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# The Values in Multicultural Contexts as a Tool for Understanding Multilevel Development

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#### **Abstract**

This study designed and validated a novel instrument that is useful for analyzing values at different levels (moral, social, individual, spiritual, and multicultural). A questionnaire was designed and validated with 1,702 participants using structural equation modeling (SEM). This methodology allows for latent analysis, which is consistent with the use of a multivariate regression to relate response patterns to a set of existing factors that are not directly observed, thus obtaining four factors related to social, cultural, transcendental, and emotional values, where the values must be based on the holistic development of a human being, combining all the dimensions that make up an individual. This resulted in a valid and reliable instrument with psychometric characteristics that make it suitable for establishing values in multicultural populations.

Keywords: case factors; instrument; values; questionnaire; multicultural contexts; plural society.

# Introduction

Within the debate on the fairness of machine-based decisions in algorithmic decision-making, Wang and Singh (2021) take into account missing values and selection bias when conducting studies on categorical data in an attempt to help machines make fairer decisions. Some studies aim to simplify the complexity of social reality to facilitate its analysis by translating it into a numerical language that enables quantitative analysis. San-Jose et al. (2021) attempt to demonstrate that it is possible to monetise the social value generated

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by a hospital and use it to establish efficiency based on the public funding allocated to it. Their study considers the social part of economic transactions, i.e. those variables that do not involve market transactions but are perceived and valued, and emotional satisfaction.

Ennerberg (2022) reflects on how some national values and practices are present in civic education. The idea that modern science has made it so that claims about religious truth appear unreasonable seems to be increasingly influential for young people (Walker 2019). However, people face dilemmas where they need to make decisions related to science and religion. In their research on how Science and Religious Education teachers view the nature of argumentation. Da Cruz (2019) raises the need to separate the ideological confrontation, which may arise as a result of the faith of a researcher from the pragmatic research perspective they adopt.

Based on a study on traditions and religion in Swedish preschools, Reimers (2020) described and analyzed the difficulty of removing religion from religious practices, as well as the difficulty of reducing religion to a single dimension.

As part of a project entitled 'Identifying principles and big ideas for religious education', Freathy & John (2019), recommend an additional research-based multidisciplinary, multi-methodological, and reflective learning approach that asks why, how, where, and through whom 'knowledge' of religions and worldviews comes about. They propose four 'Big Ideas on the study of religions and worldviews', whose aim is to highlight the symbiotic relationship between the knowledge and the 'knower', and to reject the false dichotomy between the object and the method of study.

Somaraju (2023) examines the relationship between ethical beliefs and social values, commonly attributed to cultural differences, searching for cultural links to resolve interpersonal conflicts. He tests two models that link the ethical beliefs of Relativism and Idealism to conflict resolution preferences of Compromise and Forcing through social values (Face, Collectivism, Dignity & Honour).

In an attempt to avoid different kinds of nihilism, relativism, and totalitarianism, Vargas-Guillén, et al. (2019) question ethical education from a perspective of de-transcendentalisation of ethical-moral norms and propose the possibility of achieving an ethical education through the pragmatics of language. Regarding this topic. Integrating religions and non-religious worldviews is a challenge for policy makers, teachers, educators, and schools (Bratenand Everington 2019). Understanding the values intrinsic to each culture becomes necessary in an increasingly plural society, given that, when members of one religion apply their norms to members of a different one, this results in coexistence conflicts. Srinivasan et al., (2019) they concluded that, even in an environment marked by religious conflict, children could limit the applicability of the norms of a religion to members of that religion, thus creating a good basis for peaceful coexistence.

González-Gijón et al. (2021) show a new instrument created to know the hierarchy of values in young people from 11 categories that include the integrity

of the dimensions of the person (bodily, intellectual, affective, individual, moral, aesthetic, social, political, ecological, instrumental and religious).

Smith et al. (2019) explored the relationship between individualistic and collectivist values and risky and pro-social behavior, concluding that young people adopt multiple cultural orientations and that collectivist cultural values can serve as motivational factors for children of diverse backgrounds.

Hemi and Kasperski (2023) have developed a reliable instrument for the evaluation of the socio-emotional competences of educators. The internal correlations indicate a similarity between the social and emotional subscales, resulting in a reliable and valid measurement tool.

# Methodology

#### Procedure

This project was developed in compliance with current privacy and data protection regulations. Participants gave their informed consent to process their personal data, in accordance with the provisions of Regulation (EU) 2016/679 of April 27 (GDPR), and Spanish Law on Data Protection, Organic Law 3/2018, of December 5th (LOPDGDD, based on the Spanish acronym). The questionnaire was conducted online using Google Forms. This research project was approved by the academic commission of Social Responsibility of the Faculty of Education of the University of Granada.

# Design and sample

To achieve the objectives of the study, an online ad-hoc questionnaire was designed, and its psychometric characteristics were analysed. In the sample, the mean age of the participants was 24.42 years, with a distribution of 65.9% women and 34.1% men. In terms of religion, 56.5% identified as Christian, 20.2% as Muslim, 0.8% as Jewish, 0.2% as Hindu, and 20.8% as having no religion. A total of 69.6% were volunteers and 30.4% were not. A total of 27.4% had dependents and 70.9% did not, while 78.1% did not have children and 21.9% did.

#### Instrument

The values questionnaire was administered in a multicultural border-city context, in the Spanish city of Melilla in North Africa. Due to its geographical location (it is one of only two land borders between Europe and Morocco) its essential value is that respondents from a European cultural background are mostly Spanish nationals. The questionnaire consisted of sociodemographic and other specific questions regarding values. Specifically, there were six specific

sociodemographic questions; the remainder of the questionnaire was the same for all respondents, and there were 39 specific questions on multicultural values, organized into four blocks or dimensions. The questions were adapted from the questionnaires González et al. (2021).

# Data analysis

For the analysis of the data, the IBM SPSS Statistics 25 statistical programme was used to obtain the results. In order to fulfil the first objective of designing and validating an instrument to analyse values as a development tool for all levels that make up the person, structural equation modelling (SEM) was used, which through multivariate regression, allows us to establish the relationships between latent variables and response patterns with a set of factors that are not directly observed, thus establishing a confirmatory analysis of psychometric validation.

This allows us to establish a useful and valid instrument, as there are currently none that examine the parameters studied. To achieve the second objective, descriptive statistics were used to describe the characteristics of the sample (mean, standard deviation, skewness and kurtosis) and correlation analysis.

#### Results

To assess the correct design of the questionnaire, its content validity, its reliability and its construct validity were evaluated. Several strategies and psychometric assessment tools were used for this purpose.

To evaluate content validity (Escobar & Cuervo 2008), expert consultation (Delphi method) was used (Vidal & Lluch 2019). This was done it to identify the degree of adequacy, belonging, and congruence for each of the questions. An estimation scale was designed using a degree of agreement of 1-3 for each of the questions (Cabero & Barroso, 2013). In the initial stage, seven experts (university professors for Education degrees), specialists in research methodology, two volunteers and an expert on values with a degree in theological sciences were recruited. In the second stage and based on the previous recommendations, the final version of the questionnaire was developed, and the degree of concordance was analyzed for each question. Values > 80% were considered adequate, therefore, when questions met this standard, they were kept. In this phase, one item was eliminated, so the questionnaire was reduced to 39 items. After these modifications and following the third round, agreement for all the questions was >0.8, so all questions were retained, resulting in a K value = 0.87.

In terms of reliability, a Cronbach's Alpha of 0.897 was obtained, which was considered an adequate level of reliability (Elosua & Zumbo 2008). The sample adequacy measures (Llorent 2019) performed to check if the data was appropriate

for factor analysis had a KMO test (Kaiser-Meyer-Olkin) with a value of 0.879, and a Bartlett sphericity test of 23224.046 (gl: 741; p=0.000).

The rest of the analysis demonstrated that 40.125% of the total variance could be explained with reference to the four previously identified factors. The descriptive statistics for each questionnaire item are reported in Table 1.

Table 1. Descriptive statistics of the (VALUES) questionnaire items: Mean, standard deviation, skewness and kurtosis

Itoms	Modia	DC	Variance	A cum m atm	Vurtosis	
Items	Media	DS	Variance	Asymmetry	Kurtosis	
I1	3.68	0.535	0.286	-1.461	1.499	
12	3.92	0.307	0.094	-4.018	18.045	
13	2.50	1.076	1.158	0.000	-1.261	
14	2.64	0.914	0.836	-0.236	-0.738	
15	3.37	0.690	0.475	-0.796	0.121	
16	3.38	0.733	0.537	-0.990	0.416	
17	3.36	0.752	0.565	-0.994	0.433	
18	2.60	0.923	0.851	-0.031	-0.859	
19	3.40	0.772	0.596	-1.087	0.400	
I10	3.17	0.832	0.692	-0.640	-0.457	
l11	3.15	0.872	0.761	-0.680	-0.478	
l12	3.50	0.676	0.457	-1.284	1.461	
l13	2.56	0.984	0.969	-0.036	-1.023	
l14	3.34	0.726	0.527	-0.799	-0.039	
l15	2.68	1.024	1.048	-0.137	-1.139	
I16	2.84	0.961	0.923	-0.297	-0.960	
l17	2.82	0.837	0.701	-0.280	-0.521	
l18	2.82	0.914	0.835	-0.232	-0.873	
l19	2.32	1.073	1.151	0.259	-1.188	
120	2.42	1.010	1.02	0.098	-1.079	
121	3.31	0.701	0.492	-0.658	-0.169	
122	3.21	1.264	1.598	21.100	701.460	
123	3.66	0.601	0.361	1.828	3.186	
124	3.78	0.480	0.23	-2.274	5.437	
125	3.84	0.435	0.189	-3.099	11.022	
126	3.81	0.440	0.193	-2.471	6.698	
127	3.72	0.511	0.261	-1.876	3.918	

128	3.60	0.577	0.333	-1.231	1.101
129	3.34	0.699	0.489	-0.800	0.271
130	3.42	0.724	0.525	-1.139	0.879
131	3.19	0.724	0.524	-0.545	-0.154
132	3.11	0.835	0.698	-0.550	-0.551
133	2.42	1.228	1.507	0.082	-1.586
134	2.18	1.117	1.248	0.359	-1.283
135	2.28	1.188	1.412	0.260	-1.463
136	2.24	1.177	1.386	0.338	-1.400
137	3.05	0.923	0.851	-0.645	-0.524
138	3.68	0.595	0.354	-1.993	3.955
139	3.15	0.732	0.536	-0.464	-0.338

To analyze the correlation structure, an oblique rotation of factors was performed. This analysis revealed which group of variables present a high correlation with each factor (Table 2).

Table 2. Factor loading of AF4 dimensions

Variables	F1	F2	F3	F4
12	0.364			
16	0.355			
17	0.334			
123	0.404			
124	0.701			
125	0.720			
126	0.711			
127	0.607			
128	0.616			
129	0.554			
130	0.569			
l31	0.459			
132	0.339			
138	0.463			
133		0.924		
134		0.913		

135		0.932		
136		0.932		
137		0.555		
139		0.274		
13			0.541	
14			0.488	
15			0.386	
18			0.704	
114			0.642	
l15			0.667	
I16			0.656	
I18			0.730	
119			0.492	
l1				0.260
19				0.778
l10				0.742
l11				0.716
l12				0.484
l13				0.460
l17				0.436
120				0.317
121				0.413
122				0.296
Alfa (.897)	.826	.854	.701	.793

The questions were then redistributed as per their association with the aforementioned factors and the factors were grouped according to the following dimensions:

Factor 1: Social values, which include the following items: 2,6,7,23,24,25,2 6,27,28,29,30,31, and 38. These items are related to daily care and hygiene, the use of technologies, the importance of employment, empathy, harmony, respect, loyalty, tolerance, the common good, sustainability, multiculturalism, and beliefs.

Factor 2: Transcendental values, which include items 33,34,35,36, and 37. These are related to a belief in God, the practice of religion and to taking pride in being religious, being a good believer, and promoting solidarity and charity.

Factor 3: Cultural values, which includes items 3,4,5,8,14,15,16,17,18,19, and 32. These encompass things like reading, studying, thinking, traditions, and cultural acts such as concerts, art, photography, and those related to the environment.

Factor 4: Affective values, which includes items 1,9,10,11,12,13,17,20,21, and 39. These values are focused on attention to food, affection, physical contact, beauty, fashion, feeling attractive, courage, the capacity for achievement, and fulfillment.

Pearson's correlation coefficient (Table 3) was also applied to determine the percentage of shared variance between the factors (Tabachnick et al., 2007).

	Factor 1	Factor 2	Factor 3	Factor 4			
Factor 1: Soc. values	1	.439**	.168**	.351**			
Factor 2: Tra. values	.439**	1	.085**	.305**			
Factor 3: Cul. values	.168**	.085**	1	.217**			
Factor 4: Aff. values	.351**	.305**	.217**	1			

Table 3. Correlations of factors

Table 3 shows that the highest correlations are found between factors 1 and 2, which have a covariance of 0.439. This relationship is significant (p<0.01), and it is considered moderate. Factors 1 and 4 have a covariance of 0.355 (the association is also significant, p<0.01), which is considered to be a positive and moderate correlation.

For this purpose, a type of analysis based on multivariate regression was performed, the purpose of which was to relate the response patterns to a set of latent factors that were not directly observed (SEM)) but were detected on the basis of the substantiating starting theory (Rizopoulos, 2006). In addition, to improve the model and achieve better values, a readjustment of the SEM model was carried out; some procedures and technical criteria were provided for the purpose of validation (González & Backhoff, 2010).

The questionnaire was refined by means of an analysis of the structural equation model. This was done according to the criteria of multivariate normality for the items and using the criterion of maximum likelihood, so that two models were created: A confirmatory model, and its readjusted version, which modified the theoretical model (M1) (Figure 1). The modification was verified through adjustment indexes (González & Backhoff 2010; Kline, 2011).

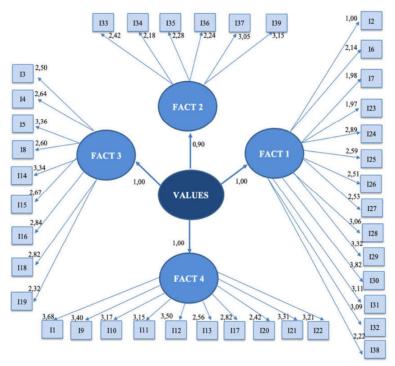


Figura 1. Schematic (path graph) of the Questionnaire of Values in Multicultural Context. Model 1 (M1)

Model 1 was created from the exploratory factor analysis and served as a theoretical model. The normed fit index (NFI) was close to 1 (0.760), and the comparative fit indexes (CFI) (goodness of fit index), Tucker-Lewis index, and NFI (normed fit index) were 0.781, 0.757 and 0.760, respectively. Although all of the values showed results that were not quite adequate, it was necessary to conduct readjustment. Notably, the root mean square error of approximation (RMSEA) was slightly above the critical limit at 0.067 (González & Backhoff, 2010).

Model 2 was created from M1, after eliminating inappropriate items. The readjusted model maintained 25 of the 39 items and all four factors of Model 1: Social, cultural, transcendental, and emotional values. It is interesting to note that the calculated RMSEA (root mean square error of approximation), which was equal to 0.56, was an optimal value, and the comparative fit indexes CFI (comparative fit indexes), TLI (Tucker-Lewis index), and NFI (normed fit index) (were 0.924, 0.909, and 0.911, respectively (Table 4 & Figure 2), (González & Backhoff, 2010; Miles & Shevlin, 2007).

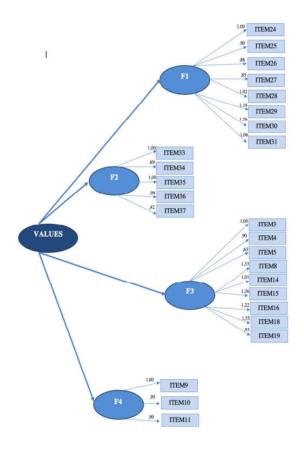


Figura 2. Schematic (path graph) of the Questionnaire of Values in Intercultural Context. Model 2 (M2)

Table 4. Adjustment index of the model of the VALUES questionnaire

			Absolute Adjustment Index			Incre	Increased Adjustment Index			
Model	CMIN	Р	LO 90	HI 90	RMSEA	PNFI	NFI	CFI	TLI	
M1 4 Factors 39 items	8.587	0.000	0.65	0.68	0.067	0.687	0.760	0.781	0.757	
M2 4 Factors 25 items	6.392	0.000	0.39	0.58	0.056	0.789	0.911	0.961	0.952	

### **Discussion**

An exploratory analysis on the data obtained from the sample of values was undertaken. The Kaiser-Meyer-Olkin index, whose value must be greater than 0.50, was 0.900, a coefficient that is close to 1, indicating that it was appropriate to proceed to ascertain validity and reliability. Bartlett's sphericity test showed that the significance was adequate (p < 0.001), which demonstrates that the data matrix was adequate for factoring. However, taking the weighting of the factors once the matrix and the content of each question had been broken down into its constituent items into account, the extraction of four factors was considered more appropriate. Exploratory Factor Analysis was performed using the extraction method, having previously used the goodness of fit and EFA (Exploratory Factor Analysis) adjustment indicators. To achieve greater convergence, four factors that explain 40.125% of the total variance were obtained, with an oblique rotation and a limit of degree of correlation of 0.3 between the variable and the factor proposed.

The results of the validation confirmed the theoretical structure of the questionnaire, but also revealed deviations in items 1,2,4,5,6,7,13,17,20,21,22,38, and 39. These results were accepted through an empirical correction of the originally proposed theoretical structure and an additional confirmation (based on the SEM). Items considered to present low variance and a factor load below 0.4 required attention, suggesting the elimination of the aforementioned variables. The analysis of the items revealed a total positive correlation for all the items. The analysis of the multivariate regression coefficient was performed by analysing the covariance matrix of the observed variables using the IBM SPSS AMOS v25.0 program.

The questionnaire was designed for the analysis of values in a multicultural context, as well as its usefulness in other contexts. Confirmatory factor analysis has been performed using a progressive verification of the structural equation models, which are evaluated globally by examining the influence of the different items contained in each dimension, through a set of fit indexes (Romero-Díaz et al., 2022). According to Byrne (2016), even when non-significant p-values are found (which are a good fit), other relevant indexes should be used, given that this statistic is very sensitive to sample size. In our case, a large sample size indicates a sensitive investigation of the results. For this purpose, we used the results obtained in the CFI (comparative fit index), together with the incremental fit index (IFI) and the NFI (normed fit index), whose values must be greater than 0.90 to suggest an acceptable fit, whereas values greater than 0.95 to indicate an excellent fit. The result of the RMSEA (root mean square error of approximation), was also used. This metric suggests an acceptable fit with values lower than 0.08, and an excellent fit with values lower than 0.05. Our model found a parsimony index with a PNFI close to 1. This is considered to represent a more adequate fit for the theory over good fit scores with findings of RMSEA <0.06 and CFI>0.95, values that are at the limit of excellence and are considered adequate for confirmatory validation (Byrne, 2016). The resulting four factors are made up of social values, whose items expound on the values of empathy, harmony, respect, loyalty, tolerance, the common good, sustainability, and multiculturalism. Smith et al. (2019), explored the relationship between individualistic and collectivist values (the former being related to things such as competence and material success, and the latter to factors such as family and respect) and risky and pro-social behaviour, concluding that young people adopt multiple cultural orientations, which combine social and cultural values as part of the development of the person.

The second factor, that of transcendental values, is based on values that are related to a belief in God, religiosity, solidarity and human charity. In addition, there is evidence that intrinsic religiosity prioritizes the values of benevolence as being self-sufficient; this suggests that values related to benevolence are a source of pro-social motivation (Schickedanz 2015). Freathy & John (2019) also focus on research-based multidisciplinary, multi-methodological, and reflective learning, which ask why, how, where, and through whom 'knowledge' of religions and worldviews comes about, something that may well be established by the development of the values related to transcendence established herein. Knowing the intrinsic values of each culture is necessary in our society to improve coexistence.

The cultural values factor included the values of culture and learning, as well as traditional culture and cultural activities, such as concerts, art, and photography. For this factor, only item 39 was eliminated. This factor focuses on the importance that participants ascribe to participation in organized cultural activities (volunteering, sports, church, community clubs, arts/music, school clubs). Greater participation in church and sports is related to higher levels of spirituality, and participation in sports is associated with higher levels of materialism and authoritarianism.

The greatest reduction in items occurred for the fourth factor, emotional values. The value of a need for physical and affectionate contact established that the need for love and affection is important for the development of human beings in an increasingly individualistic society, where ethical education is advocated for from the perspective the de-transcendentalization of ethical-moral norms (Vargas-Guillén, et al., 2019). Internal consistency, estimated by the Cronbach's alpha index, was considered adequate for each of the factors. However, it is important to note that the modification of the model was carried out on the data of a specific sample with previously specified characteristics.

# Conclusion

Our study successfully developed a robust evaluation instrument in the form of a meticulously designed questionnaire, which has proven to be a reliable tool for assessing values in a multicultural context. The positive relationships between the latent and observed variables reaffirmed the consistency of the factorial structure, highlighting the instrument's internal coherence. The various fit indices employed—such as the Root Mean Square Error of Approximation (RMSEA),

Comparative Fit Index (CFI), and Normed Fit Index (NFI)—all yielded favorable results, further validating the accuracy and reliability of the model.

The results of the Structural Equation Modeling (SEM) not only support the adequacy of the model's estimation but also underscore its capacity to effectively measure the construct of the Values Questionnaire, particularly in border multicultural contexts. This finding is significant as it confirms the instrument's ability to capture the nuanced and complex interplay of values in diverse cultural settings. By validating the construct, our study contributes to the ongoing efforts to enhance the holistic development of individuals, providing a valuable framework for future research and practical applications in multicultural education and social integration. This instrument is positioned to be a key tool in promoting greater understanding and cooperation among diverse populations, ultimately fostering a more inclusive and harmonious society.

# Limitations of the study

If possible, future research should aim to develop readjustments that allow the sample to be expanded to a more international and heterogeneous context. Our study developed a useful evaluation instrument in the form of a designed questionnaire because the relationships between the latent and observed variables were positive, which established the consistency of their factorial structure. The different indexes used to establish the exact goodness of fit, such as the root mean square error of approximation, the comparative fit index, and the normed fit index, showed favourable result.

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