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The work values of first year Spanish university students

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Abstract This study analyzes the work values of 2,951 first-year university students in Spain enrolled in degree programs within the five major areas of university studies. For our research, participants were asked to respond to a Scale of Work Values in which intrinsic, social, and pragmatic extrinsic values as well as extrinsic values related to geographic mobility are differentiated. Our findings show these students to have high levels of intrinsic and pragmatic extrinsic values as well as differences that vary according to their gender, major area of study and their chosen study program. By means of cluster analysis, we have also identified seven distinct types of students aligned with the work values under study. This paper explores the implications of this study for the development of work values and the education of students at the university level as well as the study's possible utility as a means of providing orientation to students that will prepare them better for their entry into the labor market.

Keywords First-year university students · Work values · Individual differences · Cluster analysis

Introduction

Work, as a dimension of human and social reality, entails a set of intrinsic and extrinsic values (Dæhlen 2005, 2007). The formation of intrinsic work values is part of an individual's personal development and is conditioned by his or her personality. These are

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distinct from extrinsic values, which are dependent upon external factors. Those extrinsic values that imply interaction with others can be considered social values. Both are linked to variables relevant to the development of professional careers such as vocational interests and personality traits (Berings et al. 2004; Xenikou 2005) and are formed within a specific employment context (Mukherfee 2006). Likewise, participatory socio-vocational competences (learning to live together) and personal competences (learning to be) are closely related to work values (Cortés 2009).

Work values have been analyzed from various theoretical perspectives, two examples being the work of Schwartz (1992, 1999) and the MOW group (MOW 1987). Over the course of numerous cross-cultural studies, the MOW group has observed that people having a strong preference in terms of employment situations are interested in employment that offers the possibility of learning new things, a good salary being the second most important consideration. Nevertheless, differences in attitudes can be observed from one age group to another. Claes (1987), a member of MOW, points out that due to their lack of economic security, young people are driven by instrumental values, whereas older people place a higher priority on expressive or intrinsic values, as is also the case among those with higher levels of education. Schwartz (1999) relates values, which he refers to as domains, to those of the MOW group, in that he categorizes intrinsic values as being coherent with self-direction and hedonism and in conflict with the values of conservatism. Extrinsic values are compatible with the values of conservation and power (exercising recognized authority over people or resources) but not coherent with self-direction and hedonism. Social values are congruent with universalism (understanding, tolerance, appreciation, concern for the welfare of others and interest in maintaining harmony in a work environment) and benevolence (the knowledge of how to preserve the wellbeing of co-workers), as well as opposition to power and pursuit of achievement (personal success gained through demonstrating vocational competence) (Roe et al. 1999; Schwartz 1999).

Although university students, especially those pursuing degrees in education, appear to be more inclined to hold intrinsic and social values, intrinsic and extrinsic values are not mutually exclusive. For example, in a longitudinal study involving 18,137 students in the United States, the most highly motivating work-related values identified by researchers Huang and Healy (1997) were prestige, being in a position to help others and feeling good about oneself. The results of research carried out by Jensen and Aamodt (2002) with 908 Norwegian students pursuing degrees in engineering, psychotherapy, social work and nursing were similar: these subjects also stated that they valued the opportunity to have a useful role in society as well as economic security. A comparative study using a sample of 549 public, semi-public and private sector employees in Canada conducted by Lyons et al. (2006) showed that those working in the first two sectors ranked the values of universalism and benevolence highly, in comparison to those employed in the private sector, who cited self-direction and benevolence as important values. Among the 374 students pursuing degrees related to education studied by Cortés (2009) benevolence, universalism and intrinsic and social values were the most frequently cited personal drivers.

Findings of another study conducted in the United States by Leong et al. (2005), which measured the work values of medical students using the Values Scale (Super and Nevill 1866), show that altruism, success, opportunities for promotion, the aesthetics of a particular career, authority and autonomy were the values ranked highest and dealing with frustration and risk-taking were the values ranked lowest by this group. Findings of a study of 3,570 American university students conducted by Duffy and Sedlacek (2007)

using the same technique showed that individuals in that sample (particularly the female subjects) tended to rank intrinsic values highest, followed by such motivators as high salaries, the opportunity to contribute to society and prestige. This variance in values according to gender has been established in numerous studies. Work values are also associated with other vocational variables. For example, a study conducted by Ghorpade et al. (2001) involving 749 students pursuing a range of studies concluded that work values such as altruism, initiative and a capacity for teamwork had a strong correlation with leadership ability, whereas individualism was considered to be incompatible with these values. In a cross-cultural project involving 1,882 students in Ecuador, Germany, India, Mexico and the United States, Hattrup et al. (2007) established a positive correlation between collectivism and the centrality of work that showed little variation across the five countries covered by the study. Song and Gale (2008) have emphasized that a holistic education relating work values to competences is fundamental for professionals assuming leadership positions such as project managers. Findings of a study of first-year university students enrolled in various disciplines (Balsamo et al. 2012) that implemented the Values Scale (Super and Nevill 1866) suggest that subjects who rank both intrinsic and extrinsic values highly have a somewhat greater proclivity for self-direction and adapt better to change, particularly those in applied and health sciences, although not to any remarkable degree.

In a wide-ranging study of European university graduates, Mora et al. (2007) found that the subjects in their sample who professed the highest levels of job satisfaction were those who placed a high value on family life, social prestige and personal development. The same results have been obtained in substantially different social contexts; teachers in China, for example, link job satisfaction to good relations with colleagues and associate dissatisfaction with low wage scales (Fuming and Jiliang 2008).

As individuals consolidate their professional careers, they gradually come to place comparatively less importance on their jobs than on other facets of their lives and adopt more extrinsic work values (mainly related to remuneration). Consequently, university students' transitions to adulthood are fundamental to their development of work values (Johnson 2001; Dæhlen 2005, 2007). Meta-analyses of longitudinal studies carried out between 1940 and 2011 on the work values of university students before graduation and well into their careers (Jin and Rounds 2012) confirm this pattern. Research conducted by Hansström and Kjellberg (2007) has shown that the centrality of work, understood to be the degree of relevance that a job or career has in an individual's life, is of greater importance to nurses than it is to engineers, especially for women, who place more value on altruism than men. The findings of a longitudinal study conducted by Dæhlen (2007) that compared the values held by 1,700 Norwegian students during their last year of university studies and 4 years after graduation show that attitudes differed according to the professions they pursued. Teachers and social workers, for example, professed a strong interest in helping others and making a contribution to society, whereas journalists placed more importance on the opportunity to be in constant contact with other people and use their creativity, although all of the subjects studied considered a high salary to be important, especially during the period of their transition from university to the workplace. These results are determined by factors such as employment stability, gender and family profile. For example, men generally consider a part-time job less interesting, although their attitude may change once they have children. Although both students in training to be teachers and teachers working in the field emphasize social values (Cortés 2009) studies indicate that both groups also hold extrinsic values (Anthony and Ord 2008).

Using the existing literature on university graduates' work values as a point of departure, this paper attempts to advance research on the values held by Spanish university graduates by:

1. Analyzing the importance that first year students at the University of Zaragoza place on work values.
2. Comparing the work values held by first year students at the University of Zaragoza by major area of study.
3. Comparing the differences between the work values held by female and male first year students at the University of Zaragoza.
4. Defining profiles based on the work values held by first year students at the University of Zaragoza using multivariate analysis.

Sample

The 2,951 subjects who participated in this study were all first-year students enrolled in any one of the three University of Zaragoza campuses located in three provinces of the Autonomous Community of Aragon. In line with the demographics of this region, the majority were concentrated in Zaragoza (2,566 or 87.1 %), and in the cities of Huesca (186 or 6.3 %) and Teruel (187 or 6.3 %). A very small percentage (0.4 %) identified themselves as not being natives of Aragon. The sample contained a higher percentage of women than men (60.5 vs. 39.5 %). The majority of participants came from cities with a population of over 50,000 (61.1 %), followed by those from cities with a population that ranged between 15,000 and 30,000 (20.5 %), and a smaller proportion (18.4 %), who came from smaller municipalities. As the breakdown of participants by the five major areas of study offered at the Spanish university illustrated in Table 1 shows, the majority of participants in this study were enrolled in social science programs, followed numerically by students pursuing health sciences and engineering degrees. Men made up a higher percentage of participants studying science and engineering, whereas women represented a higher percentage of subjects studying the arts and humanities and law. Participants were selected for the sample through direct contact with professors in each concentration and, whenever necessary, groups of students identified by means of enrolment data provided by the University of Zaragoza. Some of the first-year students who participated in the study completed the survey during class hours. In those locations where it was possible, an online survey questionnaire was employed.

The majority of participants in this study had qualified for their top choice of degree programs (78.6 %), whereas 14.8, 3.6 and 2.9 % were enrolled in programs that constituted their second, third and fourth choices respectively. Although all were first-year students in their respective degree programs, 14.3 % had transferred from other programs and 85.7 % had not. In terms of their secondary school 'baccalaureate' education, 36.9 % had concentrated in science, 26.1 % in social sciences and humanities, 18.8 % in health sciences and 1.4 % in arts. Another 12.9 % had been admitted to the university based on criteria other than a baccalaureate diploma; for example, through programs designed for prospective students above the age of 25 and other university preparatory programs. Most (80.4 %) had a good academic history prior to beginning their university studies and had never repeated a year of their secondary school education and the 19.6 % who had repeated a grade tended to have repeated their third or fourth year.

Table 1 Sex by macro area of knowledge

	Men		Women		Total	
	N	%	N	%	N	%
Arts and humanities	46	23.8	147	76.2	193	6.8
Sciences	81	56.3	63	43.8	144	5.1
Health sciences	112	24.8	340	75.2	452	16.0
Social and legal sciences	534	33.2	1,075	66.8	1,609	56.9
Engineering and architecture	343	79.8	87	20.2	430	15.2
Total	1,116	39.5	1,712	60.5	2,828	

Variables and instruments

Sociodemographic data such as age and sex were collected by means of a survey questionnaire. Students were asked to provide information about academic variables such as the degree program in which they were enrolled in, the academic year they were currently fulfilling, the type of secondary school baccalaureate diploma they had earned and whether the degree program they had eventually entered ranked first, second, third or fourth among their initial preferences of career disciplines. Data collection was carried out using self-evaluation survey questionnaires (Table 2).

Scale of values

A custom scale of values based on a theoretical model developed by the International Research Group (MOW Internacional Research Team 1987), Super and Nevill's Value Scale (1866) and the work of Schwartz (1990) was created. Various experts, whose input regarding wording, clarity and the relevance of the scale to the object of the proposed research was taken into consideration and incorporated into the design, validated the prepared content. After a pilot test with students, a final version was prepared for use in this study. Items were ordered using Likert-scale format that offered students four levels of response to choose from (1 = disagree, 2 = somewhat agree, 3 = agree and 4 = strongly agree).

An initial reliability test of these items indicated an adequate level of internal consistency among the 21 questions contained in the questionnaire ($\alpha = 0.704$); however, an individual examination of these items revealed that several had unacceptably low reliability coefficients (alpha coefficient of less than 0.30).

To test whether our hypothesized measurement model fits the data, the sample was divided into two equal parts, one of which was submitted to an exploratory factor analysis and the other of which was submitted to a confirmatory factor analysis.

In the case of the first group, an exploratory factor analysis (principal component analysis and oblimin rotation) produced five factors that accounted for 50.848 % of the variance. A good number of the items did correlate with the hypothesized factors in the model questionnaire. However, others, although they dealt with different issues, loaded on the same factor (e.g. mot-1 and mot-2). Items related to extrinsic values also tended to load on more than one factor.

Table 2 Means by macro area of knowledge

	N	Mean	SD	Chi square	gl	Sig.	η^2
Pragmatic extrinsic							
Arts and humanities	193	2.24	0.59	142.286	4	0.000	0.054
Sciences	137	2.13	0.54				
Health sciences	419	2.21	0.50				
Social and legal sciences	1,534	2.46	0.47				
Engineering and architecture	433	2.47	0.45				
Extrinsic–mobility							
Arts and humanities	199	1.62	0.66	14.685	4	0.005	0.006
Sciences	150	1.68	0.69				
Health sciences	461	1.66	0.69				
Social and legal sciences	1,613	1.67	0.68				
Engineering and architecture	436	1.80	0.73				
Intrinsic							
Arts and humanities	195	3.27	0.50	161.548	4	0.000	0.050
Sciences	150	2.99	0.55				
Health sciences	456	3.38	0.47				
Social and legal sciences	1,569	3.15	0.56				
Engineering and architecture	434	3.00	0.52				
Social							
Arts and humanities	201	2.26	0.83	84.429	4	0.000	0.028
Sciences	149	2.07	0.78				
Health sciences	464	1.91	0.74				
Social and legal sciences	1,644	2.26	0.78				
Engineering and architecture	442	2.18	0.74				

As previously noted, in order to define the factor structure of the survey questionnaire, a confirmatory factor analysis was conducted using the 17.0 version of AMOS. A sample of 1,469 participants distinct from that used for the exploratory factor analysis was employed. The estimation method chosen to test the measurement model was asymptotically distribution-free, which is recommended for scales that cannot be measured quantitatively and for which multivariate normality cannot be assumed (Brown 2006).

The normal procedures were followed to adjust misspecifications in the model and correct the items in question, including the overall adequacy test of our model using the indicators noted in Table 3 and a analysis of model estimates. Insignificant *P* values in the initial models were eliminated, taking into account those modification indices suggested by the program that were theoretically plausible (Brown 2006). Our goal was to find a factor model that did not deviate significantly from the data we had been working with.

We will now move on to a description of the models and the adjustments made to render them suitable for the purposes of this study.

Model 1: The first model distributed the 21 items among the 3 factors specified for the initial questionnaire: intrinsic, extrinsic and social values. Apart from problems related to

Table 3 Means by sex

	N	Mean	SD	U Mann–Whitney	Z	Sig.	η^2
Pragmatic extrinsic							
Men	1,055	2.44	0.49	749128.500	−4.469	<0.001	0.007
Women	1,582	2.35	0.50				
Extrinsic–mobility							
Men	1,095	1.76	0.71	828323.500	−4.542	<0.001	0.007
Women	1,677	1.64	0.68				
Intrinsic							
Men	1,076	3.06	0.53	703307.000	−9.084	<0.001	0.024
Women	1,643	3.23	0.54				
Social							
Men	1,106	2.19	0.77	938410.500	−0.296	0.767	0.000
Women	1,708	2.18	0.79				

the overall adequacy of the model (GFI = 0.857, AGFI = 0.822, CFI = 0.398, RSMEA = 0.068, AIC = 1414.760), various estimates for items were determined to be insignificant, especially the social factor. Although the weight of some items could be considered significant, these levels were very low, and the covariance between the three factors did not prove to be significant in all cases.

Model 2: After testing various different options, a new model was proposed that retained the theoretic structure of the measuring instrument but incorporated some of the data suggested in the Exploratory Factorial Analysis. A few problematic items (mot_1, mot_4 y mot_12) were eliminated from model 2 and the extrinsic values factor was divided into two new factors (extrinsic 1 and extrinsic 2) as obtained from the Exploratory Factorial Analysis. After examining the modification indices, covariance between errors was allowed, several items were permitted to load on more than one factor (mot_8, mot_2 and mot_11) and item 13 was reclassified as an extrinsic factor. These adjustments represented an improvement: all the indicator values were favorable and all estimates were significant (GFI = 0.940, AGFI = 0.915, CFI = 0.801, RSMEA = 0.042, AIC = 724.949).

Model 3: To compare the stability of this model with previous ones, the first sample used in the exploratory factor analysis was incorporated, with the stipulation that parameters for both sub-samples were identical. As was the case for model 2, the data supported the structure of the hypothetical model and both subsamples tested as stable (GFI = 0.954, AGFI = 0.944, CFI = 0.855, RSMEA = 0.026, AIC = 1182.754).

The final trimmed version of the Scale of Work Values (see "Appendix") was organised into four subscales that contained intrinsic values (5 items), pragmatic extrinsic values (=extrinsic 1, 9 items), extrinsic values related to a subject's receptiveness to geographic mobility (=extrinsic 2, with 2 items) and social values (2 items) related to the influence exerted by a person close to the subject. Estimated correlations between factors were all significant. Especially notable was the average relationship between the two extrinsic factors (r = 0.590), as well as the relationship between the social and pragmatic extrinsic factors (0.459). The others were lower (under 0.30).

Results

In this study, *pragmatic extrinsic* values registered slightly above the hypothetical mean of the scale (2.38) with a higher frequency of values concentrated around intermediate points on the scale. The distribution was Leptokurtic and did not correspond well to the normal distribution ($Z = 4.323$, $p < 0.001$). In this sample, extrinsic values are concentrated near the mean, with very few items in the extremes.

The mode for the extrinsic factors related to mobility showed minimum values, which is to say that a large part of the students participating in the study (38.8 %) stated that they had not chosen the university at which they had enrolled simply to avoid moving to a city further away from their hometown. The relevance of this data is even stronger in the light of the fact that 79.8 % of the participants gave this factor a rating below 2, the mean value of the scale. Likewise, the distribution for this value did not correlate to the normal distribution ($Z = 12.101$, $p < 0.001$). Extrinsic values related to mobility were barely present in this sample.

Our findings show that the students who participated in our study are more strongly motivated by intrinsic values, given that the mean (3.16), median (3.16) and mode (3.0) are above the hypothetical mean of the scale. As in the previous cases, the curve for this set of data did not correspond to the normal distribution ($Z = 5.651$, $p < 0.001$), which showed a significant asymmetry skewed to the right, as the subjects in this study held many of these values and gave them high scores.

Social values, which represented the influence of family and teachers on a student's choice of academic career, were important, although not overwhelmingly so, for the students in the sample. The median and the mode were both situated at the theoretical midpoint of the scale (4 points), whereas the mean was slightly higher (2.18). As a large number of students gave these values low scores, these items also did not correspond with the normal distribution ($Z = 7.461$, $p < 0.001$).

The comparisons between values show (Wilcoxon tests $p < 0.001$) that in all cases the intrinsic values are those most present in the university population (3.16), followed by the pragmatic extrinsic ones (2.38) in second place, by the social ones in 3rd (2.18) and lastly by the extrinsic ones referring to mobility (1.68).

Regarding the differences related to the macro area of the certification, we find that differences of averages appear in all the considered values, as revealed by the Kruskal–Wallis test (Table 2). Nevertheless, the magnitudes of these differences are not equal in all cases. For example, in the case of the pragmatic extrinsic and intrinsic values, the 5.4 and the 5.0 % variation of the dependent variable is explained, and the extrinsic ones related to mobility do not reach 0.6 %. In the case of pragmatic extrinsic values, we find that the highest scores appear in the macro areas of Engineering and Social and Legal Sciences, while the lowest values appear in General and Health Sciences. Therefore, regarding intrinsic values, these are more often in Health Sciences and in Arts and Humanities. To the contrary, they are less present in General Sciences, Engineering and Architecture, with intermediate values in Social and Legal Sciences. Finally, social values have more presence in Social and Legal Sciences, Arts and Humanities, Engineering and Architecture than in Health Sciences. Intermediate values are obtained in General Sciences. Our studies show that the Engineering and Architecture students are most identified with the extrinsic values related to mobility.

Comparisons using the Mann–Whitney U test between men and women once again reveal differences in the values, except in the case of those with social influence (Table 3);

Table 4 Means by choice of degree program

	N	Mean	SD	Chi square	gl	Sig.	η^2
Pragmatic extrinsic							
1st choice	2,135	2.36	0.51	27.606	3	<0.001	0.009
2nd choice	402	2.49	0.47				
3rd choice	102	2.46	0.41				
4th choice	79	2.47	0.44				
Extrinsic–mobility							
1st choice	2,249	1.66	0.69	11.901	3	0.008	0.004
2nd choice	423	1.73	0.71				
3rd choice	105	1.78	0.71				
4th choice	84	1.85	0.71				
Intrinsic							
1st choice	2,202	3.22	0.52	125.143	3	<0.001	0.046
2nd choice	411	3.01	0.54				
3rd choice	106	2.87	0.54				
4th choice	85	2.78	0.65				
Social							
1st choice	2,280	2.18	0.78	3.411	3	0.333	0.001
2nd choice	431	2.20	0.78				
3rd choice	106	2.05	0.74				
4th choice	84	2.23	0.81				

Table 5 Cluster analysis

Cluster	N	%	Pragmatic extrinsic		Extrinsic–mobility		Intrinsic		Social	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	352	13.6	2.56	0.44	1.92	0.63	3.59	0.29	3.29	0.51
2	402	15.6	2.73	0.30	1.33	0.40	3.47	0.29	2.20	0.44
3	414	16.0	2.40	0.34	1.86	0.55	3.09	0.36	1.39	0.41
4	488	18.9	1.78	0.34	1.19	0.35	3.57	0.32	1.78	0.61
5	326	12.6	2.75	0.32	2.75	0.50	2.93	0.36	2.38	0.53
6	198	7.7	2.22	0.56	1.64	0.67	2.02	0.37	1.58	0.52
7	405	15.7	2.37	0.33	1.35	0.41	2.82	0.28	2.57	0.43
Total	2,585	100	2.38	0.50	1.68	0.69	3.16	0.55	2.17	0.78

nevertheless, a relevant variance average of 2.4 % is only reached in the case of intrinsic values. In this case, women indicate intrinsic values more often than men do.

The study reveals that the option to choose their studies is related to the values towards the certifications, although the percentage of variance is only relevant in the case of intrinsic values (Table 4). This case reveals that the people who chose their certification in first place show more intrinsic values towards the profession than those who chose it later, those who chose it in second place more than the ones who chose it

in third and those who chose it in fourth place are the ones that show less intrinsic value.

Lastly, a cluster analysis was made to identify typologies of students according to their vocational values. The SPSS 19.00 reveals up to 7 different clusters, with average values in the variables reported in Table 5. The composition of the clusters is summarized as follows:

- The first cluster (n = 352, 13.6 %) groups the people that give a high score to the social values and higher than average scores to the rest of clusters in the other scales.
- The second cluster (n = 402, 15.6 %) presents high pragmatic extrinsic values and low mobility extrinsic values, with intrinsic values equally above the average.
- The main characteristic of third cluster (n = 414, 16 %) is the low score given to extrinsic values, that is to say, mobility has not been shown as a value, and the remaining ones show average values, with a slightly higher value being given to pragmatic extrinsic ones.
- The fourth cluster groups 488 (18.9 %) which show a high level of intrinsic values and scarce presence of any type of extrinsic values.
- The fifth cluster, unlike the previous one, presents elevated values of the two extrinsic values, pragmatic and mobility, grouping 326 people (12.6 %).
- The sixth cluster, the smallest with only 198 people (7.7 %) shows the main characteristic of low values in practically all the values, above all in intrinsic values. The average is in extrinsic geographic mobility.
- The last cluster groups 405 people (15.7 %). It shows few extrinsic values related to mobility, a larger social influence than the others and fewer scores given to intrinsic values.

The Pearson Chi square test reveals there are relations of association between the already mentioned clusters and variables, the gender ($\chi^2 = 63{,}604$, 6 gl, $p < 0.001$; $\Phi = 0.190$, $\lambda = 0.019$); the macro area of knowledge ($\chi^2 = 199{,}423$, 24 gl, $p < 0.001$; $\Phi = 0.278$, $\lambda = 0.025$); the order of selecting studies ($\chi^2 = 1{,}256{,}407$, 18 gl, $p < 0.001$; $\Phi = 0.221$, $\lambda = 0.019$) and the city of origin ($\chi^2 = 38{,}433$, 12 gl, $p < 0.001$; $\Phi = 0.126$, $\lambda = 0.005$), or having repeated any course before entering university ($\chi^2 = 15{,}487$, 6 gl, $p = 0.017$; $\Phi = 0.077$, $\lambda = 0.010$), nevertheless, the magnitudes of the associations are small, as shown by the Lambda indicators. No relation was found in the case of changing studies.

One of the most outstanding results is that there are a larger percentage of women (71.2 %) in the 4th cluster and of men in the 5th cluster (53.0 %). Regarding the order for selecting studies, the high percentage of students that chose their first option is in the 4th cluster where they represent 91.6 %, and this represents 78.5 % of the complete study. On the other hand, they are less frequent in clusters 5, 6 and 7. Regarding the students that have not suspended any course before entering the university, they are represented a little more in the 4th cluster than in the others, representing 85.5 % of the same when they are 80.6 % of the sample.

Regarding the macro areas, there is a large representation (9.9 %) of General Science students in cluster 4, when the total of the entire sample is 5.3 %. The Social Sciences students are more represented in cluster 7, where they reach 55.7 % and less in cluster 4, with only 44.4 % when they represent 55.7 % of the sample. Those of Health Sciences are well represented in cluster 4 by 35.9 %, when they are only 15.6 % of the sample. Lastly, the Engineering and Architecture students are 26 % of cluster 5 when they represent 16.3 % of the sample, while in cluster 4 they do not reach 9.5 %. All these cases take into

account those boxes that presented the largest typified corrected residues. The crosses with the city of origin hardly provide any relevant information, even though being statistically significant.

Conclusions and discussion

This study maps the situation of work values of first-year university students, which is an essential course because the academic motivation they have when arriving from "baccalaureate" is very high and it should be cared for during the rest of university life (Cortés 2009; Conchado et al. 2012; Jin and Rounds 2012). A first result of this research is the configuration of values in four dimensions: intrinsic, pragmatic extrinsic, extrinsic regarding geographic mobility and social. The most outstanding aspect is the distinction between pragmatic extrinsic values and those related to geographic mobility that could be relevant at the start of the university studies because the choice of the same can already include this aspect. In addition, this classification includes the seven profiles obtained from the analysis of the clusters.

Having worked this large sample, we can affirm that first year students are identified mainly with intrinsic values (vocational, preference for the chosen course, etc.), and those of geographic mobility or not thinking about future employment. This inclination for that which is most personal agrees with other already mentioned works (among others, MOW group, Ghorpade et al. 2001; Leong et al. 2005; Lyons et al. 2006). We also have to indicate that this distribution presents slight differences according to the type of studies being coursed, of the gender or of the academic background before the university.

In a following step, taking care of not creating labels that can typecast, preferring a constructive style, we can establish seven tendencies or types, following the seven clusters. One of them are those that are very affected by their close social environment (cluster 1), and that contrasts with those of intrinsic inclination (cluster 4), this is, very vocational, and with low scores in the other values. This includes women, highly qualified students, and those following branches of Health and Experimental sciences, this being a result found in the previously mentioned works (Leong et al. 2005). If these two types are somehow antagonistic (social vs. intrinsic), we also find a distance between a third and fourth type characterized by pragmatic extrinsic values (there is an inclination for very practical values and obtaining results) and static ones (clusters 2 and 3), as mobility is not considered in their motivations, and those that, also favoring pragmatic values, do so in pro of mobility. These latter prevail in men instead of women and in Technical Sciences. If those of the first type were social, a fourth type (cluster 7) also were, but with very low scores in the other values, and highly identified with Social Sciences. We found a fifth type (cluster 5) that is formed by those that show the most mobility, even though with scarce social motivation. Lastly, a tendency is described with students scarcely motivated by any value; it could be said as practically without any work values (cluster 6).

This is an interesting "photograph" because it presents much-defined groups regarding their predisposition to a certain type of values (intrinsic, social extrinsic, pragmatic extrinsic and geographical mobility) and established when entering the university. In our opinion, this typology has the virtue of being verified with a large sample of students, that in some way are related to some the variables (gender, type of studies, previous academic background) and that opens the door to a differential analysis of the academic or vocational

evolution of these students. Beyond that, we do no pre-judge that either of the groups or of typologies is better or worse, as this evolution will help us establish such an evaluation. Nevertheless, a priori, the one with most risks is that which is characterized by students with low scores in all the values, that can be compared with generation x or with generation NEET and that in the long-term can have a less disposed and committed attitude in adulthood (Kirkpatrick and Monserud 2012).

We have to indicate that a longitudinal study, as suggested by Balsamo et al. (2012), will be carried out along the previous lines regarding the prospective of this work, with students recompiling data on several occasions: half-way through their university studies, at the end, 1 or 2 years after having finished the university, and then every 5 years. At the same time we are aware of possible mortality in this type of study, we consider that a long-term study is really very interesting in order to establish the axiological evolution of those implicated (Jin and Rounds 2012) and seeing how that reflects on the academic and vocational evolution. In this sense, we could learn about their evolution along the university education identifying both the variables that could determine this development (areas of knowledge, academic achievement, internships, mobility programs) and the predictive role of those values on some of these areas which play a key role in the students formation. For example, it would be of great interest to check wether students who show little tendency to mobility refuse to participate in programs that promote it, such us Erasmus. In the same direction, these researches could be extended to other areas such as practical education in professional centres or companies (Cano et al. 2012) analyzing the role played and the knowledge acquired in them, understood as contexts from the values and clusters identified.

For our criteria, neither value is good or bad, positive or negative, therefore all of them will be necessary for education as different other works have indicated (Anthony and Ord 2008; Cortés 2009, Roksa 2006), and we consider that as important to not skew the education according to branches of university knowledge. For example, choosing studies by self-realization or by promotion are equally valid, because a relatively balanced development of the different work values is necessary.

Along this same line and from an educational perspective, work values are related with participative (professionalism) and personal (proper conduct) competences, and this is where we can include them as indicated by Pantic and Wubbels (2010) so that the students, future professionals, have an evaluative attitude both from one viewpoint as from another, that is, intrinsic and extrinsic. There should be spaces for reflection on the values for development of the career and incorporating this aspect as another area in education. This may be important for Counselling Departments at University in previous levels and at the latter.

We would like to finish this work without indicating some of its limitations. One of them refers to the result of the sample used in this work that has lead to having a larger presence of students of Legal and Social Sciences. This is due to having interest in studying specific groups of students of these qualifications in a longitudinal manner, but even so, the results can be skewed by the majority presence of these studies. Likewise, we have to indicate that the validation process of the instrument has generated a final structure of the same with a new configuration of values, with some of the same sub-represented for the low amount of items.

Finally, we confirm the educational potential for achieving competent future professionals, from their different work values, both in the personal, social and vocational aspects.

Appendix

QUESTIONNAIRE CONCERNING WORK VALUES – MOTIVATIONS TOWARDS A PROFESSION (Cano, Cortés, Orejudo, 2010)

This questionnaire aims to study the perceptions of students about the work values or motivations towards their future profession. There are no right or wrong answers. It is very important that you give your honest opinions, bearing in mind that it will be treated anonymously. Thanks for your help.

The student authorizes us, under current legislation on data protection, to treat data anonymously for research purposes at the University.

☐ **Yes** ☐ **No**

PERSONAL AND PROFESSIONAL DETAILS 1. **Date**: ……/……/ 20….. 2. **Key (last four digits of National Identity Card and letter)**: _____/___

3 . Mail: 4. City where you study : ☐ Zaragoza ☐ Huesca ☐ Teruel ☐ Outside of Aragón Others:

5. Year: 6. University degree: 7. Sex: ☐ Man ☐ Woman

8. **Place of study prior to university**: ☐ <2000 hab. ☐ 2001-7000 ☐ 7001-15000 ☐ 15000-30000 ☐ 30000-50000 ☐ > 50000

9 **Previous education and training**: ☐ Scientific-technical Baccalaureate ☐ Biomedical B. ☐ Social B. ☐ Artistic B. ☐ Professional Training ☐ Over 25 years old ☐ Other_____

10. **Kind of Centre** ☐ Public ☐ Private (Subsidized) ☐ Private

11. **Have you ever repeated a year?** ☐ No ☐ Yes Which one?: _____

12. **Have you ever changed your degree subject?** ☐ Yes ☐ No

13. **What choice number was your current degree? :** ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th or another option.

Comments:

1. White with an "X" your opinion about the importance of the following motivations to train you in your profession according to the following scale: - Very Little - Little– Enough – Plenty. The last column indicates in order only the three most important reasons for you (1st, 2nd and 3rd).
Notes Only the three most important

MOTIVATIONS	Scales the importance of each of your possible motivations				White only the three most important
	Very Little	Little	Enough	Plenty	1st /2nd /3rd
1.1. Helping my environment and society					
1.2. Because I like it					
1.3. Degree of easiness of chosen studies					
1.4. I am able to complete successfully these studies					
1.5. The impossibility of studying outside of my city due to economic reasons					
1.6. I do not want to leave my city					
1.7. Higher possibility of becoming a civil servant.					
1.8. Higher possibility of self-employment					
1.9. Studying university degree lasting only 3 or 4 years.					
1.10. Easiness of access to these studies					
1.11. My qualities for practicing my profession					
1.12. I felt pressured/ forced to study this degree.					
1.13. Prestige					
1.14. Possibility of access to a long-durations employment					
1.15. Good Employment conditions (schedule, vacations, paid absence).					
1.16. Salary					
1.17. Encouraged by a relative.					
1.18. Encouraged by a teacher/professor.					
1.19. Intrinsic inclination					
1.20. Self-fulfillment					
1.21. My personality traits or the way I am.					

Other aspects about my motivations:

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