción (Chile). La escala se construyó incluyendo una revisión teórica del constructo, aplicación piloto con estudiantes y validación inter jueces. Para el estudio de características psicométricas se realizaron análisis factorial exploratorio (AFE), factorial confirmatorio (AFC), invarianza factorial y validez concurrente. **Resultados:** instrumento de autorreporte con 22 reactivos, muestra una estructura de tres factores con una varianza explicada de 44,71% y con un alto nivel de ajuste del modelo. El AFC en dos muestras distintas mostró indicadores de ajuste para invarianza configuracional. Tiene indicios de validez concurrente. **Conclusiones:** la escala muestra buenas características psicométricas para evaluar el autoconcepto académico en las dimensiones de capacidad, procedimiento de trabajo y participación en clases, pudiendo ser funcional para orientar una intervención pedagógica en el contexto de la interacción profesor-alumno en el aula, en escuelas básicas de alta vulnerabilidad socioeconómica.

Palabras clave: autoconcepto, estudiante, profesor, aula, escala.

One of the main sources of student motivation and with greatest predictive capacity on school marks (notas) is the academic self-concept (Bueno, 2004; Marsh & Martin, 2011; Miñano & Castejón, 2011), whose intervention has become particularly beneficial to disadvantaged students (O'Mara, Marsh, Craven, & Debus, 2006).

The notion of self-concept (Marsh, 1990; Miñano & Castejón, 2011; Núñez & González-Pienda, 1994; Shavelson, Hubner, & Stanton, 1976) is one of the most frequently used constructs in studies addressing the cognitive motivational variables of school performance (Esnaola, Goñi, & Madariaga, 2008; González-Pienda et al., 2000; Green, Marsh, & O'Mara, 2006; Guay, Boivin, & Marsh, 2003; Marsh & Martin, 2011; Martín-Antón, Carbonero, & Román, 2012; Skaalvik & Skaalvik, 2002).

The academic self-concept (Marsh & Martin, 2011) refers to the self-perception of the students about their own competence to carry out certain activities and homework. Seen as a facet in a hierarchical structure, it implies that other levels of self-perception underlie academic self-concept. These levels are more specific and depend on everyday situations resulting from the influence of significant others (Esnaola et al., 2008; Guay et al., 2003; Salum, Marín, & Reyes, 2011). Thus, feedback from teachers is the most important variable regarding the attitude towards school work (Barraza & Gutiérrez, 2011; Cerrillo, 2003; García, 2009; McInerney, Dowson, Seeshing, & Genevieve, 2005).

"A constructive synergy between the academic self-concept and the achievement is more likely when students receive constructive feedback and judicious praise on experiences transmitted as domain" (Marsh & Craven, 2006, p. 159).

Received: October 7, 2014 • Accepted: March 6, 2015
Corresponding author: Karla Lobos Peña
Facultad de Ciencias Sociales
Universidad de Concepción
407038 Concepción (Chile)
e-mail: klobosp@gmail.com

The two everyday practices of pedagogical interaction that allow better levels of academic self-concept are:

1) Praise or compliments: they consist of reinforcing messages for behaviors or procedures (Catalán, 2011) in spaces of formal evaluation (tests, tasks and classroom activities), together with stimulating questions, comments and suggestions of the students (Álvarez, 2008). These messages are positively correlated to learning and motivation to class performance, and offer reference elements in order to assume their own personal deficiencies, enhancing the self-images of the students (García, 2009; Ginsberg, 2007; Salum, Marín, & Reyes, 2011).
2) Instructional messages: These messages are specific indications about the procedure that the students are performing in a specific area; guiding them about what it should be improved to achieve a goal (Álvarez, 2008; Catalán, 2011).

From the perspective of the students themselves, instructional messages from teachers, constructively and precisely expressed influence over other referents in their academic self-concepts (García, 2009; McInerney et al., 2005) and especially produce changes in the behavior of the students. These changes are observable in the classroom and influenced by the teacher: skills, work procedures and participation in classes.

In order to measure the academic self-concept, two types of techniques are distinguished: self-descriptive techniques and inference methods (González & Touron, 1992). The first of them has more support and investigative use (Anual, Bracho, Brito, Rondón, & Sulbarán, 2012; Tomás & Oliver, 2004). Among the instruments that use this technique with significant contribution to the development of the construct, the following can be mentioned: The Self Perception Inventory (Soares & Soares, 1980; cited González & Touron, 1992), The Preschool and Primary Self Concept (Stager & Young, 1982; cited in González & Touron, 1992), and the Self-concept Scale (AF5) (García & Musitu, 1995; cited Riquelme & Bravo, 2011). Due to its empirical support and multidimensional approach, the most used is the Academic Self Description Questionnaire (ASDQ) (Marsh, 1990) with its two versions, ASDQ-I for 5th and 6th grades, and ASDQ-II for 7th to 10th grades. Data obtained through the application of such questionnaires indicate that the utilization of specific measure of academic self-concept is more effective to measure the construct (Anual et al., 2012; Esnaola et al., 2008; Marsh & Martin, 2011). Although they are widely used in different parts of the world, they are too extended (the first questionnaire has 13 scales and the second has 16) and they are not completely useful to guide what the teacher should do to enhance the academic self-concept of the students.

Meanwhile, the AF5, is validated in Chilean population (García, Gracia, & Zeleznova, 2013), though age ranges of this research are not covered.

The Chilean society demands scientific research to improve education in their deprived sectors (Catalán, 2011), particularly interventions that help teachers to address socio-emotional aspects of classroom (Milicic, Alcalay, Berger, & Alamos, 2013). Regarding the availability of measurement instruments of the self-concept the Chilean educational system, which are functional to guide a pedagogic intervention, this development is scarce and the instruments do not address classroom interactions. Thus, it is become important to assess the self-concept of the students in the areas of skills, work procedures and participation in classes, in order to ensure that the teacher know deprived areas to deliberately influence on their improvement.

This article is aimed to describe the development and the psychometric characteristics of a self-concept scale that addresses student performance in the classroom that are daily observed by both students and teachers, being able to guide a pedagogic intervention in the classroom, in primary schools with high socio-economic vulnerability.

Method

Participants

The population consisted of students from second to fourth grade of primary education, aged between 8 and 12 years. These students belonged to municipal primary schools, with high index of social vulnerability (Junta Nacional de Auxilio Escolar y Becas, 2014), that obtain low scores in the national standardized test called National Measuring System of Quality in Education (Agencia de Calidad de la Educación Gobierno de Chile, 2015).

The participating schools, from the Province of Concepción, Chile have the following characteristics:

- Included in contexts of poverty higher than 50%, measured through a social vulnerability index.
- Enrolment between 250 and 900 students.
- Full school day regime.
- SIMCE Scores lower than National average (250 points).

A total of 1,385 students participated in the study. These were divided into 3 samples (Table 1).

The three samples were taken from a non-probabilistic method by convenience, because the access to municipal schools is carried out by means of agreements between municipalities and universities. Municipal administrations define the groups authorized to be investigated, mainly by taking into account the criterion of not being participating in other research programs. For the three samples, full classes were taken, from second to fourth grade, without selecting the class members.

A size higher than 220 was estimated in each phase, under the assumption that no EFA and CFA will be used for a sample smaller than 10 observations per instrument item (Hair, Anderson, Tatham, & Black, 2005).

Instrument

The self-report scale with 22 items prompts the student to declare the extent in which the statement is similar to the perception

Table 1
Descriptive of samples

	Sample 1 (EFA)		**Sample 2 (CFA1)**		**Sample 3 (CFA2)**	
n	283		288		814	
Nº schools	4		4		16	
Age	10.18	(DE= 1.31)	10.17	(DE= 1.31)	9.09	(DE= 1.05)
Girls	137	48.41%	141	49%	390	50.5%
Boys	146	51.59%	147	51%	382	49.5%

of himself (herself) in the dimensions of Capacity (e.g. "I have the ability to learn"), Work Procedure (e.g. "I obey the directions of the teacher to work in classes") and Participation in Classes (e.g. "I make comments on what the teacher explains in classes"). Each item is answered with a six point Likert type scale, in which 1 means "never" and 6, "always". The instrument as a whole was named Self-concept Scale of Classroom Interaction.

Procedure

In order to have the sufficient number of questions that allows performing a further selection, 35 reagents based on the literature review were developed. An inter-judge analysis procedure was carried out and six experts were selected to validate the content of the items. The choice was based on two criteria: (1) the degree of Master or Doctor and (2) scientific production related to Educational Psychology.

Subsequently, 22 reagents representative of the construct were chosen. Then, in order to submit the instrument to an evaluation to the comprehension of its instructions, a pilot study was conducted to 44 students. These declared to understand the questions and no design or grammar flaws were observed. Therefore, the instrument was not modified.

The coordination for the application of the instrument was developed directly with the schools, prior authorization and referral of the communal administrations.

In order to record the authorized and volunteer participation of the students, an informed consent protocol was applied to principals and other persons who administratively are responsible for the education of the children (parents or caretakers). In addition, students were invited to participate voluntarily by using the method of informed consent assent and ensuring the confidentiality of the information provided.

Instruments were applied in the absence of the teacher, during school hours and by trained interviewers.

Data analysis

EFA: First, the existence of lost values, univariate and multivariate atypical cases was verified. Item analysis with values of inadequate asymmetry and/or kurtosis that could affect the normal distribution of the scoring was conducted. An EFA of principal axes and varimax (orthogonal) rotation was performed in order to obtain the validity evidence of the scale was also conducted. The criterion to choose the number of factors to be extracted was the presence of self values higher than 1.

CFA: The invariance of the factorial solution of samples 2 and 3 was studied. In function of the practical requirements of the situation, it is not necessary that the invariance is total among groups, being possible to establish a partial invariance from the factorial charges, intercepts and residual errors (Byrne, Shavelson, & Muthen, 1989).

For estimating the models, Mplus 6.12 software using WLSMV estimator was used. In order to estimate the invariance, the analysis of base models was initiated. This would correspond to perform a CFA in each group and moment. From the initial results, modifications to base models were performed to improve its fit before proving its invariance. To avoid altering the theoretical sense of the items, correlations between residuals of the items were permitted. The modification of the scales will stopped until reaching a non-significant RMSEA and lower than or equal to .05.

Concurrent validity analysis: Spearman test was used for sample 1, seeking correlations between scores of the instrument under study and the Subscale of School Academic Self-Esteem from the Coopersmith Self-Esteem Inventory, validated for the Chilean population (Brinkmann, Segure, & Solar, 1988). Although there are other instruments to determine the levels of self-esteem, the Coopersmith Inventory is still one of the most found in studies carried out in the area, as well as the most widely used in the self-reports published (Leiva, Pineda, & Encina, 2013; Morales & González, 2014; Muñoz, 2011), and considering the degree of relation existing between both constructs despite being theoretically different (Barraza & Gutiérrez, 2011; Bear, Minke, Manning, & George 2002).

For sample 2, a model of SEM structural equations with EAEA was adjusted.

Results

Exploratory factorial analysis

With extraction of principal axes and varimax rotation a three factor solution related to 22 items was obtained. Together, they explain 44.71% of the total variance. The axes are saturated in a belonging factor, with weights that range between .42 and .79, being obtained values that exceed the .30 suggested for this type of analysis. The Cronbach's alpha statistic indicates a strong support to the reliability of the scale (.92). The first factor grouped six reagents, showing a Cronbach's alpha index of .86 and a self value of 8.65. The second factor (eight reagents) presented an index of .82 and a self value of 1.35. Finally, the third factor showed an index of .82 and a self value of 1.24 (Table 2).

The result of the EFA allows interpreting a self-perception structure formed by the following subscales: Capacity to learn (six reagents), participation in classes (eight reagents) and work procedure in classes (eight reagents).

Descriptive analyses

Both univariate and multivariate normality of the items was analyzed. By using the Shapiro-Wilk test it was observed that no item presents normal distribution, with $p<0.001$ in all cases. This is expectable given the discrete nature of the variables and the size of the samples that range from large to moderate. The only item that presented kurtosis and asymmetry outside the interval (-1.5; 1.5) was Cap3 in the three samples, with asymmetry =1.59 and kurtosis =1.74 in sample 1; with asymmetry =1.55 and kurtosis =1.57 in sample 2; and with asymmetry =1.54 and kurtosis =1.63 in sample 3. The Mardia's Kurtosis multivariate coefficient for the samples was 41.56, $p<0.001$ for sample 1; 95.49, $p<0.001$ for sample 2; and 41.56, $p<0.001$ for sample 3, indicating the absence of multivariate normality.

In Table 3 the descriptive per sample can be observed. By using the Kruskall-Wallis test, no significant differences in the average of the ranges of Capacity, $\chi^2(2)= 3.03$, $p= 0.22$; Participation, $\chi^2(2)= 0.04$, $p= 0.97$; or procedure, $\chi^2(2)= 1.46$, $p= 0.48$ were observed. In terms of centrality and dispersion, there are no significant differences between both groups.

Table 2
Results of the Factorial Exploratory Analysis (N = 283)

Factor		Reagent	Factorial load
CAPACIDAD (CAP)			
Alpha	.86	1. I am good to learn	.797
Self value	8.65	2. I am smart to learn	.683
Explained variance	36.91%	3. I have the ability to learn	.634
		4. I learn this subject easily	.567
		5. I am good to study	.549
		6. I am able to learn	.514
PARTICIPATION (PAR)			
Alpha	.82	7. I give opinions in classes	.608
Self value	1.53	8. I like participating in classes	.577
Explained variance	4.48%	9. I comment on what the teacher says in classes	.573
		10. I participate in classes	.527
		11. I ask questions about the issues in classes	.526
		12. I Express my doubts to the teacher in classes	.505
		13. I answer questions made by the teacher in classes	.495
		14. My opinions in classes on the subject are interesting	.449
PROCEDURE (PROC)			
Alpha	.85	15. I keep my materials orderly when I work in classes	.656
Self value	1.24	16. My way of working in classes is tidy	.585
Explained variance	3.32%	17. I bring the materials requested by mi teacher for class activities	.549
		18. When I work in classes it is noted I do it carefully	.540
		19. When I work in classes it is noted I do it with dedication	.539
		20. I obey the directions of the teacher to work in classes	.498
		21. I write legibly	.489
		22. I finish the tasks in the time indicated by the teacher	.420

Table 3
Statistics for the subscales in the three samples

Scale	n	M	DE	Asymmetry	Kurtosis	Alpha
Sample 1						
Capacity	283	4.69	1.07	-0.86	0.26	0.86
Participation	283	4.36	1.13	-0.46	-0.70	0.83
Procedure	283	4.83	1.02	-1.02	0.37	0.85
Sample 2						
Capacity	288	4.69	1.06	-0.84	0.24	0.86
Participation	288	4.37	1.13	-0.46	-0.70	0.83
Procedure	288	4.83	1.02	-1.02	0.35	0.85
Sample 3						
Capacity	814	4.77	1.07	-1.06	0.78	0.86
Participation	812	4.33	1.19	-0.60	-0.41	0.85
Procedure	807	4.76	1.06	-1.03	0.65	0.86

Note: No variable meets the assumption of normality, using the Shapiro-Wilks test (p<0.001)

Confirmatory analysis

When performing CFA separately in samples 2 and 3, both are satisfactory. In the case of sample 2, all the indicators are suitable in the initial formulation. In the case of sample 3, the RMSEA value becomes significant and a search of sequential specification is conducted, leading to release the covariance of the residuals between proc20 and proc21, part13 and part10; as well as between proc19 and proc21 (Table 4).

Factorial invariance analysis

In Table 5 it can be observed that the first model (M1) of configural invariance, although it is not fitted to data χ^2 (409) = 905.46, p<0.001, it presents good indicators of fit, with CFI= 0.976 over 0.95 and RMSEA= 0.047, p<0.05, and non significant.

By means of the Chi-squared test adjusted from Satorra-Blenter, only invariance for the three samples is obtained at configural level. If the criterion of practical invariance based on CFI is used, it can be stated that the subscales show invariance until strict level,

Table 4
Confirmatory analysis, samples 2 and 3

Model	$\hat{\chi}^2$	g.l	χ^2 normalized	CFI	TLI	RMSEA	RMSEA p-value	WRMR
Sample 2	319.70	206	1.55	0.978	0.976	0.044	0.864	0.792
Sample	735.507	206	3.57	0.964	0.959	0.056	0.010	1.200
Relation Proc20 and Proc21	662.404	205	3.23	0.969	0.965	0.052	0.188	1.130
Relation Part13 and Part10	635.480	204	3.12	0.970	0.966	0.051	0.353	1.103
Relation Proc19 and Proc21	615.182	203	3.03	0.972	0.968	0.050	0.500	1.082

because in none of the successive restrictions correspond to the difference in CFI, between the reduced and the the major model is less than -0.01.

In addition, all models of invariance, from the weakest to the strict present good indicators of fit, with CFI greater than 0.95 and RMSEA non-significant and less than 0.05.

Full factorial group solution

In order to present a single solution and compare their loads with those of the EFA, a confirmatory analysis of the full group of samples two and three, was conducted (Figure 1). As observed in Table 6, although the Chi-square test indicates that statistically there is no fitness from data to model, fitness indicators such as CFI and TLI are good, exceed 0.95 and RMSEA is suitable, though no less than 0.05 it is very close to this value and it is not statistically significant.

If a specification search is conducted, the highest modification index is presented by the variance between item 20 and 21, with MI= 90.2. If this covariance is released, a model with fitness indicators is obtained, with an RMSEA less than 0.048.

Table 5
Analysis of invariance models

Invariance	χ^2	gl	X^2/gl	$\Delta\chi^2$	Δgl	CFI	ΔCFI	RMSEA
M1 Configural	905.46**	409	2.21	–	–	0.976		0.047
M2 Weak, with invariant factorial loads	932.02**	428	2.18	31.96*	19	0.975	-0.001	0.046
M3 Strong, with threshold and factorial loads in the invariant items	954.14**	535	1.78	159.18**	107	0.980	0.004	0.038
M4 Strict, with threshold, factorial and residual loads in the invariant items	1040.36**	557	1.87	99.17**	22	0.976	-0.004	0.040

Nota: * p<0.05; **p<0.01

Table 6
Confirmatory analysis, samples 2 and 3

Model	χ^2	gl	χ^2/gl	CFI	TLI	RMSEA	RMSEA p-value
Original solution	819.195	206	3.98	0.968	0.964	0.052	0.188
Relation between Proc20 and Proc21	732.111	205	3.57	0.973	0.969	0.048	0.764

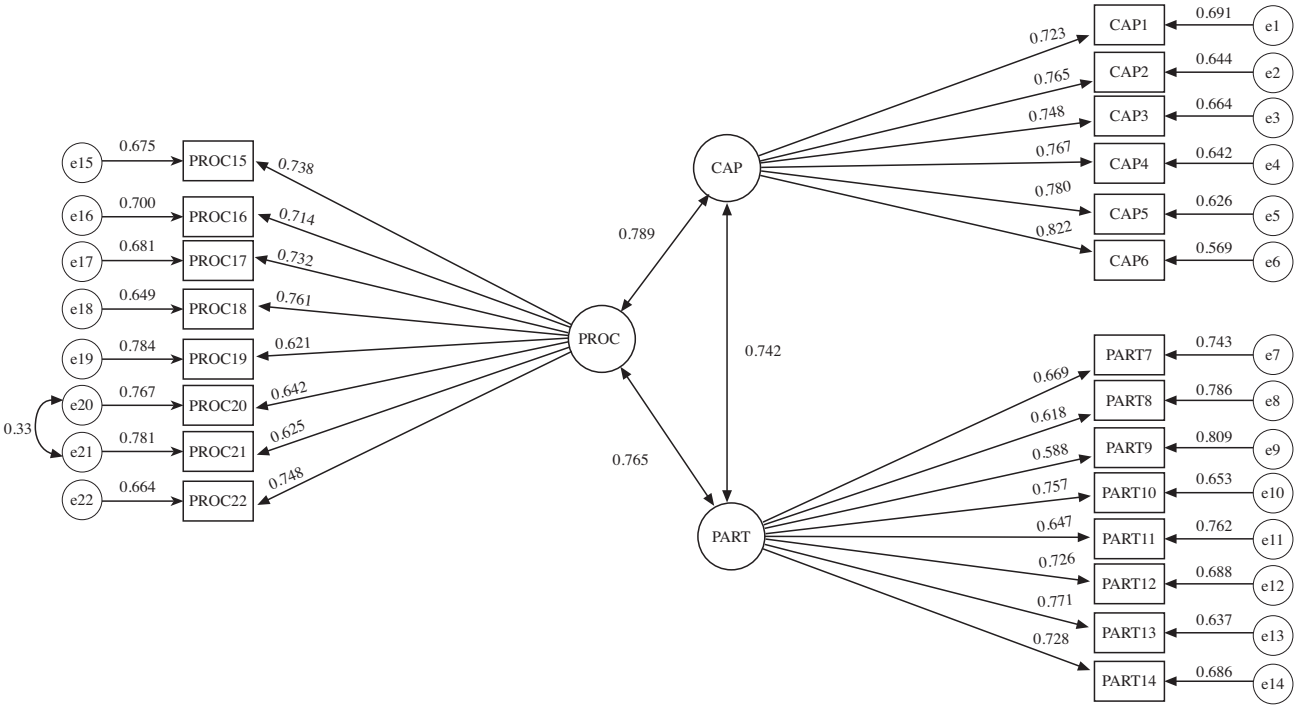

Figure 1. *Full factorial Group solution (samples 2 and 3)*

Analysis of concurrent validity

From sample 1, the analysis of correlations by using the Spearman test between the scores of the study instrument and the Academic School subscale of the Coopersmith Self-esteem Inventory showed to be positive and significant, $r_s = 0.389$, $p<0.001$, indicating that both instruments would be measuring the academic self-concept and the academic self-esteem in the same direction. In sample 2, the fitness of the model of structural equations considering the Coopersmith EAEA showed significant relations between this construct and the factors of the academic self-concept, specifically Capacity ($r = 0.540$, $p<0.001$), Participation ($r = 0.580$, $p<0.001$) and Work procedures ($r = 0.518$, $p<0.001$).

Although the test of absolute goodness of fit shows significant differences between this and the data χ^2 (399) = 602.674, $p<0.001$, the indicators of relative fitness such as CFI = 0.966 y TLI = 0.962, y el RMSEA = 0.042 (IC = 0.035 0.049) indicate that the model is well fitted to data.

Discussion

The construction and psychometric characteristics of a self-concept scale has been presented. This instrument addresses the performance of the students in the classroom, daily observed by students and teachers and it can be valuated by the teacher in order to deliberately affect the development of the self-concept. Its construction followed a systematic and rigorous procedure, including the preparation of reagents based on the theoretical review of the construct, a pilot study with students and interjudge reliability. It is a simple scale with 22 items and it is aimed to a primary school population.

The study of its psychometric characteristics strongly supports the domain validity by collecting the types of pedagogic intervention in the classroom that theoretically considered by the academic self-concept.

Results of the CFA validate the Nomothetic network that validates the instrument, being proved a multidimensional structure of three factors, previously indicated by the EFA, which present the facets of the academic self-concept in the classroom work. These were named: Capacity, Participation in classes and Work procedure.

The three dimensions have a good level of convergent validity given the fact that their items are strongly related to their factors.

The Capacity dimension has very satisfactory indicators over the other two dimensions. This is coincident with previous studies that indicate that the perception of feeling able and with skills to deal with the academic tasks is correlated to better levels of academic self-concept, as well as to better educational results (Marsh & Martin, 2011; Miñano & Castejón, 2011; Rosário, Lourenço, Paiva, Rodríguez, Valle, & Tuero-Herrero, 2012).

Dimensions Work Procedure and Participation in Classes have similar satisfactory indicators. The first dimension reflects the importance of displaying appropriate behaviors (Marsh & Craven, 2006), such as maintaining the order of the class materials, following directions, paying attention, etc. Participation in classes is associated with the behaviors of asking, making comments and answering. This dimension is associated with the confidence of the student to interact in the classroom (Álvarez, 2008; Catalán, 2011).

The divergent validity yields positive results in the areas of Capacity and Participation, with a greater item-factor relation. However, this is different from the factor Work Procedure, with a high correlation with the other two dimensions and with not very high factorial loads. This is considered a constraint. Therefore, further studies with generation of suitable indices for this subscale would be convenient in order to achieve a more stable grouping, with higher separation of the remaining factors.

For all practical purposes, the subscales of the instrument show invariance to the strictest level, given the fact that they present similar degrees of reliability and the differences in means in the different groups, represent differences in the constructs at the base. Therefore, the scale for this population could be used to measure differences between groups, which is useful for experimental studies.

The criterion validity study indicates that the instrument has a positive and significant relation with the variable school self-esteem. This relation is expected from the theoretical framework for both constructs.

This work provides an original and unpublished scale, with good quality in its psychometric characteristics, of easy and simple application. It allows the students to know aspects about their performance in classes that allow (or not) the development of a positive academic self-concept. At the same time, these are areas on which the teacher can act deliberately in order to promote a favorable student perception to learning and therefore it can be functional to guide a pedagogic intervention in the classroom. By taking this measuring instrument into account, the authors hope to develop a research line to evaluate the impact of interventions on the self-concept.

A limitation of this study is that the sampling used reduces the possibility of generalization of the results to the population of schools with high socio-economic vulnerability to which is oriented. Future research should randomize the sample to all levels. In addition, the search for invariance over time would favor the use of this instrument for longitudinal and experimental of repeated measures research.

It seems appropriate to perform an extended application of the instrument to students of different characteristics (socio-economic level, cultural contexts, educational levels, etc.) in order to identify variations in the functioning of the instrument.

Acknowledgements

Research funded by Project FONDECYT 1120694: Impact of a program to facilitate the self-regulation of learning by means of ICT.

References

Agencia de Calidad de la Educación Gobierno de Chile (2015). *Informe Técnico SIMCE 2013* [SIMCE Technical Report, 2013] Recovered from: https://s3.amazonaws.com/archivos.agenciaeducacion.cl/documentos-web/Informe_Tecnico_Simce2013.pdf.

Álvarez, F. (2008). ¿Puede la evaluación docente institucional convertirse en estrategia de aprendizaje profesional? [Can the institutional teacher evaluation become a strategy of professional learning?]. *Revista Iberoamericana de Evaluación Educativa*, *1*(2), 93-105.

Anual, A., Bracho, A., Brito, N., Rondón, J.E., & Sulbarán, D. (2012). Autoaceptación y mecanismos cognitivos sobre la imagen corporal [Self-acceptance and cognitive mechanisms on the body image]. *Psicothema 24*(3), 390-395.

Barraza, A., & Gutiérrez, D. (2011). Perfil descriptivo y variables moduladoras del autoconcepto académico de alumnos de educación media superior [Descriptive profiles and modulating variables of the academic self-concept of students in upper secondary education]. *Revista de Estudios Clínicos e Investigación Psicológica*, *1*(1), 4-15.

Bear, C., Minke, M., Manning, M., & George, G. (2002). Concepto de sí mismo, estudiantes con dificultades de aprendizaje: un meta-análisis [Self-concept of students learning disabilities: A meta-analysis]. *School Psychology Review, 31*(3), 405-427.

Bollen, K. (1989). *Structural equations with latent variables*. New York: John Wiley & Sons.

Brinkmann, H., Segure, T., & Solar M.I. (1989). Adaptación y estandarización del Inventario de Autoestima de Coopersmith [Adaptation and standardization of the Coopersmth Self-esteem Inventory]. *Revista Chilena de Psicología, 10*(1), 73-87.

Byrne, B.M., Shavelson, R.J., & Muthen, B. (1989). Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement in variance. *Psychological Bulletin*, *105*(3), 456-466.

Bueno, J.A. (2004). *La motivación del alumno* [Student motivation]. Madrid: Instituto Calasanz de Ciencias de la Educación.

Catalán, J. (Ed.) (2011). *Psicología educacional, proponiendo rumbos, problemáticas y aportaciones* [Educational Psychology: Proposing directions, problems and contributions]. La Serena: Universidad de La Serena.

Cerrillo, M.R. (2003). Mejorar el autoconcepto en alumnos de un entorno desfavorecido [Improving the self-concept of students in a disadvantaged environment]. *Revista de Psicodidáctica, 14*, 71-86.

Esnaola, J., Goñi, A., & Madariaga, J.M. (2008). El autoconcepto: perspectivas de investigación [Self-concept: Research perspectives]. *Revista Psicodidáctica*, *13*(1), 69-96.

García, B. (2009). Dimensiones efectivas de la docencia [Effective dimensions of teaching]. *Revista Digital Universitaria*, *10*(11), 2-13.

García, F., Gracia, E., & Zeleznova, A. (2013). Validation of the English version of the Five Factor Self-concept Questionnaire. *Psicothema, 25*(4), 549-595.

Ginsberg, S. (2007). Teacher transparency: What students can see from faculty communication. *Journal of Cognitive Affective Learning, 4*(1), 13-24.

González-Pienda, J.A., Núñez J.C., González-Pumariega, S., Álvarez, L., Roces, C., García, M., González, P., & Valle, A. (2000). Autoconcepto, proceso de atribución causal y metas académicas en niños con y sin dificultades de aprendizaje [Self-concept, causal attribution process and academic goals in children with and without learning disabilities]. *Psicothema, 12*(4), 548-556.

González, M.C., & Touron, J. (1992). *Autoconcepto y rendimiento escolar: sus implicaciones en la motivación y autorregulación en el aprendizaje* [Self-concept and student performance: Its implications on motivation and self-regulation in learning]. Pamplona: Universidad de Navarra.

Green, J., Marsh, H., & O'Mara, A. (2006). Administering self-concept interventions in schools: No training necessary? A meta-analysis. *International Education Journal*, *7*(4), 524-533.

Guay, F., Boivin, M., & Marsh, H. (2003). Academic self-concept and academic achievement: Developmental perspectives on their causal ordering. *Journal of Educational Psychology*, *95*(1), 124-136.

Hair, J.F., Anderson, RE., Tatham, R.L., & Black, W.C. (2005). *Análisis multivariante*. [Multivariant analysis]. Madrid: Pearson Prentice Hall.

Junta Nacional de Auxilio Escolar y Becas (2014). *Prioridades 2015 con IVE SINAE Básica Media y Comunal* [Priorities 2015 with Basic, Secondary and Community IVE SINAE]. Recovered from http://www.junaeb.cl/ive.

Leiva, L., Pineda, M., & Encina, Y. (2013). Autoestima y apoyo social como predictores de la resiliencia en un grupo de adolescentes en vulnerabilidad social [Self-esteem and social support as resiliency predictors in a group of teenagers with social vulnerability]. *Revista de Psicología, 22*(2), 111-123.

McInerney, D., Dowson, M., Seeshing, A., & Genevieve, N. (2005). *Self-esteem, academic interest and academic performance: The influence of significant others*. Paper presented at the AARE Anual Conference, Parramatia.

Marsh, H. (1990). Causal ordering of academic self-concept and academic achievement: A multivariate, longitudinal panel analysis. *Journal of Educational Psychology*, *82*, 646-656.

Marsh, H., & Craven, R. (2006). Reciprocal effects of self- concept and performance from a multidimensional perspective. *Perspectives on Psychological Science, 1*(2), 133-163.

Marsh, H., & Martin, A. (2011). Academic self-concept and academic achievement: Relations and causal ordering. *British Journal of Educational Psychology*, *81*, 59-77.

Martín-Antón, L., Carbonero, M.A., & Román, J.M. (2012). Efecto modulador de variables socioemocionales en el entrenamiento en estrategias de elaboración de Educación Secundaria Obligatoria [Modulating effect of socio-emotional variables in the training of elaboration strategies of compulsory secondary education]. *Psicothema, 24*(1), 36-41.

Milicic, N., Alcalay, L., Berger, C., & Álamos, P. (2013). Aprendizaje socioemocional en estudiantes de quinto y sexto grado: presentación y evaluación de impacto del programa BASE [Emotional learning in fifth and sixth grade: Presentation and impact assessment of the BASE program]. *Ensaio: Avaliação e Políticas Públicas em Educação, 21*(81), 645-666. Retrieved February 16, 2015, from http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-40362013000400002&lng=en&tlng=es. 10.1590/S0104-40362013000400002.

Miñano, P., y Castejón, J.L. (2011). Variables cognitivas y motivacionales en el rendimiento académico en Lengua y Matemáticas: un modelo estructural [Cognitive and motivational variables on the academic performance of Language and Maths: A structural model]. *Revista de Psicodidáctica, 16*(2), 203-230.

Morales, M., & González, A. (2014). Resiliencia-autoestima-bienestar psicológico y capacidad intelectual de estudiantes de cuarto medio de buen rendimiento de liceos vulnerables [Resilience-Self-esteem-Psychological welfare and intellectual capacity of good fourth grade students from vulnerable high schools]. *Estudios Pedagógicos, 11*(1), 215-228.

Muñoz, L. (2011). *Autoestima, factor clave en el éxito escolar: relación entre autoestima y variables personales vinculadas a la escuela en estudiantes de nivel socioeconómico bajo* [Self-esteem, key factor of school success; relation between self-esteem and personal variables related to school in students with low socio-economic level]. Tesis de Magíster no publicada. Universidad de Chile. Recovered from http://www.captura.uchile.cl/handle/2250/126013.

Núñez, J.C., & González-Pienda, J.A. (1994). *Determinantes del rendimiento académico* [Determinants of academic performance]. Oviedo: Universidad de Oviedo.

O'Mara, A., Marsh, H., Craven, R., & Debus, R. (2006). Do self-concept interventions make a difference? A synergistic blend of construct validation and meta-analysis. *Educational Psychologist, 41*(3), 181-206.

Riquelme, M., & Bravo, P. (2011). Análisis psicométrico confirmatorio de la medida multidimensional del Test de Autoconcepto Forma 5 en Español (AF5) en estudiantes universitarios de Chile [Psychometric confirmatory analysis of the multi-dimensional measure of the Self-concept test. Form 5 in Spanish (AF5) in Chilean University students]. *Psicologia, Saúde & Doenças, 12*(1), 91-103.

Rosário, P., Lourenço, A., Paiva, O., Rodríguez, A., Valle, A., & Tuero-Herrero, E. (2012). Predicción del rendimiento en matemáticas: efectos de

variables personales, socioeducativas y del contexto escolar [Prediction of the mathematics performance: Effects of personal, socio-educational and school context variables]. *Psicothema, 24*(2), 289-295.

Salum, A., Marín, R., & Reyes, C. (2011). Relevancia de las dimensiones del autoconcepto en estudiantes de escuelas secundarias de Ciudad Victoria, Tamaulipas, México [Relevance of self-concept dimensions in students of secondary schools from Victoria City, Tamaulipas, Mexico]. *Revista Electrónica de Psicología Iztacala, 14*(2), 255-272.

Shavelson, R., Hubner, J., & Stanton, G. (1976). Self-concept, validation of construct interpretations. *Review of Educational Research, 46*(3), 407-441.

Skaalvik, E., & Skaalvik, S. (2002). Internal and external frames of reference for academic self-concept. *Educational Psychologist, 37*(4), 233-244.

Tomás, J.M., & Oliver, A. (2004). Análisis psicométrico confirmatorio de una medida multidimensional del autoconcepto en español [Psychometric confirmatory analysis of a multi-dimensional measure of self-concept in Spanish]. *Revista Interamericana de Psicología, 38*(2), 285-293.