

# VAL-U: Psychometric properties of a Values and Civic Attitudes Scale for University Students' Service-Learning

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## Research

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# Abstract

**Background:** The service-learning disciplines can offer a unique opportunity for civic development in university students, as there is a large body of research that links them to values and civic attitudes regarding a vast number of ecological issues and citizen variables. Moreover, one should bear in mind that these students are future generations that will face many pressing social and environmental issues of a citizen nature. **Methods:** given the need to develop instruments to measure the impact of a learning-service methodology in university students' values as well as civic attitudes, as the University can be considered a learning step prior to the professional field, the current scale was proposed for the Spanish University population. The main objective of this study was to analyse the internal consistency and factor structure of the proposed VAL-U scale in the Spanish population. **Results:** The scale confirmed good psychometric properties. Furthermore, the results have shown high reliability and optimal goodness of fit indices. **Conclusions:** the VAL-U scale might be considered a valuable tool for assessing resilience in the Values and Civic Attitudes Scale for Spanish-speaking University Students' Service-Learning.

## 1. Introduction

The trajectory that learning has had in the University in recent years has proven to be a very complex process when it comes to acquiring academic skills [1] [2]. To this end, the service-learning (SL) disciplines can offer a unique opportunity for the civic development of university students. It is important to remember that future generations will face many pressing social and environmental issues of a citizen nature [3] [4]. In this way, collaboration among other variables might improve the skills to make democratic decisions together. Moreover, it could be also considered a benefit to improve different elements of the curriculum, by ensuring out students have endless real opportunities though this pedagogy. All these variables have been combined with different actions aimed at improving real-life aspects that need active emotional participation [5] [6]. In this regard, acquiring values while implementing academic competencies, promotes social inclusion, activates networks of commitment, sustainability and inclusive awareness [7] [8].

There is a large body of research that link values with SL experiences [9] [10]. Therefore, it is of interest to develop tools to measure these associations, and more precisely, the acquisition of values when applying the service-learning methodology. Most of these values have evolved throughout history adapting themselves to everyday reality and a society in continuous globalisation although the essence of their meaning is based on the immediate support or help that a person or group can offer in a given emergency. Higher education is a principal agent for addressing the sustainable development goals, where immediate social connotation about the terms are raised above any political, cultural or religious difference. Moreover, SL might be a powerful tool for social transformation, although little research has been carried out on its academic impact in the context of Higher Education [11]. Although there is a fairly and universal consensus in the acquisition of values, cultural preferences always stand out.

On the other hand, human values play a crucial role in human actions, influencing several aspects of life. It has been commonly argued that values should be taken into consideration as drivers of well-being. Moreover, some literature has suggested a relationship between values and well-being which sheds lights on how extrinsic values such as security, power and tradition are associated with lower life satisfaction. Moreover, human values

have been linked to prosocial behaviour. More precisely, this is understood to mean that any behaviours that a person willingly does whose objective is the benefit of others is known as prosocial behaviour [23]. With regards to achievements and their effect on well-being, Gerbino et al. [24] found in two different studies with Italian adolescents that prosocial behaviour is a strong predictor for academic achievement in the short and long term, which in turn has been related to well-being. Thus, most of the values proposed and related to SL in the literature are sorted in terms of responsibility, commitment, solidarity, respect and dialogue. The value of responsibility can be considered a characteristic related to morality, which leads us to accept the consequences of our actions. Moreover, within the University environment, the students would fulfil the commitment to put into practice their personal values by taking committed actions in daily life, and by act responsibly and properly. Commitment is also linked to a social work. It is the indispensable element for the community to progress as a result of their involvement as educational agents (e.g., managers, teachers, families, among others) and citizen institutions that work for the common good [12]. Furthermore, respect is the basis for moving towards a more equitable and humane society. It is a concept rooted in social action, where we include respect the other, the dignity of the person and the absolute value of every human being [13]. In this way, SL promotes the necessary conditions for all students to feel, and exercise based on understanding, dialogue, respect for diversity, dignity and values. But SL methodology is also ideal for supporting both the school and the family in the development of civic values. On the other hand, one should find solidarity in the literature, as a moral virtue and social attitude. It consists of fighting against the structural causes of poverty, inequality, lack of work, land and housing, denial of social and employment rights [14].

Different studies have found human values, and consequently their components, to be an import tool in life, since they are intimately related to well-being. Given the need to develop instruments to measure the impact of the SL methodology on student values, as well as civic attitudes, current research aims to develop a scale to shed light on values and civic attitudes related to University Students' Service-Learning. Therefore, the main objective of this study was to analyse the consistency and internal structure factor of the proposed VAL-U scale. To date this has been a challenge in the Spanish population, since many tools are in English, but not for this population.

## 2. Materials And Methods

### Participants

In order to analyse the factor structure of the proposed VAL-U scale, two independent samples were selected. A convenience sampling method was used for both cases. Participants collaborated voluntarily and received no compensation. Firstly, a sample of 162 Spanish undergraduate psychology students (79% were women, and 21% men) with an age range between 18 and 31 years,  $M = 21.39$ ,  $SD = 2.48$ , participated in the exploratory factor analysis. Secondly, a sample of 228 Spanish undergraduate psychology students participated in the confirmatory factor analysis (71.9% women and 28.1% men). They depicted an age range between 18 and 41 years,  $M = 20.53$ ,  $SD = 3.63$ .

A third and final sample of 20 students (80% women and 20% men) was included to examine retest reliability. They were evaluated in two different moment. The follow up was carried out 5 months after the previous measure. They described an age range between 19 and 29 years,  $M = 21.65$ ,  $SD = 2.39$ .

## Procedure and Instruments

The VAL-U scale was developed after several approaches. First, qualitative data obtained through focus groups and exploratory research methodologies were used for the first phase on item identification. Content validity for the VAL-U scale was developed by the assessment of 11 experts. A total of 20 Likert items (from 1 to 5 points) were considered after this process.

Secondly, two scales were used to test convergent and divergent validity. Firstly, Sinclair and Wallston [15]-developed Brief Resilient Coping Scale (BRCS) was used to test validity. The BRCS is a tool with adequate levels of reliability and validity. The original scale consists of 4 items and a single factor or dimension, with an index of internal consistency of  $\alpha = .69$  and test-retest reliability of  $.71$ . It was adapted to the Spanish population in the previous literature [16] [17]. Since it measures resilience, it was included in order to test lack of relation with some subscales of VAL-U.

Finally, the Social Support Survey Scale (MOS-SSS) was also included. It was developed by Sherbourne and Stewart [18] and adapted to the Spanish population [19]. It is divided into emotional support, material support, and social relationships. In relation to their content, the internal consistency ranged from  $.92$  to  $.83$ . As previously mentioned, it was included in order to test lack of relation with some subscales of VAL-U.

## Analysis

The analyses were developed through SPSS 22 and Amos 18.0. In order to examine the adequacy of indebtedness for the Spanish population in terms of psychometric properties, an exploratory factor analysis (EFA) was conducted. Assumptions were checked to ensure the application of factor analysis, such as high sample size, multivariate normality, linearity and correlation between variables. Moreover, in order to find the suitable number of factors, Cattell's scree-sediment graph as well as the Kaiser. In this way, the internal consistency of the scale was evaluated through Cronbach Alpha; items of homogeneity; KMO index and the Bartlett test of Sphericity. After removing the factorial solution proceeded to the completion of confirmatory factor analysis (CFA) through an independent sample, accompanied by the goodness of fit indices. No rotation of the data was used. Confirmation of the adequacy of the model has been used within the absolute fit indices; the chi-square statistic  $X^2$ , and its ratio among degrees of freedom where values under 2 are recommendable. In terms of incremental fit indices, the comparative fit index (CFI), was selected. This follows a range of values between 0 and 1 and the reference value is  $.90$ . Finally, within parsimony adjustment indices, the root mean square error approximation (RMSEA) of the RMSR. Similarly, the smaller its value, the better the fit, the reference value being  $.05$ .

## 3. Results

Cronbach's alpha was  $= .675$ , and the percentage of total variance explained of  $40.47\%$ . Table 1 presents the descriptive analysis, Cronbach's alpha, kurtosis, skewness and exploratory factor loadings between items.

Table 1  
Means, standard deviation (SD), kurtosis, skewness and exploratory factor loadings.

	Mean	SD	Skewness	Kurtosis	Cronbach Alpha if deleted
Item 1	2.49	1.06	0.30	-0.73	.655
Item 2	3.60	1.09	-0.70	0.11	.663
Item 3	4.10	0.92	-1.19	1.74	.651
Item 4	1.52	0.83	1.95	4.17	.711
Item 5	2.34	0.91	0.08	-0.81	.655
Item 6	3.22	1.23	-0.27	-0.87	.666
Item 7	3.35	0.93	-0.41	-0.16	.644
Item 8	2.44	0.96	0.37	-0.30	.655
Item 9	4.37	0.70	-0.76	-0.15	.655
Item 10	4.41	0.68	-1.32	3.33	.656
Item 11	4.22	0.70	-0.99	2.40	.666
Item 12	4.11	0.78	-0.83	1.13	.652
Item 13	4.22	0.66	-0.52	0.47	.665
Item 14	1.62	0.77	1.09	0.62	.697
Item 15	4.14	0.65	-0.27	-0.05	.677
Item 16	2.87	0.95	-0.09	-0.50	.642
Item 17	3.81	0.78	-0.22	-0.34	.658
Item 18	4.35	0.78	-1.01	0.37	.660
Item 19	4.07	0.72	-0.72	1.54	.660
Item 20	2.91	1.06	-0.14	-0.74	.674

With regard to the Exploratory Factor Analysis (EFA) in the first subsample, the Bartlett's test of sphericity reached a  $p < .001$  with a chi-square of 645.61 (df = 190) and the sample index value of Kaiser-Meyer-Olkin (KMO) was 0.70. The scree-test (Cattell, 1966) recommended three factor solution. Table 2 characterises the factor loadings after a Promax rotation. The Confirmatory Factor Analysis confirmed, through an independent sample, a three-factor solution. The model presented an optimal fit. The goodness of fit indices global scale was:  $\chi^2 = 80.97$   $p < .001$  (df = 51),  $\chi^2 / df = 1.58$ , CFI = .90, IFI = .915, and RMSEA = .02. In order to summarise the information of each factor, these were labelled as follows: i) Factor 1: Commitment (items 1, 5, 7, 8 and 16) and the Cronbach's alpha was .68, ii) Factor 2: commitment-responsibility (items 3, 9 and 10) and the Cronbach's alpha was .64, iii) Factor 3: respect-dialogue and the Cronbach's alpha was .64. (items 11, 12, 17 and 19).

To test the criterion validity of the scale, this was correlated between the resilience and social support. Finally, Fig. 1 shows the final factor structure, in terms of factor loading.

In order to check the stability of the proposed tool, a correlation (see Table 3) between test and retest (n = 20) shows high level of time stability  $\rho(19) = 0.56$ ;  $p < 0.001$ .

Table 2  
Factor loading for 3-factor solution  
after a Promax rotation.

	Factor		
	1	2	3
item 1	.411	-.037	.232
item 2	.393	.013	.272
item 3	.215	.221	.565
item 4	-.173	-.313	-.261
item 5	.400	.130	.192
item 6	.150	.155	.347
item 7	.754	.226	.110
item 8	.631	.129	-.045
item 9	.047	.500	.619
item 10	.080	.436	.655
item 11	.003	.639	.225
item 12	.171	.595	.334
item 13	.168	.369	.242
item 14	-.068	-.366	-.060
item 15	-.065	.359	.255
item 16	.588	.305	.156
item 17	.221	.425	.218
item 18	.287	.142	.155
item 19	.130	.446	.308
item 20	.239	-.027	.043

Table 3  
Pearson coefficients among Factors and construct validity

	F1	F2	F2	Resilience	Emotional Support (ES)	Material Support (MS)	Social Relationships (SR)	Affective Support (AS)
F1	1		.					
F2	.207**	1	.					
F2	.194*	.401**	1					
Resilience	.176*	.298**	-.001	1				
ES	-.137	.204**	.145	.131	1			
MS	-.123	.212**	.158*	.049	.882**	1		
SR	.515**	.413**	.178*	.258**	.019	.021	1	
AS	.258**	.223**	.463**	-.021	-.052	-.069	.214**	1
*p < .05; **p < .01								

[Insert Figure 1 here]

## 4. Conclusions

The objective of the paper is to develop a measurement instrument that makes it possible to assess changes related to SL experiences. The five selected factors - dialogue, responsibility, solidarity, commitment and respect - are reflected in this instrument, although in the end they have been grouped into 3 factors: factor 1 solidarity, factor 2 commitment-responsibility and factor 3 respect-dialogue.

## 5. Discussion

Service Learning makes it possible to develop ecological values related to citizenship and are of interest in promoting social justice and democratic values. In this way, pedagogical methods and techniques that promote critical reflection, structured discussion and social justice are of interest for future generations. In addition, SL in class can also promote more positive attitudes about pressing social problems. Therefore, it is of interest that future research explores not only how the students [plural?] can face social problems of interest, but also how SL influences attitudes [20]. In this scenario, it is of interest to know the perceptions that the students of SL have [have of SL?] in order to consider the effectiveness of the teaching-learning processes. Moreover, one should bear in mind that SL is a methodology that is based on the detection of needs and social change, and this occurs because there is an intervention in the real context that transcends the university classroom itself. Therefore, any to measurement tool that helps us to better understand the role of SL in our University students is twofold, since it implies both applied and theoretical levels of relevance. Some of the practical implications are to know and measure the impact that the SL methodology has on university students in relation to values linked to civic commitment. According to the current student [Si se quería decir "Según los estudiantes

actuales”, será “According to current students”. No queda claro por qué sólo hay uno. Suena a un estudiante en abstracto.] these were grouped into 3 factors: solidarity, commitment-responsibility and respect-dialogue. Having a vision about civic engagement is essential to understand the experiences of students in Service-Learning and to develop or implement current theoretical models. Although current research has also recognised socio-cognitive components such as values, skills and knowledge. We expect that these aspects will influence the understanding of education and civic engagement. This paper has one main limitation, namely that the sample was selected through non-probability sampling, which can introduce distortions into the results when one considers that the final sample may have a high component of self. Future lines of research might consider the role of age and differences regarding the benefits of SL in students who are older. Older students may value more the integration of practical learning in the classroom, so that they more easily recognise communities where the connection between classroom and reality can be more adequately made. However, age is a variable that is rarely taken into account in SL surveys, since younger and older students benefit equally from the benefits of this methodology [22].

## Declarations

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- Conflicts of Interest: “The authors declare no conflict of interest.
- Ethical Approval and Consent to participate: The University’s ethics committee’s approval of the study was obtained, ensuring that the principles of the Helsinki declaration were followed. Written consent from the all participant was compulsory.
- Consent for publication: Authors consent publication.
- Availability of supporting data: data is available on request.
- Competing interests: none.
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- Authors' contributions: All authors contributed in similar way to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

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## Figures

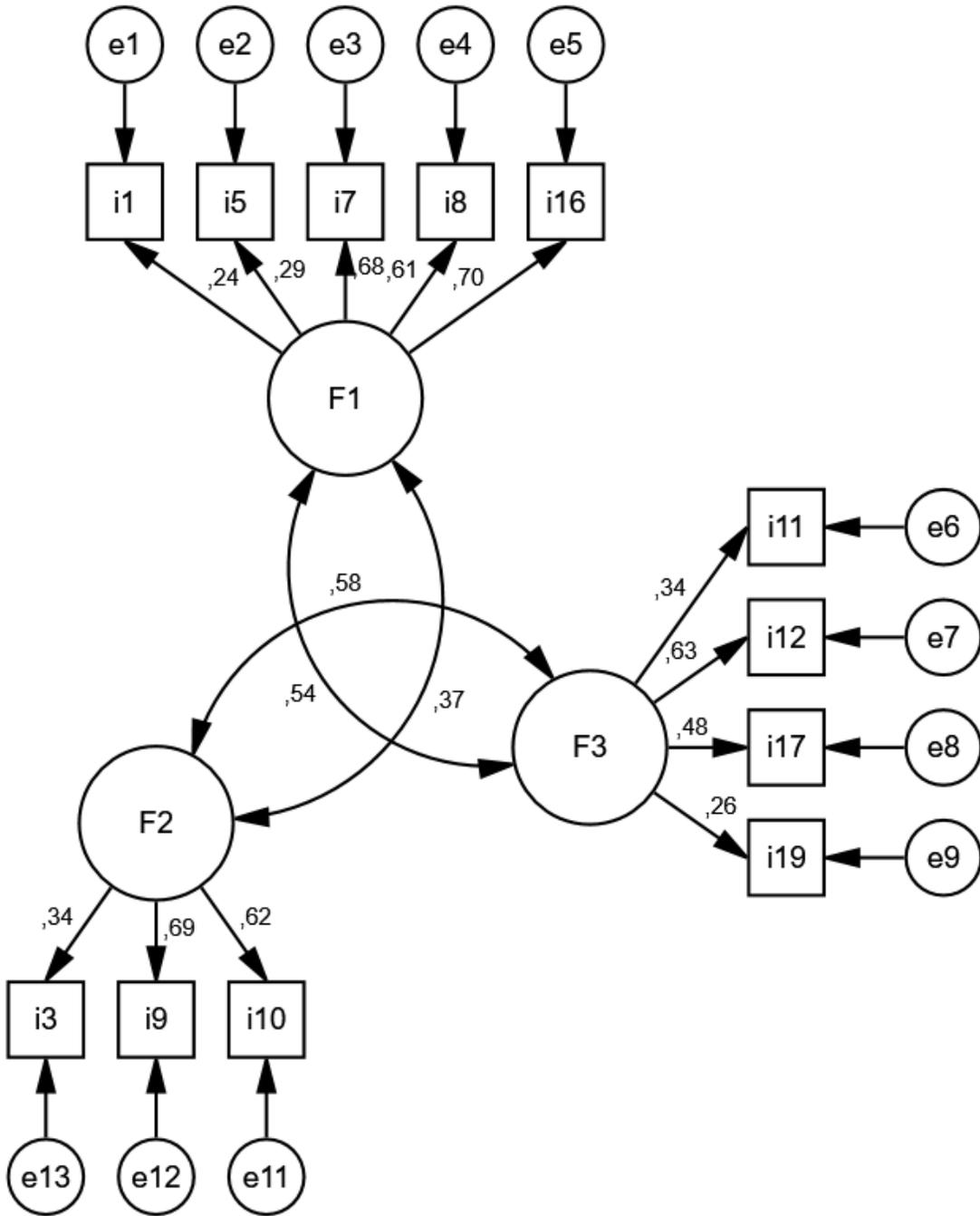


Figure 1

Factor loading in a 3-factor solution