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The relationship between universal values and academic commitment in Peruvian Army and Navy cadets

Relación entre valores universales y compromiso académico en cadetes del Ejército y la Marina de Perú

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ABSTRACT. This study explores the importance of Schwartz's universal values, the level of academic commitment, and their relationship in cadets from military schools in Peru. To this end, a structured survey was conducted with 1282 Army and Navy cadets. The responses were analyzed using partial least squares structural equation modeling. The validity and reliability of the scales were established, and a direct relationship was found between the values and academic commitment for each of the samples considered (full sample, Army School, Naval School, male cadets, and female cadets). The existing significant relationships were analyzed by individual and group values, as well as dimensions of commitment. The differences between the samples were also analyzed by military courses of study in each school and by sex.

KEYWORDS: academic commitment; academic performance; educational psychology; military education; moral values

RESUMEN. Esta investigación explora la importancia de los valores universales de Schwartz, el nivel de compromiso académico y la relación entre estos en cadetes de escuelas militares del Perú. Para ello, se aplicó una encuesta estructurada a 1282 cadetes del Ejército y la Marina, analizada con ecuaciones estructurales por mínimos cuadrados parciales. Como resultado, tras establecer la validez y fiabilidad de las escalas, se encuentra una relación directa entre los valores y el compromiso académico para cada una de las muestras consideradas (muestra completa; Escuela del Ejército; Escuela Naval; cadetes hombres, y cadetes mujeres). Se analizan las relaciones significativas existentes, por valores individuales y agrupados, y por dimensiones del compromiso. También se analizan las diferencias entre muestras en función de los cursos de la carrera militar en cada escuela y por sexo.

PALABRAS CLAVE: compromiso académico; educación militar; psicología de la educación; rendimiento académico; valores morales

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Introduction

The concepts of values and commitment have been approached conceptually from different fields of knowledge and theoretical positions. Therefore, different approaches to their relationship can be found in the literature. Directly or indirectly, this relationship has been especially addressed in the business field. Values have been recognized as determinants in demographic or situational variables. (Arciniega & González, 2006; Thomas, 2013).

Its influence on job performance in its various dimensions is one of the reasons for this relationship's importance. Commitment, both organizational and occupational, is a clear predictor of job performance. The hypothesis that drives this article is that this influence should also occur in the academic field. Values, as guides for future behavior, can be associated with specific attitudes towards learning, such as those involving commitment and academic performance (Gouveia et al., 2010). Works exist that relate academic commitment to performance from different theoretical variants (Salanova et al., 2010; Oriol-Granado et al., 2017). In addition to performance, commitment also influences how students deal with difficulties; low commitment makes difficulties be perceived as threats (Podolskiy, 2013). Therefore, knowing the level of academic commitment and how it is affected by values, helps establish how relevant their consideration is in schooling and which should be promoted or attenuated. Understanding this relationship is not an academic institution's sole concern; however, knowing the students' values allows educational centers to contrast them with its established desirable values (Jiménez et al., 2019). This is especially relevant in military schools, which seek to have military values reflected in their members' behavior, first, as students and, then, as soldiers (Gamboa, 2017). As Juan Carlos Gombao et al. (2014) remind us:

Understanding the values of our cadets, who will later lead their subordinates, becomes a priority, and their adaptation to the military organization and its cause it is to serve, a challenge. (p. 205)

Despite its importance, to our knowledge, there are no studies in indexed publications relating the values of military school students to their academic commitment. Moreover, there is a gap in studies evaluating academic commitment in military schools. To fill this gap, this article looks at values and commitment, as well as their relationship, as a first approach to enable further studies in different cultural fields and branches of the Army. It examines the concepts and their relationship in the cadets of two military schools in Peru, based on Shalom Schwartz's formulation of values and Wilmar Schaufeli's proposed notion of *academic engagement*.

Theoretical framework

Universal values

According to the authors that have addressed it, the concept of *values* has evolved from psychological theories to a variety of definitions. However, despite this diversity, there is a consensus on its universal characteristics (García et al., 2010). Values can be understood as a representation of human needs, like desirable behaviors or universal guidelines (Rokeach, 1973; Schwartz, 1992). Humans share a set of values; however, every individual gives each value a different importance, according to his or her needs or motivations. As a result, values evolve in line with these needs and motivations, depending on various aspects involving the environment and the individual. Values are predictors of interests, attitudes, and behaviors, including academic performance (Castro & Nader, 2006).

One of the best-known and most widely used focuses is Schwartz and Bilsky's (1987; 1990) universal values. They define values as a person's conception of a trans-actional (terminal or instrumental) goal that expresses interests (individualistic, collectivistic, or both) related to a motivational domain that is evaluated according to its importance as a guiding principle in the individual's life. Thus, in terms of scope, values are separated into final, or terminal, values, conceived as goals to be achieved in life, and instrumental, which help achieve the terminal values. Depending on their focus, there are values centered on individual interests, those directed towards group interests, and others directed to both types of interests. As to values' number and order, over time, Schwartz has made various proposals with their corresponding instruments, from a seven-type classification (Schwartz & Bilsky, 1990) to the most recent nineteen-type proposal (Schwartz et al., 2012). Some similar proposals to Schwartz and Bilsky's have taken into account variants, such as regional, cultural, linguistic, and institutional contexts to evaluate values (Ros & Grad, 1991; Gouveia et al., 1998; Davidov et al., 2008; Medina, 2015). However, the following ten-type universal proposal has had the most significant presence in research:

1. *Self-direction*: independent thought and action (choosing, creating, and exploring).
2. *Stimulation*: the need to maintain an optimal level of activation (excitement, novelty, and life challenges).
3. *Hedonism*: personal pleasure or sensual gratification.
4. *Achievement*: personal success by demonstrating skills according to social norms.

5. *Power*: achievement of social status and prestige, control or domination over people and resources
6. *Security*: societal, relationship, and self harmony and stability.
7. *Compliance*: restraint of actions, inclinations, and impulses that may harm or alter others, or violate social expectations or norms, self-restraint in daily interaction.
8. *Tradition*: respect, commitment, and acceptance of the customs and ideas inherited through culture or religion, and imposed on the individual.
9. *Benevolence*: concern for the well-being of others close to you in your daily life.
10. *Universalism*: understanding, appreciation, and protection of the well-being of all people and nature.

These ten values form a circular structure (circumplex) in which the values closest to each other are most compatible while those that are furthest apart conflict. The model proposes grouping adjacent values in a higher-order by confronting two polar opposite motivational dimensions. The first dimension, “Openness to change-Conservation,” confronts an individual’s option to maintain his/her emotional and intellectual independence in uncertain situations (*self-direction and stimulation*) with the desire to maintain the *status quo* represented by tradition, people close to them, and institutions (*safety, compliance, and tradition*). The second dimension, “Self-enhancement-Self-transcendence,” confronts the concern with either one’s condition (*achievement and power*) or that of others (*benevolence and universalism*) (Schwartz, 1992; 2005). The model shows that one of the values, hedonism, shares content with both self-enhancement and openness to change. Although hedonism is related to openness to change and is not always considered within these four higher values, it has been included in Self-enhancement in this study. On the other hand, individualistic values are *achievement, power, self-direction, stimulation, and hedonism*. The collectivist values are *conformity, tradition, and benevolence*, while the *universalism and security are mixed*.

This structure helps establish relationships with other variables at different levels, namely, value, dimension, and the entire values system (García et al., 2010). Methods, such as multidimensional scaling or confirmatory factor analysis, using the *Schwartz value survey* (SVS), are used for the analysis. An alternative to the SVS is the *Schwartz portrait values questionnaire* (PVQ), which consists of 40 items instead of the SVS’s 56. It is designed to facilitate understanding the values, making it particularly suitable for children and people with limited education (Schwartz et al., 2001). Schwartz’s values correspond to the typical military. The Spanish Army’s Direction of Doctrine,

Organics, and Materials (DIDOM in Spanish) analyzed 82 military values, some of which were classified according to Schwartz's values (Gallardo et al., 2014).

Values in the academic and military environment

Given the condition of values as predictors of attitudes and behavior, studies in the military field can shed light, among other things, on the styles of command that cadets may exercise, the gaps between the values of a particular military group vis-à-vis its civilian counterpart—or compared to those existing in society in general—or the relationship between the cadets' values and the institutional values of military schools and academies.

Among the studies to explore the difference in values between the civil and military sectors, Casullo and Castro (2004) carried out a study in Argentina with a civilian and military sample (373 cadets and 63 officers). Values were examined according to gender, age, and other aspects of the context (recreation and social life, family relations, and work) using the PVQ. The results of this study showed that the civilian population was oriented towards openness to change, while the cadets adhered to values such as tradition, conformity, and benevolence. In general, values in family relations and at work tended to coincide. No analysis by gender was conducted because of the limited female military personnel. In a later study, in the same country, (Castro & Nader, 2006), the PVQ was given to a sample of civilians (471), military officers (97), and cadets (124), concluding that civilians were more oriented towards personal goals (self-enhancement) and independence to do and express their wishes (openness to change). The military leaned towards values that express social order, security, and the preservation of traditions (tradition and conformity). Their results showed no differences by age or gender.

Regarding studies that compare or explore the attainment of institutional values by cadets, Gombao (2014) carried out a study with 481 cadets from various study programs at Spain's General Military Academy. This study also involved the evaluation of values using Schwartz's SVS. Besides observing that cadets come to embrace the institution's values by the end of their program, he found that the dominant values among them are benevolence, achievement, and security. The least valued were power, universalism, and hedonism. In a subsequent study, Gombao et al. (2014), compared the previous sample with a new one of 624 students from the General Basic NCO Academy and the Spanish Army and made an additional comparison with four studies involving the Spanish population. Among the dominant values in the military sample were benevolence, achievement, and conformity; power had the lowest prevalence.

The few studies carried out in Peru with students in military academies have focused on whether institutional values adopt or are consistent with the cadets' values. These studies, which have been mostly published in articles in journals belonging to the same military institution, do not use Schwartz's approach to value taxonomy. However, there are works on civilian student populations of a similar age to those in military academies. Among them, Lens and Herrera's (2005) study, using the PVQ with 800 students, including 268 students from public and private universities in Lima, stands out. In this university sample, the most significant values were universalism and self-direction. In another study employing the PVQ with a sample of 254 psychology students from a private university, the most important value was power in women and tradition in men (Grimaldo & Merino, 2009).

Academic Commitment (*engagement*)

The concept of *academic engagement* (also known as academic involvement, academic integration, or *engagement*) has its antecedents in Astin's (1984) concept of physical and psychological energy that the student devotes to the academic experience. Other theoretical approaches have emerged from this concept (Zepke et al., 2010; Zepke & Leach, 2010) that, in general, consider both the student's activity and the influence of the environment. One of the most sound approaches is socio-cognitive. It understands that academic involvement is composed of three dimensions, the behavioral, which refers to the students' conformity with the rules of coexistence; the emotional, referring to the positive or negative emotions regarding the academic activities; and the cognitive, which implies the interest and initiative in learning (Fredricks et al., 2004).

Another recognized perspective understands commitment as the sum of two components, one focused on students, in terms of the energy and time they devote to academic work (study or co-curricular activities), and another concerning the student's participation in the academic institutions' educational practices (Kuh et al., 2008). The best-known measurement instrument for this perspective is the United State's National Survey of Student Engagement (NSSE). It measures student participation in five dimensions, academic challenge, active and collaborative learning, interaction with teachers and administrative staff, enriching educational experiences, and institutional support. The NSSE has counterparts in other countries.

Another approach understands academic engagement as a positive state of mind, a psychological bond (Schaufeli et al., 2002; Salanova, Martínez et al., 2005). It is an attitudinal perspective that focuses on the individual, not the environment, and the relationships that the student maintains at the behavioral level, which is included

in other approaches that characterize the study of academic commitment. Instead, it evaluates this state of mind through three dimensions vigor, dedication, and absorption. Academic commitment serves as an indicator of the intrinsic motivation for study. Vigor represents energy, persistence, and the desire to strive; dedication implies the meaning, pride, inspiration, and challenge of being a student; and absorption represents being absorbed, focused, and at ease when carrying out study-related tasks and activities, without the awareness of time (Salanova, Bresó et al., 2005; Bakker et al., 2011).

These three dimensions are related to two of the three that Fredricks et al. (2004) pose as constitutive dimensions of academic commitment. On the one hand, emotional commitment, which includes both positive (belonging, interest, satisfaction) and negative feelings (anxiety, disinterest, boredom), and, on the other hand, cognitive commitment, that is, motivation, initiative, understanding studies as a challenge (González, 2010). The instrument generally used to measure this psychological bonding approach is the *Utrecht work engagement scale*, in its version for students (UWES-S) (Schaufeli & Bakker, 2003).

Engagement in the academic and military environment

Studies on *engagement* can be found concerning military personnel's professional commitment. Some focus on the background to the engagement (Alarcon et al., 2010), while others relate it to the concept of *military identity* (Johansen et al., 2015), or organizational citizenship leadership and behaviors (Pastor et al., 2019). Similarly, there are publications evaluating the commitment of military personnel studying in non-military higher education centers (Jordan, 2016) using the NSSE survey. However, after searching Scopus and Google Scholar using terms like "*engagement*" or "*military*" combined with other variables, no studies were found on the evaluation of academic commitment in military schools.

In contrast, numerous studies exist dealing with academic commitment in civilian educational centers at all levels, in multiple cultural and social settings, and using different theoretical approaches. The lack of previous studies in military academy settings makes comparing this work challenging. One option would be to review studies using a psychological correlation approach in the context of Peruvian universities, a group that most would most closely coincide in age, culture, and level of training to allow a comparison with the military education sector. But, again, there are limitations. The studies found (mainly, theses in university repositories) have very defined populations and limited samples; therefore, it would not be an appropriate comparison.

Universal values and academic commitment

Given the lack of specific studies on academic commitment in military schools, we begin with other related antecedents that have studied this relationship. Thus, we look at the study developed by Nunes et al. (2016). Under the focus of the functionalist theory of human values (Gouveia, 2003), this work has the psychological correlation indicator of academic commitment. In this study, the academic commitment was measured using a Portuguese adaptation of the UWES with 338 Brazilian students. It reported that the values explain 22% of the variance of academic commitment. It should be noted, however, that this population is not comparable with the cadets' characteristics.

Method

Design

A relational descriptive approach was used to design a structured self-reported questionnaire for the cadet population. The value structure was evaluated using confirmatory factor analysis (CFA) and multidimensional scaling. The CFA was also used to establish the academic commitment scale. The relationship between values and commitment was determined through the structural equation model by partial least squares (SEM-PLS), which allow making predictions from latent variables inferred from observable indicators (Chin, 1998), although the relationships were mainly bivariate. The programs used were SPSS-21 and Smart-PLS.

Population and sample

The participants were practically the entire cadet population of two Army and Naval military schools, with an average age of around 19.5 years, from all regions of Peru. At the Army School, 767 men and 105 women in one of the five courses of the degree program (283 in the first, 255 in the second, 154 in the third, 98 in the fourth, and 82 in the fifth) participated. At the Naval School, 367 male and 51 female cadets participated (139 applicants in the first year, 74 in the second, 74 in the third, 81 in the fourth and 50 in the fifth year). In both cases, the participants assembled at the same time and place in their respective centers to complete the questionnaire after the distribution and signing of the authorization with the support of the institutions' staff. The subjects were explained the objectives of the study and their rights to partake or decline participation. All the questionnaires were distributed, completed, and collected at the same time. After the process of tabulating and cleaning the data, we were left with 1282 records.

Instruments

Widely used and validated scales were applied in various contexts according to the theoretical approach for each of the variables considered:

Values

In line with the universal theory of human values initiated by Schwartz and Bilsky (1987), the SVS values questionnaire was applied (Schwartz & Bilsky, 1990) to the student population. In this questionnaire, respondents evaluated the importance of each of the values proposed by the theory. They were provided the option to express their opposition to specific values with an explicit response option ("against my values"). The scale of options offered eight other response alternatives, from "not important" to "very important." The SVS consisted of 56 items, each containing a value that, according to the authors' theory, were grouped into the ten value typology:

- self-direction (7 items);
- stimulation (3 items);
- hedonism (2 items);
- achievement or accomplishment (5 items);
- power (5 items);
- security (5 items);
- conformity (4 items);
- tradition with (7 items);
- benevolence (8 items), and
- universalism (10 items).

The existing Spanish versions of the SVS were not used in the study (Gouveia et al., 1998; Ros & Grad, 1991). Instead, the 56 original items of the English version were translated into Spanish, considering that these versions were adapted to our cultural and linguistic context without issues of ambiguity or misunderstanding. Instead, we followed the original 56 translated into Spanish. After the reliability and validity analysis, we decided to eliminate the items that reflected factorial loads with a value below 0.6. Thus, Item 34 on *achievement*, Item 3 and 12 on *power*, Item 15 on *security*, Item 21 on *tradition*, Item 7 on *benevolence*, and Item 31 on *self-direction* were discarded.

Academic Commitment

The same *Utrecht work engagement scale* addressed to students (UWES-S) version available in different languages, including Spanish, presented by Schaufeli and Bakker

(2003) was used as the base. The 17 items of the UWES were divided into vigor (6), dedication (5), and absorption (6). The seven answer alternatives were: “never,” “hardly ever,” “sometimes,” “often,” “quite often,” “almost always,” and “always.” All the items were used.

Reliability of the measurement model

The internal consistency of the scales in this research, measured from the composite reliability, presented acceptable results (**Table 1**). Although Alpha is lower than the composite reliability, it is in line with the work of Schwartz and other authors (Stewart et al., 1999; Schwartz, 2005; Medina, 2015). They are sufficiently high in terms of the dimensions of academic commitment.

Table 1. Reliability by alpha and compound (RC). Average Variance Extracted (AVE).

	Total sample			Army School			Naval School		
	Alpha	RC	AVE	Alpha	RC	AVE	Alpha	RC	AVE
Universalism	0.860	0.888	0.444	0.871	0.896	0.464	0.832	0.868	0.399
Benevolence	0.825	0.869	0.489	0.844	0.882	0.518	0.757	0.824	0.403
Tradition	0.728	0.815	0.423	0.742	0.822	0.436	0.694	0.795	0.396
Compliance	0.763	0.849	0.585	0.772	0.855	0.596	0.728	0.828	0.548
Security	0.754	0.844	0.575	0.753	0.844	0.575	0.754	0.838	0.567
Power	0.667	0.816	0.597	0.706	0.835	0.629	0.550	0.751	0.505
Achievement	0.792	0.865	0.617	0.797	0.868	0.623	0.763	0.846	0.581
Hedonism	0.578	0.826	0.703	0.561	0.820	0.694	0.617	0.812	0.690
Stimulation	0.658	0.804	0.580	0.652	0.806	0.582	0.665	0.754	0.526
Self-direction	0.784	0.847	0.482	0.802	0.859	0.504	0.718	0.810	0.418
Self-transcendence	0.912	0.924	0.418	0.921	0.931	0.444	0.884	0.902	0.352
Self-enhancement	0.839	0.873	0.441	0.847	0.880	0.455	0.810	0.846	0.390
Openness to change	0.828	0.866	0.420	0.840	0.875	0.439	0.786	0.831	0.359
Conservation	0.885	0.904	0.407	0.893	0.910	0.425	0.862	0.887	0.363
Human values	0.964	0.966	0.347	0.968	0.969	0.367	0.954	0.957	0.292
Vigor	0.864	0.898	0.598	0.854	0.892	0.580	0.832	0.875	0.541
Dedication	0.841	0.888	0.615	0.847	0.892	0.623	0.834	0.884	0.608
Absorption	0.845	0.884	0.561	0.832	0.876	0.543	0.835	0.878	0.545
Academic Commitment	0.930	0.937	0.472	0.930	0.938	0.476	0.918	0.925	0.432

Source: Created by the authors.

Validity of the measurement model

The composition of the scale of values was examined based on multidimensional scaling and AFC. For the multidimensional scaling (Alscal), the ten values were adjusted from the mean of the item scores. This mean was subtracted from the scores of each of these values. This procedure is suggested to deal with escalating invariance and acquiescence (Medina, 2015). Scores must have an independent interpretation of the culture and language of different groups. The AFC was conducted by applying SEM-PLS using the Smart-PLS program.

As for the scale of values, motivated by its peculiar structure in a wheel of adjacent concepts, studies usually have low discriminatory validity, despite all indicators having the highest load in the value of which their part. For the total sample, the lowest average extracted variance (AVE) is found at 4 % (Table 1).

For the Army School, the circular model was ratified after the implementation of the multidimensional grading with *stress* at 0.130 and a squared correlation index (RCI) of 0.884. The results were similar for the Naval Academy (men: *stress*-0.172 and RCI-0.826; women: *stress*-0.132 and RCI-0.871), implying reasonable goodness-of-fit levels for the SVS scale.

For academic commitment, the loads of its different indicators were acceptable. The lowest was 0.604 for the dedication dimension in the Naval School, and all of them showed a higher correlation with the of dimension they are theoretically part of. The AVE exceeded 5% in all three dimensions in both schools.

Results

Descriptive results of the variables and their dimensions

Table 2 shows the results of the joint sample of both military schools. The Kolmogorov-Smirnov normality test indicated that, as usual, none of the values, either individually or at the dimension level (higher-order values), nor the commitment dimensions, were distributed as normal.

Table 2. Description of the variables and their dimensions

	Media	SD	Asymmetry	Kurtosis
Universalism	5.11	1.07	-0.526	0.064
Benevolence	5.18	1.06	-0.672	0.371
Tradition	4.79	1.08	-0.285	0.074

Table cotinues...

	Media	SD	Asymmetry	Kurtosis
Compliance	5.50	1.16	-0.995	0.871
Security	5.51	1.11	-0.386	4.543
Power	4.71	1.16	-0.327	0.131
Achievement	5.30	1.13	-0.777	0.648
Hedonism	4.58	1.52	-0.586	0.343
Stimulation	4.86	1.31	-0.348	-0.289
Self-direction	5.31	1.08	-0.691	0.592
<i>Self-transcendence</i>	5.15	1.01	-0.606	0.300
<i>Self-enhancement</i>	4.97	1.03	-0.421	-0.003
<i>Openness to change</i>	5.18	1.05	-0.518	0.201
<i>Conservation</i>	5.19	0.98	-0.631	-0.713
Vigor	4.98	1.22	-0.296	-0.473
Dedication	5.97	0.99	-1.216	1.358
Absorption	5.11	1.14	-0.404	-0.227

SD: Standard Deviation.

Source: Created by the authors.

In summary, the values with the highest scores were safety and compliance; the values with the lowest scores were hedonism and power. As for the higher-order values, from more to less, we find conservation, openness to change, self-transcendence, and, finally, self-enhancement. In the case of academic commitment, the dimension of dedication exceeds that of absorption and vigor, in this order.

Comparison of averages

The significant differences in the results for each of the variables and dimensions for the type of military school (**Table 3**) and year studied (**Table 4**) are set out below. No differences were found according to gender, either for values (in total, individually or in higher-order) or for academic commitment (in total or each dimension).

Table 3. Significant differences by military school

	Army School	Naval School	Levene sig.	T Student	Sig. T.
Benevolence	5.11	5.34	0.000	3.659	0.000
Compliance	5.42	5.67	0.000	3.614	0.000
Security	5.47	5.61	0.000	2.207	0.028
Achievement	5.20	5.50	0.000	4.376	0.000
Hedonism	4,51	4.71	0.171	2.212	0.027
Stimulation	4.78	5.04	0.021	3.364	0.001
Self Address	5.25	5.46	0.000	3.147	0.002
<i>Self-transcendence</i>	5.09	5.26	0.000	2.802	0.005
<i>Self-enhancement</i>	4.88	5.16	0.000	4.666	0.000
<i>Openness to change</i>	5.11	5.33	0.000	3.573	0.000
<i>Human values</i>	5.05	5.21	0.000	2.948	0.003
Vigor	5.29	4.32	0.251	-14.186	0.000
Dedication	6.02	5.87	0.990	-2.585	0.010
Absorption	5.34	4.62	0.422	-11.074	0.000
<i>Academic Commitment</i>	5.52	4.93	0.432	-10.314	0.000

Source: Created by the authors.

In applying the Student t statistic, robust even for non-normal distributions and in the presence of heteroscedasticity (Montilla & Kromrey, 2010), all human values had significant differences according to the cadet's school (Table 3). Only in the values of universalism, tradition, and power, and in the higher-order value of conservation, are there no differences between the cadets of one school or another. In all dimensions of academic commitment, results differed depending on the cadet's school.

Table 4. Mean differences (MD) according to courses

	Sample	Courses per year	MD	Lev. sig.	Sig. Tukey	Sig. Games- Howell
Hedonism	Complete	1.º - 2.º	-0.43	0.382	0.001	0.002
Vigor	Complete	2.º - 3.º	0.33	0.576	0.014	0.016
Vigor	Complete	2.º - 4.º	0.34	0.576	0.021	0.022
Dedication	Complete	1.º - 3.º	0.25	0.089	0.016	0.021
Tradition	Naval School	1.º - 3.º	-0.41	0.880	0.029	0.021
Tradition	Naval School	3.º - 5.º	0.47	0.880	0.023	0.021
Security	Naval School	2.º - 5.º	0.53	0.127	0.017	0.044
Power	Naval School	1.º - 3.º	-0.66	0.837	0.000	0.000
Power	Naval School	2.º - 3.º	-0.47	0.837	0.032	0.038
Power	Naval School	3.º - 4.º	-0.45	0.837	0.040	0.050
Hedonism	Naval School	1.º - 2.º	-0.71	0.019	0.006	0.003
Hedonism	Naval School	1.º - 3.º	-0.64	0.019	0.017	0.020
Hedonism	Naval School	2.º - 4.º	0.68	0.019	0.029	0.010
<i>Conservation</i>	Naval School	3.º - 4.º	-0.37	0.088	0.045	0.041
<i>Self-enhancement</i>	Naval School	1.º - 3.º	-0.41	0.051	0.09	0.014
<i>Self-enhancement</i>	Naval School	3.º - 4.º	0.38	0.051	0.049	0.076
Dedication	Naval School	1.º - 3.º	0.46	0.093	0.010	0.017
Dedication	Naval School	1.º - 5.º	0.45	0.093	0.041	0.079

Source: Created by the authors.

The variance (ANOVA) analysis was applied to determine whether there were significant differences between the means obtained by courses. If equal variances between courses were assumed (Levene's statistic with significance greater than 0.05), Tukey's test was observed to identify significant differences. In the case of assuming different variances, the statistic observed was Games-Howell. In the case of the Army School, no differences were found between the cadets in different courses.

Using non-parametric tests (H for Kruskal Wallis), and taking into account the entire sample, the following differences in compliance were found: ($p=0.041$), power ($p=0.016$), hedonism ($p=0.002$), and stimulation ($p=0.042$), as well as in the three

dimensions of academic commitment, vigor ($p=0.005$), dedication ($p=0.004$), and absorption ($p=0.037$). In the case of the Naval School, differences were found depending on the course in the case of tradition ($p=0.046$), security ($p=0.008$), power ($p=0.000$), hedonism ($p=0.002$) and in the second-order value of self-enhancement ($p=0.002$). In the dimensions of commitment, differences were only found dedication ($p=0.007$). In the Army School only the hedonism showed differences by course level ($p=0.025$).

Relationship between values and academic commitment

Below are the significant bivariate relationships, at different levels, established between values —at a one-dimensional level (complete structure of values), by individual values and by higher-order— and academic commitment and its dimensions.

One-dimensional relationship of values with academic commitment

The findings showed that there is a strong relationship between values and academic commitment (**Table 5**). The Army School showed a greater relationship and account of academic commitment based on values than the Naval school and female cadets over their male colleagues. The trajectory coefficients exceeded 0.4. This relationship was reaffirmed by the size of the effect measured from the F^2 , which was at acceptable levels above 0.2, which was not the case for the relationship with the Naval School ($F = 0.162$). The model's goodness, measured by the standardized root mean square residual (SRMR), was within the limits stipulated by Hu and Bentler (1999), which is below 0.10.

Table 5. Relationship between values at a one-dimensional level and academic commitment

Human values → Academic Commitment					
Sample	beta	T	R ²	F ²	SRMR
Complete	0.465	19.547	0.216	0.276	0.067
Army	0.542	18.706	0.294	0.416	0.064
Naval	0.402	10.611	0.162	0.193	0.077
Men	0.458	18.485	0.209	0.265	0.068
Women	0.534	9.386	0.285	0.398	0.092

Significance in all cases < 0.01.

Source: Created by the authors.

Relationship of the ten values with academic commitment

Table 6 shows the significant relationships that link Schwartz's ten values to academic commitment and the three dimensions of which it is composed. This is a first level of disaggregation that includes the complete sample, the Army School sample, the Naval School sample, the sample of all-male cadets, and, finally, the sample of all female cadets. A second level of disaggregation was not included (e.g., difference between men and women according to the military academy).

Table 6. Relationship between values and commitment

Independent	Dependent	Sample	beta	Sig.
Universalism	CA	Complete	0.123	0.018
Universalism	CA	Army	0.187	0.006
Universalism	CA	Men	0.115	0.043
Universalism	Vigor	Complete	0.130	0.023
Universalism	Vigor	Army	0.165	0.025
Universalism	Vigor	Men	0.123	0.039
Universalism	Dedication	Complete	0.118	0.022
Universalism	Dedication	Army	0.154	0.020
Universalism	Dedication	Men	0.128	0.025
Universalism	Absorption	Complete	0.114	0.038
Universalism	Absorption	Army	0.197	0.007
Tradition	AC	Complete	0.273	0.000
Tradition	AC	Army	0.193	0.000
Tradition	AC	Naval	0.310	0.000
Tradition	AC	Men	0.280	0.000
Tradition	Vigor	Complete	0.327	0.000
Tradition	Vigor	Army	0.264	0.000
Tradition	Vigor	Naval	0.351	0.000
Tradition	Dedication	Complete	0.110	0.007
Tradition	Dedication	Men	0.113	0.008

Table continues...

Independent	Dependent	Sample	beta	Sig.
Tradition	Absorption	Complete	0.289	0.000
Tradition	Absorption	Army	0.210	0.000
Tradition	Absorption	Naval	0.302	0.000
Compliance	Dedication	Complete	0.144	0.012
Compliance	Dedication	Army	0.180	0.008
Compliance	Dedication	Men	0.148	0.018
Security	AC	Women	0.320	0.025
Security	Dedication	Complete	0.130	0.017
Security	Dedication	Women	0.404	0.008
Power	Vigor	Complete	0.106	0.012
Power	Vigor	Men	0.113	0.012
Power	Absorption	Complete	0.085	0.040
Power	Absorción	Men	0.093	0.034
Achievement	AC	Army	0.161	0.010
Achievement	Dedication	Complete	0.187	0.001
Achievement	Dedication	Army	0.246	0.000
Achievement	Dedication	Men	0.206	0.001
Hedonism	Vigor	Complete	-0.082	0.017
Hedonism	Vigor	Men	-0.074	0.040

AC: Academic Commitment.

Source: Created by the authors.

Only three values had no significant relationship with commitment or any of its dimensions, namely, self-direction, stimulation, and benevolence. The first two are part of openness to change, and the third is part of self-transcendence. In contrast, universalism and tradition related to all the dimensions of commitment. Power related to two dimensions, vigor, and absorption. Conformity, security, and achievement related to dedication. Lastly, hedonism related to vigor. This last relationship was the only negative one; the rest were positive.

Of the significant relationships, the strongest was between security and dedication in the sample of women ($b=0.404$), followed by the relationship between

tradition and vigor in the Naval School ($b=0.351$). At the opposite end was hedonism with vigor in the men's sample ($b=-0.074$), a relationship that is interpreted as non-existent.

At the level of the entire sample, the relationships of tradition with vigor and absorption were the highest (0.327 and 0.289, respectively). This was followed by achievement, conformity, and security with dedication. Universalism had a relationship with each of the dimensions of academic commitment.

Looking at the variable of gender, female cadets only maintained a relationship with the value of security. Their male counterparts related to conformity, hedonism, achievement, power, tradition, and universalism. In male cadets, the strongest relationship was with tradition and the entire variable of academic commitment ($b=0.280$). However, this does not translate into significant relationships with the specific dimensions of commitment. Only the relationship between tradition and dedication appears to be significant (0.113), although behind other stronger ones. Achievement was the second most important value related to dedication, followed by conformity and universalism equally related to the dimension of dedication. For female cadets as a whole, only two significant but high ratios could be obtained, safety with dedication (0.404), and safety with commitment (0.320).

However, given the relationship by military schools, the Naval School only had significant relationships in the value of tradition, with commitment and vigor and absorption; all three were above 0.3. The Army School presented relationships in tradition, achievement, universalism, and conformity. The highest was tradition with vigor (0.264) and achievement with dedication (0.246).

Relationship of the four higher-order values with the dimensions of academic commitment

For the four higher-order values, no significant relationship was found for openness to change. On the other hand, its opposite, conservation, appears to be related to all the dimensions of commitment and in all the samples (**Table 7**). It also had the highest ratios of all higher-order values, in a range of 0.595 to 0.289. Only two exceptional ratios exceed this, the ratio of self-transcendence to dedication in the female sample ($b=0.333$) and self-transcendence with vigor in the Army School sample ($b=0.295$).

Table 7. Relationships between higher-order values and dimensions of commitment

Independent	Dependent	Sample	beta	Sig.
Self-development	Vigor	Complete	0.155	0.009
Self-development	Vigor	Army	0.179	0.016
Self-development	Vigor	Naval	0.238	0.009
Self-development	Vigor	Men	0.159	0.014
Self-development	Dedication	Complete	0.224	0.000
Self-development	Dedication	Army	0.245	0.000
Self-development	Dedication	Naval	0.210	0.022
Self-development	Dedication	Men	0.237	0.000
Self-transcendence	Vigor	Complete	0.217	0.001
Self-transcendence	Vigor	Army	0.295	0.000
Self-transcendence	Vigor	Men	0.219	0.002
Self-transcendence	Dedication	Complete	0.248	0.000
Self-transcendence	Dedication	Army	0.283	0.000
Self-transcendence	Dedication	Men	0.237	0.000
Self-transcendence	Dedication	Women	0.333	0.042
Conservation	Vigor	Complete	0.338	0.000
Conservation	Vigor	Army	0.431	0.000
Conservation	Vigor	Naval	0.289	0.000
Conservation	Vigor	Men	0.329	0.000
Conservation	Vigor	Women	0.422	0.000
Conservation	Dedication	Complete	0.517	0.000
Conservation	Dedication	Army	0.560	0.000
Conservation	Dedication	Naval	0.442	0.000
Conservation	Dedication	Men	0.508	0.000
Conservation	Dedication	Women	0.595	0.000
Conservation	Absorption	Complete	0.376	0.000
Conservation	Absorption	Army	0.457	0.000
Conservation	Absorption	Naval	0.319	0.000
Conservation	Absorption	Men	0.366	0.000
Conservation	Absorption	Women	0.459	0.000

Source: Created by the authors.

Conservation was the most important higher-order value, followed by self-transcendence. Neither self-development nor self-transcendence, which are opposite poles, were related to the absorption dimension.

The first three relationships were repeated in all the samples, linking conservation with dedication, absorption, and vigor, in that order. However, after these three, differences between the samples began to appear. In the sample of male cadets, the relationship of self-development with dedication continued. In female cadets, there was a relationship between self-transcendence and dedication. The relationship of self-transcendence with vigor persisted in the Army sample, while for the Naval School, the relationship between self-development and vigor emerged.

Female cadets showed a more significant relationship to conservation in all dimensions of engagement than their male counterparts. The same was true in both samples for self-transcendence with dedication. Similarly, the male sample presented two significant relationships for self-development (with dedication and vigor), but the same did not occur in female cadets.

If we compare by military schools, the relationship of conservation with each of the three dimensions of engagement was stronger for the Army School than the Naval School. This did not occur in the case of self-development when it comes to its relationship with vigor; the Naval School had the strongest relationship. In turn, the Army School had a stronger relationship with dedication.

Discussion

The sample used in this study included nearly the entire cadet population of the Army and Naval military schools in Peru. These academies are the only training schools of their kind in both branches of the Armed Forces. However, it was impossible to discuss the Armed Forces as a whole because the Air Force Academy was excluded due to a lack of personal liaisons to facilitate the research with this institution. Therefore, the results should be interpreted as limited to these two branches of the Armed Forces.

The methodology adopted in this study is not different from that other studies, employing the SVS scale have used, and could very well be applied in military schools in other countries. The study's reliability and validity are acceptable, which, together with the rigorous monitoring of protocols, and application of the questionnaire, grant the results obtained credibility.

This study overcomes the limitations seen in previous research regarding the sample size, especially concerning female cadets. It also makes it possible to observe the differences between more than one branch of the Armed Forces. Its primary value lies in its novelty. It contributes the first study, in what could be known, as the evalua-

tion of academic commitment from the perspective of psychological involvement and its relationship with Schwartz's values in military academies.

The values linked to conservation, such as safety and compliance, proved most present in both schools' cadets, regardless of gender, but different by school. This result is consistent with those reported by Casullo and Castro (2004) and Castro and Nader (2006) in Argentina. In the Spanish studies, the values of conformity trail behind benevolence and achievement, conflicting values in Schwartz's taxonomy. The presence of achievement would indicate a slightly more individualistic tendency than their American colleagues. In the case of the Peruvian cadets, this is offset by self-direction and achievement, which follows the values of conformity.

Despite the importance that the value of tradition has in other studies on military population, in the case of these schools in Peru, it has remained in penultimate place among the values. Specifically in the Naval School, the results of tradition indicate a decrease from the first to third year, which is recovered in the following courses. Seemingly, the evolution of values in the Naval School is more significant than in the Army School. It would be interesting and recommendable to carry out an exploratory study in this regard.

There is unanimity in the countries' studies on the lack of importance given to the power value by cadets. In the case of the Naval School, it is the second least important. We can clearly see how its importance decreases for the cadets as they progress through the first courses. Something similar occurs with the value of hedonism, which is the value with the lowest scores for both military academies.

Naval School cadets scored higher on values than the Army School but scored lower in all dimensions of academic commitment. It seems that there are moderating variables that influence this difference, some of which could be derived from the cadets' social and cultural background in both schools. For example, a cadet from a higher social class would show a trend of decreased concern for academic efforts to accomplish it, even though this is considered essential. Similarly, if Navy cadets mainly come from families with military backgrounds, this could influence how important values are to them.

In terms of academic commitment, there seems to be more pride and involvement (dedication) than effort and persistence in studying (vigor) in both schools. The higher results in the Army School in the three dimensions could indicate a more competitive environment than in the Naval School; this is bolstered by the more significant differences in willingness to place more effort on studying (vigor) and concentration (absorption). Other reasons may stem from differences in pre-entry training and skills and those acquired in parallel outside of school training. Both vigor and dedication show an increase from the first years to the following years. The results

seem to indicate that students undergo a qualitative leap between the second and third years. These differences, however, are not seen in the dimension of absorption.

Thus, a relationship between Schwartz's values and academic commitment is confirmed. The values indicate a 21.6 % variation in commitment. This relationship is evident in all of the samples considered in the study, the entire group, those in the Army School, those in the Naval School, and male and female cadets. This is especially important in the Army School (29.4 % explained variation) and the female group of cadets (28.5 % explained variation).

Furthermore, this relationship is significant for a good number of values (and dimensions of these values) with the dimensions of the commitment. One exception is the lack of relationship between openness to change and the dimensions of academic engagement. The same can be said of the values of self-direction and stimulation, when openness to change, after its opposite value, conservation is the higher-order value with greater importance for the cadets. In other words, individualistic values do not relate as clearly to study as collectivistic values. In general, it is the latter that makes up most of the military spirit and converges and facilitates commitment to study.

While there are no differences in values between men and women, and both genders are perceived to be influenced by values in their academic commitment, it is not the same values that most influence both sexes (security for women; tradition, achievement, and conformity for men). This could be because, for female cadets, commitment to study is reinforced given the goal of stability, both personal and in their immediate environment.

It is feasible to generalize these results in the military student population beyond the Peruvian context to Western influence countries. The particular idiosyncrasy of the personnel of the different branches of the Armed Forces is the most important critical in the differences found. It could be expected that the same will happen when analyzing military academies and schools in other countries.

Several challenges remain after the study. The first one is the practical application of the results. For example, if we have female applicants that hold safety as an essential value, we can expect above-average levels of commitment in their career. The same can be said of the values associated with male cadets. New questions are left exposed in the theoretical aspect, mainly concerning the differences between the schools of the different branches of the Armed Forces, including the differences in values by course and the scores in values and academic commitment.

Finally, given the results, this is an opportunity to study both concepts further, especially the relationship between them. It seems to promise greater relevance than the studies carried out in the field of employment.

Conclusions

1. The values linked to conservation, such as safety and conformity, are the most prevalent in the cadets, while hedonism and power are the least significant. No differences were found based on gender. However, there were differences between the two military schools, except for the value of power.
2. The Naval School scored higher than the Army School on all values. However, the Army School scored higher in all dimensions of academic commitment.
3. Academic commitment scores were higher in dedication, and lower in force for both military schools. Here again, there were no differences in scores between men and women, but there were differences between the schools; commitment was higher for the Army School.
4. In some dimensions of commitment and some values, there were significant differences depending on the course level, especially in the Naval School.
5. There is a direct relationship between Schwartz's values and academic commitment in the psychological involvement approach. This relationship is presented considering the joint sample (21.6 % of explained variation): the Army School (29.4 %), the Naval School (16.2 %), the male cadets (20.9 %), and the female cadets (28.5 %).
6. Openness to change was the only higher-order value with no relation to academic commitment in any of its dimensions.
7. The most important values that influence academic commitment are not the same for men and women. For women, it is security, and for men, tradition, achievement, and conformity.

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