

## Character Strengths: A Study of Argentinean Soldiers

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The primary objective of this research was to study the differences in positive traits between military and civilian college students and between cadets in their first and final years at a military academy. Second, the research aimed to study the relations between positive traits and the academic and military performance of cadets in their first and final years, according to the classification of positive traits by Peterson and Seligman (2004). To accomplish these objectives, a sample of university students from a military educational institution and a sample of civilian university students were studied. The instruments used were a 24-item self-report measure of positive traits, a measure of social desirability, and objective scores of academic and military performance. The results generally showed that when age and career stage were held constant, the scores of the military students were higher than the scores of the civilian students across various strengths. Military students reported higher levels of the character strength of spirituality than did civilian students. The relationships between strengths and performance differed for students in their first and final years at the military academy. In particular, cadets with the higher levels of academic or military performance in their last year, i.e., the cadets best adapted to the academy, reported higher levels of the character strength of persistence when compared to low-performing cadets in the same year of study.

*Keywords:* positive psychology, character strengths, military, civilians, performance.

Los objetivos de esta investigación fueron, por una parte, estudiar las diferencias en rasgos positivos entre estudiantes universitarios militares y civiles, y entre cadetes de primero y último año de una academia militar; y por otra, estudiar la relación entre los rasgos positivos y los rendimientos académicos y militares de cadetes de primero y de último año, siguiendo la clasificación de rasgos positivos de Peterson y Seligman (2004). Para ello se trabajó con una muestra de estudiantes universitarios de una institución militar educativa y con una muestra de estudiantes universitarios civiles. Se utilizó un autoinforme de rasgos positivos de 24 ítems, una medida de deseabilidad social y las calificaciones objetivas de los rendimientos académicos y militares. Los resultados generalmente mostraron que, equilibrados por edad y progreso en la carrera, las puntuaciones de los varones militares son más altas que las puntuaciones de los varones civiles en varias fortalezas. Se observó que los estudiantes militares muestran mayores niveles de la fortaleza espiritualidad que los estudiantes civiles. Son diferentes las relaciones entre las fortalezas y los rendimientos para primero y último año de cursada militar. Particularmente en el último curso, se observó que los cadetes de altos rendimientos académicos o militares, i. e., los cadetes con mejor adaptación a la academia, muestran mayores niveles de la fortaleza persistencia, en comparación con los cadetes de bajos rendimientos del mismo año de estudios.

*Palabras clave:* psicología positiva, fortalezas del carácter, militares, civiles, rendimiento.

Positive psychology is the science of subjective positive experiences, positive individual traits, and positive institutions and communities (Gable & Haidt, 2005; Seligman & Csikszentmihalyi, 2000). Martin E. P. Seligman's 1988 presidential address to the American Psychological Association can be considered as the beginning of positive psychology (Linley, Joseph, Harrington, & Wood, 2006). In that speech, Seligman proposed using the tools of scientific research to reorient psychological science and practice towards the development of a new science of human strengths, with the objectives of identifying and understanding the aspects of psychological health and their foundations and of learning how to develop positive traits in young people (Linley et al., 2006; Fowler, Seligman, & Koocher, 1999).

According to Seligman (2002), before the Second World War, psychology had three missions: cure mental illnesses; make the lives of all people more productive and fulfilling; and identify and nurture talent and genius. However, by the end of this war, psychology focused almost exclusively on cures. Consequently, there was enormous progress in the treatment of mental illnesses, though the other fundamental missions of psychology were forgotten. Seligman maintained that the message of positive psychology is to return to the source: psychology is not only the study of disease, weakness, and damage but also the study of strengths and virtues that can be cultivated to improve the qualities in life.

Positive psychology consists of three areas or pillars: the subjective, the individual, and the institutional. The subjective area studies subjective experiences that are positively evaluated, such as pleasure and flow (in the present), hope and optimism (towards the future), and well-being, contentment, and satisfaction (in the past). The individual area comprises positive individual traits, such as the capacities for love, bravery, interpersonal skills, aesthetic sensibility, perseverance, forgiveness, creativity, spirituality, and wisdom; in short, character strengths and virtues. The institutional area involves human groups on the basis of positive aspects of their members, as observed in institutions that encourage individuals to be better citizens (Carr, 2007; Gable & Haidt, 2005; Park & Peterson, 2009; Seligman & Csikszentmihalyi, 2000).

Our study was developed around the individual area or pillar, which occupies the most central role in positive psychology (Park & Peterson, 2009).

Moral character can be considered as a collection of well-developed positive traits that are essential for attaining a healthy and satisfying psychological life. Thus, moral character is not simply the absence of deficiencies, problems, and pathologies (Park & Peterson, 2009).

Peterson and Seligman (2004) propelled the study of positive traits using scientific methodology. They argued that the classification of character strengths and virtues was an important and necessary step in the advancement of the scientific study of moral excellence, and they accepted the

task of developing one. As an initial step on the path of developing their classification system, they examined the responses to morally good behaviour as conceived by the most impactful and enduring philosophical and religious traditions in human civilisation: Confucianism and Taoism (from China), Buddhism and Hinduism (from South Asia), and Athenian philosophy, Judaism, Christianity, and Islam (from the West). According to Peterson and Seligman, six fundamental virtues are repeated in these traditions: courage, justice, humanity, temperance, wisdom, and transcendence. This convergence suggests a non-arbitrary basis for their classification that prevents them from exhibiting a historical or cultural bias (Dahlsgaard, Peterson, & Seligman, 2005).

The six virtues based on which character was classified (Peterson & Seligman, 2004) were the following (brief definitions appear in parentheses): courage (emotional strengths that imply voluntary strength to accomplish goals in the face of external or internal opposition); justice (civic strength that underlies a healthy community life); humanity (interpersonal strengths that involve helping and being a friend to others); wisdom (cognitive strengths that involve the acquisition and use of knowledge); temperance (strengths that protect against excess); and transcendence (strengths that forge connections with something greater than oneself and gives meaning to life; for detailed descriptions and further elaboration, see Peterson & Seligman, 2004).

With the goal of generating strengths of character to include in the classification, a group of academics proposed a tentative list of human strengths that was refined through a series of debates. In addition, various bibliographical sources related to good character were reviewed, such as psychology courses, organisational studies, character education programs, and literature from psychiatry, philosophy, and religion; cultural products were also sought, including lyrics from popular music, greeting cards, obituaries, and personal ads in newspapers. This broad survey generated an exhaustive list of character strengths (Peterson, 2006; Peterson & Seligman, 2004). Next, dozens of candidate character strengths were filtered out by combining redundancies and applying the following criteria. Each character strength must be widely recognised throughout different cultures; must contribute to individual fulfillment, satisfaction, and happiness in a broad sense; must be morally valued in its own right and not for its tangible results; must elevate others and not diminish them, producing admiration more than jealousy; must have clearly "negative" antonyms; must manifest itself in thoughts, feelings, and/or actions and have a degree of generalisation in situations and stability over time; must not be conceptually or empirically redundant with other character strengths; must be incorporated by some individuals in a surprising way such that they are considered to be paragons; must be precociously present in children or young people who are considered prodigies; must be completely absent in some individuals; and, finally, must have associated rituals performed in institutions that deliberately seek to cultivate

it and sustain its practice. After analysing whether each candidate strength character complied with the given criteria, 24 character strengths were included and classified into 6 virtues. It should be noted that Peterson and Seligman affirmed that this classification was of a tentative nature and could change based on progress in the scientific study of moral excellence.

Peterson and Seligman (2004) suggested that character strengths are psychological ingredients (processes and mechanisms) that define character virtues. For example, the virtue of wisdom manifests itself in the strengths of curiosity, love of learning, open-mindedness, creativity, and perspective. These character strengths are similar because they involve the acquisition and use of knowledge, but each does so differently. They further indicated that the study of character was in the spirit of personality psychology, which recognises stable and general individual differences as well as those that are formed by individual context and, consequently, are susceptible to change. They suggested that character traits, by definition, are stable but malleable and hypothesised that contextual and situational conditions in the physical and social environment could facilitate or hinder the appearance or development of character strengths and virtues.

Various studies have reported the presence of links between character traits and other variables of interest. Age has typically been shown to be positively associated with character strengths, with the stronger associations being found for curiosity, love of learning, fairness, forgiveness, and self-regulation. In addition, women typically score higher on character strengths than do men. Finally, both men and women score higher on four strengths of character: open-mindedness, fairness, curiosity, and love of learning (Linley et al., 2007).

Park, Peterson, and Seligman (2004) found that character strengths, particularly hope, zest, gratitude, love, and curiosity, are associated with subjective life satisfaction. Although they could not determine whether good character is the cause of life satisfaction, they suggested that satisfaction could be considered an inherent aspect of good character in the same way that grace is inherent to dancing well rather than being its outcome or effect.

Peterson, Park, Pole, D'Andrea, and Seligman (2008) reported that character strengths may increase after severe trauma, such as sexual or physical assaults or life-threatening accidents. Similarly, Peterson and Seligman (2003) found that character strengths like gratitude, hope, kindness, leadership, love, spirituality, and teamwork increased after the 2001 terrorist attacks in the U.S.

Peterson and Seligman (2004) developed a 240-item self-report questionnaire to measure positive traits, the Values in Action Inventory of Strengths (VIA-IS). It has been freely available online since the end of 2001 (Linley et al., 2007), and an online Spanish version is also available. In addition, Peterson and Seligman developed a version of

the VIA-IS in paper-and-pencil format. A scale of 213 items created based on the Peterson and Seligman classification can be obtained, without copyright restrictions, through the IPIP website (International Personality Item Pool, 2001).

### *Character Strengths in Military Environments*

Military doctrine has affirmed that character and values are critical for successful military leadership. Nevertheless, few empirical studies have been conducted to corroborate this affirmation, and only recently has any evidence surfaced from the perspective of positive psychology (Matthews, Eid, Kelly, Bailey, & Peterson, 2006).

The military doctrine of the Argentinean Military (Ejército Argentino, 1990) mentions explicitly that the future military leader should possess specific character traits (for example, consistency, audacity, composure, energy, initiative, and honesty). The character traits that are mentioned can be linked conceptually, with varying levels of precision, to the positive traits defined and classified by Peterson and Seligman (2004).

In a similar way, Matthews et al. (2006) affirmed that that doctrine of the U.S. Military (Department of the Army, 1999) explicitly names important character traits of military leadership. The authors indicated that, given that the military doctrine does not offer operational definitions of character or of values, the concepts of the military doctrine are not directly comparable to the formal constructs of the character strengths and virtues defined by Peterson and Seligman (2004). Nevertheless, the authors pointed out that at least half of the positive traits from their classification are cited in the military doctrine.

Academic performance has been widely researched for decades in psychology. According to Castro Solano (2005), the factors that predict academic performance can be classified as intellectual and non-intellectual. The aptitudes linked to general intellectual capacity (e.g., the *g* factor, or analytical intelligence evaluated through the intelligence quotient) have been the most studied in relation to performance. Motivational variables, interests, contextual variables, and personality traits are non-intellectual factors that are predictive of academic performance. For example, within the Big Five personality model, the conscientiousness factor is the strongest predictor of successful academic performance for high school and university students (Nofle & Robins, 2007).

In military psychology, analytical intelligence is traditionally considered to be a predictor of the outcomes of an educational program. More recently, other variables have been incorporated into the network of predictive variables because of theoretical advances in psychology and the evolution of the institutional function of the military. The predictive power of psychological models is strengthened as a result (Benatuil & Castro Solano, 2007; Castro Solano, 2005). Similarly, various studies have discovered that non-

intellectual factors predict performance in military colleges. Specifically, it has been shown that personality, practical intelligence, and motivational factors are predictive of performance among Argentinean cadets (Benatuil & Castro Solano, 2007; Castro Solano, 2005; Castro Solano & Casullo, 2001; Castro Solano & Fernández Liporace, 2005). For example, Castro Solano and Fernández Liporace found that low conscientiousness and high extraversion in the Big Five personality model are linked to low academic and military performance in first-year cadets.

According to Castro Solano (2005), in the military environment, it is important to evaluate the characteristics that the cadets who successfully complete the educational program should possess, not only because of the cost and the implied use of state resources in their development but also because poor future outcomes could bring negative consequences to the civilian population in critical situations. Therefore, knowing the variables that predict a successful military career may be useful for selecting suitable candidates to occupy positions in the military environment.

The relationship between the character strengths classified by Peterson and Seligman (2004) and academic performance has been little studied. One study discovered relationships between the character strengths from the Peterson and Seligman classification and the average self-reported grades of civilian students, showing that 16 character strengths are associated with academic performance (Lounsbury, Fisher, Levy, & Welsh, 2009). Data are scarce on the relationship between character strengths according to this classification and the performance of military students. One study has reported, albeit without providing references or precise data on the development of the study, that the strength of love predicts the capacity to lead a military organisation (Peterson & Park, 2006). Duckworth, Peterson, Matthews, and Kelly (2007), in a study that does not use the Peterson and Seligman classification as its central basis, discovered that grit (which refers to perseverance and passion for long-term goals) is more strongly associated with military performance than with academic performance among first-year cadets at the United States Military Academy at West Point. Grit is not, however, the best predictor of first-year performances.

Military university training is differentiated from the formal education common to civil universities in that, among other aspects, the military institution seeks to train and evaluate the personal characteristics of its students, whereas students in civilian universities are evaluated and trained on the specific content of their area of study. Therefore, the description of differences in positive traits between civilian and military students should shed light on whether this institutional emphasis on character becomes evident when comparing the two groups of students. Along these lines, a study that utilised the Peterson and Seligman (2004) classification has shown that cadets in the U.S. are differentiated from civilian students in various character

strengths (Matthews et al., 2006). However, there are no available studies comparing positive traits between civilian and military students in Latin cultures.

Based on this prior research, our study had two principal objectives: to determine if differences exist in character strengths defined according to the Peterson and Seligman (2004) classification between military cadets and civilian students and between cadets in their first and final (fourth) years of study. Moreover, the study aimed to determine if character strengths predict the academic and military performance of military students in their first and last years of training.

### *Character strengths of military and civilian university students*

In order to analyse the presence of character strengths in distinct groups, in the first stage, positive traits were compared between civilian and military students. In the second stage, the same traits were compared between first- and final-year cadets at a military university.

## Method

### Study 1

#### *Participants*

Only men were included in the study so that the samples were homogeneous and because of the small number of female students. Additionally, the sample was controlled based on age and year of study to obtain an even more homogeneous sample. The sample of military university students was balanced on three variables: sex, age, and career stage. The sample of cadets was selected at pseudorandom from a larger sample of university students from the military institution of the Argentinean Military. The group of soldiers included 165 male cadets ( $M = 23.6$  years of age,  $SD = 2.6$ ), and the civilian group included 165 male university students ( $M = 23.9$ ,  $SD = 3.7$ ). The sample of cadets was composed of cadets from all four years of study: 41 cadets from the first year, 41 from the second, 41 from the third, and 42 from the last year. The group of civilian university students consisted of 54 students in the beginning stage of their studies, 50 in the middle, and 53 in the final stage (8 participants did not provide information).

To compare the character strengths between cadets in the first and last years of the military university program, a total of 186 male cadets in the first year of study ( $M = 20$  years of age,  $SD = 1.9$ ) and 109 male cadets in the last year of study ( $M = 22.9$ ,  $SD = 2.1$ ) originating from the sample mentioned in the preceding paragraph were included.

### Measurements

#### Strengths of Character Inventory (SCI; Cosentino & Castro Solano, 2008b)

The SCI is a self-report instrument that is used to assess character strengths based on Peterson and Seligman's (2004) classification and definitions. Character is considered to be a well-developed cluster of positive traits that exist as individual differences that is characterised as follows: a) is shown in thoughts, feelings, and actions; b) is malleable throughout life; c) is measurable; and d) is subject to a number of contextual factors, including proximal and distal influences (Park & Peterson, 2009). The SCI was developed to serve as a quick assessment of positive traits, optimising the content validity of each item. The SCI can be completed in approximately 20 minutes in a paper-and-pencil format. The inventory includes 24 bipolar items (corresponding to the 24 character strengths) with five response options on a Likert-type scale. This inventory asks respondents to indicate to what degree they identify with one of two self-descriptions: one that describes a strength character and the other that lacks the same character strength. The score for each item ranges from 1 (*I am very similar to the first person*) to 5 (*I am very similar to the second person*). Half of the items are reverse scored. The greater the score, the greater the presence of the strength character.

The SCI has an acceptable test-retest reliability, with  $r_s$  within the range of .72-.92,  $M = .80$  (Cosentino, 2009). The results of the validity of SCI are very similar to those found for the VIA-IS or the VIA-IPIP (International Personality Item Pool, 2001), which also evaluate positive traits according to the Peterson and Seligman (2004) classification. Empirical findings about the validity of the CSI are shown in the next paragraphs.

It has been proposed that, by definition, character strengths contribute to fulfillment, satisfaction, and happiness in a broader sense (Park et al., 2004; Peterson & Seligman, 2004). All of the character strengths (except humility) assessed with the SCI are associated in a statistically significant and positive form with life satisfaction, as determined by a study using the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Particularly, the strengths of gratitude, curiosity, zest, hope, persistence, and love exhibited greater than medium effect-size correlations with life satisfaction, and these relationships held after controlling for age and sex (Cosentino & Castro Solano, 2008b). These results coincide substantially with those obtained with the VIA-IS from three samples of different sizes (Park et al., 2004).

Peterson and Seligman (2004) maintained that character strengths are socially desirable. All of the character strengths assessed with the SCI are associated in a positive and statistically significant form with social desirability, as measured by an adaptation of the Marlowe-Crowne Social

Desirability Scale (Cosentino & Castro Solano, 2008a, 2008b).

Peterson and Seligman (2004) asserted that the character strengths are associated with the factors of the Big Five personality model and that this linkage is critical because it supports their character strength classification. The character strengths assessed with the SCI and the Big Five have been demonstrated to be significantly correlated (Cosentino & Castro Solano, 2008b) using an adaptation of the Big Five Inventory (Castro Solano & Casullo, 2001). Below is a summary of the findings of the study and the character strengths that showed at least a medium effect-size correlation with the Big Five factors. All associations with the conscientiousness factor were positive (persistence, zest, self-regulation, hope, and honesty). All of the associations with the agreeableness factor were positive (kindness, fairness, forgiveness, and prudence). The openness to experience factor exhibited positive associations with creativity, love of learning, and appreciation of beauty and excellence. All of the associations with the neuroticism factor were negatively correlated (hope). The strengths of social intelligence, humour, and bravery were positively associated with the extraversion factor. The results are very similar to the reasonable and significant associations that were found based on character strengths measured by the VIA-IS and the Big Five Inventory (Peterson & Park, 2004).

The composition of the factors of the CSI is very similar to the factors reported by Peterson and Seligman (2004), which correspond to interpersonal strengths, intellectual strengths, strengths of restraint, emotional strengths, and theological strengths (Cosentino, 2009). It should be mentioned that the factorial structure of the Peterson and Seligman classification shows variation in the composition and quality of extracted factors in successive analyses, which do not coincide to the six factors that should be extracted (e.g., Peterson & Seligman, 2004; Peterson et al., 2008; Macdonald, Bore, & Munro, 2008; Ruch, Proyer, Harzer, Park, Peterson, & Seligman, 2010).

Finally, all of the character strengths measured by the SCI exhibited greater than large effect-size correlations (range of  $r_s$  between .55 and .80,  $M = .64$ ) with the adaptation of VIA-IPIP, which supports its convergent validity (Cosentino & Castro Solano, 2008b).

#### Marlowe Crowne Social Desirability Scale (MCSDS; Cosentino & Castro Solano, 2008a)

The MCSDS is an Argentinean adaptation of the complete Crowne and Marlowe Social Desirability Scale in its original paper-and-pencil format (Crowne & Marlowe, 1960). It is a self-report instrument that is used to measure social desirability independent of psychopathology. It consists of 33 items that are answered with *true* (T) or *false* (F). The total score is determined by the sum of all of the item scores. The minimum score on the scale is 0, and the

maximum is 33 (the greater the score, the greater the social desirability). The Argentinean adaptation of the MCSDS has adequate internal consistency ( $\alpha = .76$ ) and has demonstrated the following types of validity: convergent (association with the L scale of the Eysenck Personality Questionnaire,  $r = .62$ ); divergent (association with the second edition of the Beck Depression Inventory,  $r = -.19$ ); of differential instructions (difference between groups,  $t(51) = 12.44, p < .001$ ); and of known groups (difference between groups,  $t(252) = 11.4, p < .001$ ; Cosentino & Castro Solano, 2008a).

There are many reasons to consider that it is appropriate to include the social desirability variable in the present study. On one hand, the positive traits are socially desirable (Peterson & Seligman, 2004) and were found to be correlated with social desirability (e.g., Cosentino & Castro Solano, 2008b; Macdonald et al., 2008). On the other hand, in our study, the administration procedures for questionnaires were different for the two groups: the university students completed the questionnaires in total anonymity, which constitutes a low-stakes testing context, whereas the cadets completed them in an identified manner in their place of residence and study, which constitutes a high-stakes testing context. This situation could lead to an increase in social desirability scores among the cadets if they seek to give a better impression of themselves (Chan, 2009). Finally, Thunholm (2001) found that social desirability scores differed between military and civilian students and that the social desirability scores of the military students decreased over time. Consequently, making an adjustment to the self-reported scores of positive traits based on social desirability scores would remove the plausibility of a probable alternative hypothesis that the differences found in positive traits between the groups is a mere reflection of the difference in social desirability between the groups. Therefore, our study included the MCSDS so that in case the relationship between social desirability and positive traits was significant in our sample, we could use social desirability as a covariable to make adjustments to the original scores of the positive traits and provide a fairer comparison between the two groups.

### Procedures

The cadets were asked to complete questionnaires and provide identifying information in addition to their normal activities, and they were told that this task was part of research into the courses at the military university institution that they attended. The civilian participants participated in this study anonymously, voluntarily, and without any compensation.

### Data Analysis

For the comparison of military and civilian students, a simple multivariate analysis of covariance was performed (MANCOVA) on scores of the character strengths of the two

groups (civilian vs. military). Social desirability was considered as a possible covariable. Univariate analyses were also performed. Lastly, a descriptive discriminant analysis was performed. Similarly, to compare cadets in the first and final years of training in the university military institution, a simple MANCOVA of the two groups was conducted (first year vs. fourth year in training) on character strengths with social desirability and age as possible covariables. Additionally, univariate analyses and descriptive discriminant analysis were performed. All of the  $p$  values reported are two-tailed.

## Results

### *Comparison of Character Strengths between Military and Civilian Students*

As a result of controlling for age in both groups, there were no statistically significant differences in age between military and civilian students,  $t(328) = 0.96, ns$ .

A multivariate analysis was conducted to determine if it was appropriate to use MANCOVA. Given that, on one hand, the relationship between social desirability and character strengths was statistically significant,  $F(24, 305) = 13.92, p < .001$ , and, on the other hand, there was no interaction between social desirability and student type,  $F(24, 303) = 1.24, ns$ , we continued the data analysis using MANCOVA.

A multivariate test that included student type as a factor was statistically significant,  $F(24, 304) = 4.25, p < .001, \eta_p^2 = .25$ . It was concluded from this result that the groups of students differed in character strengths when including social desirability as a covariable. In addition, a univariate covariance analysis was performed to find differences in character strengths between military and civilian students. Adjustment was made for the covariate social desirability. The univariate analyses showed that the cadets scored significantly higher than the civilian students for spirituality (adjusted means 3.87 v. 3.02,  $F(1, 327) = 48.35, p < .01, \eta_p^2 = .13$ ), social intelligence (adjusted means 4.16 v. 3.89,  $F(1, 327) = 6.16, p < .05, \eta_p^2 = .02$ ), love (adjusted means 3.85 v. 3.58,  $F(1, 327) = 4.60, p < .05, \eta_p^2 = .01$ ), prudence (adjusted means 4.03 v. 3.82,  $F(1, 327) = 4.47, p < .05, \eta_p^2 = .01$ ), humility (adjusted means 3.60 v. 3.34,  $F(1, 327) = 4.10, p < .05, \eta_p^2 = .01$ ), self-regulation (adjusted means 3.50 v. 3.25,  $F(1, 327) = 3.96, p < .05, \eta_p^2 = .01$ ), and leadership (adjusted means 4.12 v. 3.89,  $F(1, 327) = 3.88, p < .05, \eta_p^2 = .01$ ), and lower for appreciation of beauty and excellence (adjusted means 3.43 v. 3.71,  $F(1, 327) = 6.85, p < .01, \eta_p^2 = .02$ ). The differences between the student groups were between small and medium, except for the character strength of spirituality, which had a nearly large effect-size (Pallant, 2007).

In order to select the character strengths that contributed the most to maximising the separation between military and civilians students, a descriptive discriminant analysis was

performed that included the social desirability variable (Huberty & Hussein, 2003; Tabachnick & Fidell, 2007; Sherry, 2006). The discriminant function exhibited a canonical correlation of .64 ( $\lambda = .59$ ,  $\chi^2 = 164.81$ ,  $gl = 25$ ,  $p < .01$ ) with an effect-size of  $R_c^2 = 40.7\%$ .

In order to select the character strengths that contributed the most to maximising the separation between the groups, two criteria were used. Variables correlated with the discriminant function at more than  $r = .32$  and with a statistically significant adjusted  $F$  according to the remaining variables were selected (Tabachnick & Fidell, 2007). The character strength of spirituality made the largest contribution to the separation between the groups of military and civilian students,  $r = .64$ ;  $F(1, 304) = 35.22$ ,  $p < .01$ . The cadets scored higher on the character strength of spirituality ( $M = 3.98$ ,  $SD = 0.87$ ) than did the civilian students ( $M = 2.90$ ,  $SD = 1.14$ ), and the unadjusted univariate result was statistically significant,  $F(1, 328) = 93.34$ ,  $p < .01$ . This finding coincides with the character strength that showed the highest effect-size in the univariate analysis.

### *Comparison of Character Strengths between Cadets*

An analysis was conducted to determine if it was appropriate to use MANCOVA. First, the relationship between each supposed covariable and the character strengths was considered. Through two multivariate analyses, it was determined that social desirability was significantly related to character strengths,  $F(24, 269) = 6.70$ ,  $p < .001$ ; however, participant age was not,  $F(24, 269) = 1.24$ , *ns*. Therefore, only social desirability was selected as a covariable. Given that an interaction was not found between social desirability and the year of study,  $F(24, 268) = 1.30$ , *ns*, we conducted a MANCOVA.

A multivariate test that included the year of study as a factor was statistically significant,  $F(24, 269) = 1.87$ ,  $p < .01$ ,  $\eta_p^2 = .14$ . It was concluded that the groups of cadets differed in character strengths in general, including social desirability as a covariable. Moreover, univariate tests were conducted with social desirability as a covariable to determine in which character strengths the first- and fourth-year cadets differed.

The analyses showed that fourth-year cadets, in comparison to first-year cadets, scored lower on kindness (adjusted means 4.28 v. 4.45,  $F(1, 292) = 4.69$ ,  $p < .05$ ,  $\eta_p^2 = .02$ ) and teamwork (adjusted means 3.82 v. 4.04,  $F(1, 292) = 4.63$ ,  $p < .05$ ,  $\eta_p^2 = .02$ ) and higher on forgiveness (adjusted means 3.84 v. 3.57,  $F(1, 292) = 7.80$ ,  $p < .01$ ,  $\eta_p^2 = .03$ ), including social desirability as a covariable.

In order to evaluate the character strengths that maximised the separation between groups of first- and fourth-year cadets, a descriptive discriminant analysis was conducted that included the social desirability variable. The discriminant function showed a canonical correlation of .41 ( $\lambda = .84$ ,  $\chi^2 = 50.46$ ,  $gl = 25$ ,  $p < .01$ ) with an effect-size of  $R_c^2 = 16.5\%$ .

To evaluate the contribution of each character strength to the separation between the groups, the two criteria presented previously were used. The character strengths of kindness ( $r = .37$ ; adjusted  $F(1, 269) = 8.71$ ,  $p < .01$ ) and teamwork ( $r = .36$ ; adjusted  $F(1, 269) = 4.66$ ,  $p < .05$ ) made the largest contribution to the separation between the groups. The fourth-year cadets in training reported lower scores on kindness ( $M = 4.25$ ,  $SD = 0.72$ ) and on teamwork ( $M = 3.78$ ,  $SD = 0.88$ ) in comparison to the first-year cadets (respectively,  $M = 4.47$ ,  $SD = 0.61$ ;  $M = 4.06$ ,  $SD = 0.85$ ); the respective unadjusted univariate analyses were statistically significant,  $F(1, 293) = 7.82$  and  $7.31$ , respectively,  $p < .01$ .

Relationship between the character strengths and performance of cadets

## Study 2

### *Participants*

The sample of first-year military students consisted of 223 cadets ( $M = 20.2$  years of age,  $SD = 2.2$ ; 204 men), and the sample of fourth-year students had 126 cadets ( $M = 22.9$ ,  $SD = 2.5$ ; 117 men).

With the aim of comparing high- and low-performing students, two subsamples of first-year cadets and two subsamples of fourth-year cadets were extracted according to the following procedure. Cadets with academic and military performance grades above the 70th percentile (high-performance group) and cadets below the 30th percentile (low-performance group) were selected to form groups of high and low academic performance and groups of high and low military performance for both first-year and fourth-year students. The resulting subsamples of high- and low-performing cadets were constituted in the following manner. For the first-year cadets, the subsamples of high and low academic performance consisted of 134 cadets ( $M = 20.3$ ,  $SD = 2.1$ ; 122 men), and the subsamples of high and low military performance consisted of 134 cadets ( $M = 20.1$ ,  $SD = 2.1$ ; 123 men), with 67 high- and 67 low-performing cadets in each group. For the fourth-year cadets, the subsample of high and low academic performance ( $M = 23.0$ ,  $SD = 2.1$ ; 53 men) and the subsample of high and low military performance ( $M = 23.2$ ,  $SD = 3.0$ ; 55 men) both included 58 students, with 29 cadets of high performance and 29 of low performance.

### *Measurements*

Strengths of Character Inventory (SCI; Cosentino & Castro Solano, 2008b)

Strengths were evaluated using the SCI, the characteristics of which were reported in the measurements section in the first part of the present study.

**Table 1**  
*Correlations between Character Strengths and Academic and Military Performance for Cadets*

Character strength	Year I <sup>a</sup>		Year IV <sup>b</sup>	
	Académico	Military	Académico	Military
Appreciation	-.07	-.18**	.05	-.03
Bravery	.10	.08	.08	.12
Creativity	.05	-.04	.21*	.13
Curiosity	.08	.00	-.04	.07
Fairness	-.14*	-.15*	-.11	.05
Forgiveness	-.14*	-.11	.00	-.03
Gratitude	.00	-.07	.04	.00
Honesty	-.04	-.02	.15	.15
Hope	-.03	-.09	.02	.08
Humility	-.13	-.13*	-.18*	-.09
Humor	.02	-.05	-.14	.00
Kindness	.01	.00	.06	.00
Leadership	.18**	.20**	.08	.23**
Love	.00	-.05	-.01	-.03
Love of learning	.25**	.15*	.10	.01
Open-mindedness	.11	.11	.08	.12
Persistence	.06	.08	.24**	.24**
Perspective	.14*	.06	.13	.06
Prudence	.04	.09	.14	.09
Self-regulation	.04	.07	-.09	-.12
Social intelligence	-.07	-.04	.04	.00
Spirituality	.05	-.02	-.01	.06
Teamwork	-.12	-.10	-.14	-.07
Zest	.06	.12	.16	.18*

Note. Appreciation = Appreciation of beauty and excellence.

<sup>a</sup> $n = 223$ . <sup>b</sup> $n = 126$ .

\*  $p < .05$ . \*\*  $p < .01$ .

### *Academic and Military Performance*

To evaluate the performance of cadets in the military university institution, two types of performance were used: academic and military. The grades of each cadet were taken from the registrar of the military academic institution as an objective measure of their performance.

*Academic Performance.* For academic performance, the grades of the cadets in the academic areas after completion of the second semester of 2008 were used. Academic grades were considered to be the best analogue of academic performance at the civilian university because the military education can include classes in social psychology, organisational sociology, history of Argentina, law, English, mathematics, and computer science, among others.

*Military Performance.* To evaluate military performance, the grade point average from the cadets' grades in the military education and military professional areas at the completion of the second semester of 2008 was calculated and used. As such, the score by which military performance was measured in this study was comprised of an average

between the grade assigned by the official in charge of cadet instruction, who evaluates aspects of performance through the observation of indicators (e.g., conduct, military personality, field exercises, ability to lead), and grades from theoretical aspects that are the responsibility of the military professors who teach the corresponding subjects (e.g., Tactics, Explosives).

### *Procedures*

The administration procedures for the questionnaires to the cadets were as described previously.

### *Data Analysis*

To evaluate if the character strengths predict academic or military performance, multiple linear regression analyses were conducted, utilising the sequential method of forward selection with the inclusion criteria of  $p < .05$  for the military students in the same training year. The forward selection method implies that the first predictor that enters



into the equation is the one that has the largest simple correlation with the criterion variable; afterwards, the predictor with the largest partial correlation is considered, and so on. When a given predictor does not make any significant contribution, the procedure ends. It is important to mention that with this method, once a predictor gets into the equation, it stays (Stevens, 2009).

To determine if positive traits were able to explain the differences between the high- and low-performing groups, descriptive discriminant analyses were conducted with samples of students from each year of study, where performance was considered as a grouping variable. Univariate analyses were also conducted.

## Results

### *Multiple Regression Analyses*

In Table 1, the simple correlations of character strengths, organised alphabetically, are shown with the academic and military performance of first- and fourth-year cadets. In general, Table 1 shows that the sizes of the effects for statistically significant simple correlations were small to medium (Cohen, 1992; Henson, 2006).

### *Academic Performance*

*First year in training.* The strengths of love of learning ( $B = 3.14$ ,  $\beta = 0.27$ ) and forgiveness ( $B = -2.32$ ,  $\beta = -0.17$ ) predicted academic performance in the first year, with  $R = .30$ ,  $p < .05$ ,  $R^2 = .09$ , and  $R^2$  corrected = .08 after the entry of these two predictor variables. The value of the corrected  $R^2$  indicates that 8% of the variability in academic performance is predicted by the strengths of love of learning and forgiveness.

*Fourth year in training.* Persistence ( $B = 2.88$ ,  $\beta = 0.28$ ), humility ( $B = -1.66$ ,  $\beta = -0.18$ ), teamwork ( $B = -2.39$ ,  $\beta = -0.24$ ), and creativity ( $B = 2.23$ ,  $\beta = 0.20$ ) predicted the academic performance of the fourth-year cadets. The model that included these four variables had  $R = .42$ ,  $p < .05$ ,  $R^2 = .18$ , and  $R^2$  corrected = .15, indicating that 15% of the variability in academic performance is predicted by these four character strengths.

### *Military Performance*

*First-year training.* The strengths of leadership ( $B = 2.10$ ,  $\beta = 0.18$ ), appreciation of beauty and excellence ( $B = -2.01$ ,  $\beta = -0.20$ ), fairness ( $B = -2.06$ ,  $\beta = -0.21$ ), and zest ( $B = 1.75$ ,  $\beta = 0.14$ ) were predictors of military performance in the first year, with  $R = .35$ ,  $p < .05$ ,  $R^2 = .12$ , and  $R^2$  corrected = .10 for the model that included these four variables. This result indicates that 10% of the variability in military performance is predicted by this model.

*Fourth-year training.* The strengths of persistence ( $B = 2.82$ ,  $\beta = 0.28$ ), self-regulation ( $B = -2.39$ ,  $\beta = -0.26$ ), and zest ( $B = 2.17$ ,  $\beta = 0.18$ ) were predictive of the military performance of fourth-year cadets. The model that included these three variables had  $R = .36$ ,  $p < .05$ ,  $R^2 = .13$ , and  $R^2$  corrected = .11, indicating that 11% of the variability in academic performance is predicted by these character strengths.

### *Univariate analyses*

#### High vs. Low Academic Performance

*First-year training.* First-year cadets with the higher levels of academic performance reported higher scores than did the cadets that performed lower academically on the character strengths of love of learning (means 3.58 v. 2.99,  $F(1, 132) = 12.58$ ,  $p < .01$ ,  $\eta_p^2 = .09$ ) and leadership (means 4.46 v. 4.12,  $F(1, 132) = 7.27$ ,  $p < .01$ ,  $\eta_p^2 = .05$ ) but lower scores on fairness (means 4.00 v. 4.37,  $F(1, 132) = 6.18$ ,  $p < .05$ ,  $\eta_p^2 = .05$ ) and forgiveness (means 3.52 v. 3.84,  $F(1, 132) = 5.06$ ,  $p < .05$ ,  $\eta_p^2 = .04$ ). The difference in love of learning showed a medium to large effect-size. The remaining differences showed small to medium effect-sizes.

*Fourth-year training.* Fourth-year cadets with the higher levels of academic performance scored higher than did the cadets with the lower academic performance on persistence (means 4.66 v. 3.97,  $F(1, 56) = 10.87$ ,  $p < .01$ ,  $\eta_p^2 = .16$ ) and creativity (means 3.97 v. 3.48,  $F(1, 56) = 8.52$ ,  $p < .01$ ,  $\eta_p^2 = .13$ ). The difference in persistence between the groups showed a greater than large effect-size, while the difference in creativity nearly attained a large effect-size.

#### High vs. Low Military Performance

*First-year training.* First-year cadets with the higher levels of military performance scored higher compared to cadets with the lower levels of military performance on leadership (means 4.48 v. 4.12,  $F(1, 132) = 7.30$ ,  $p < .01$ ,  $\eta_p^2 = .05$ ) and love of learning (means 3.57 v. 3.21,  $F(1, 132) = 4.52$ ,  $p < .05$ ,  $\eta_p^2 = .03$ ), but lower on fairness (means 4.01 v. 4.42,  $F(1, 132) = 7.87$ ,  $p < .01$ ,  $\eta_p^2 = .06$ ), appreciation of beauty and excellence (means 3.22 v. 3.63,  $F(1, 132) = 7.86$ ,  $p < .01$ ,  $\eta_p^2 = .06$ ), forgiveness (means 3.51 v. 3.87,  $F(1, 132) = 5.76$ ,  $p < .05$ ,  $\eta_p^2 = .04$ ), and humility (means 3.70 v. 4.03,  $F(1, 132) = 4.97$ ,  $p < .05$ ,  $\eta_p^2 = .04$ ). All of the differences showed small to medium effect-sizes.

*Fourth-year training.* The fourth-year cadets with the higher levels of military performance scored higher in comparison to the cadets with the lower levels of military performance on persistence (means 4.62 v. 3.90,  $F(1, 56) = 12.70$ ,  $p < .01$ ,  $\eta_p^2 = .19$ ), zest (means 4.34 v. 3.93,  $F(1, 56) = 6.81$ ,  $p < .05$ ,  $\eta_p^2 = .11$ ), leadership (means 4.45 v. 3.93,  $F(1, 56) = 5.29$ ,  $p < .05$ ,  $\eta_p^2 = .09$ ), honesty (means

4.69 v. 4.34,  $F(1, 56) = 4.65, p < .05, \eta_p^2 = .08$ ), and open-mindedness (means 4.28 v. 3.83,  $F(1, 56) = 4.54, p < .05, \eta_p^2 = .08$ ). The difference in persistence had a greater than large effect-size. The remaining differences showed medium to large effect-sizes

It should be noted that in general, the differences with the largest effect-sizes were observed in the fourth-year subsamples.

### Discriminant Analyses

The general results of the discriminant analyses of character strengths according to the year of study are shown below. For academic performance, in the first year, the discriminant function showed a canonical correlation of .52 ( $\lambda = .73, \chi^2 = 37.28, gl = 24, p < .05$ ) with an effect-size of  $R_c^2 = 26.7\%$ ; for the fourth-year group,  $R_c = .79$  ( $\lambda = .37, \chi^2 = 43.65, gl = 24, p < .01$ ) with an effect-size of  $R_c^2 = 62.8\%$ . In terms of military performance, for the discriminant function for the first year,  $R_c = .57$  ( $\lambda = .68, \chi^2 = 46.47, gl = 24, p < .01$ ), with an effect-size of  $R_c^2 = 32.1\%$ ; and for the final year,  $R_c = .76$  ( $\lambda = .42, \chi^2 = 38.40, gl = 24, p < .05$ ), with an effect-size of  $R_c^2 = 58.2\%$ . It should be noted that the effect-size (the total relationship between character strengths and the groups) is always larger for the students in the last year compared to those in the first year. The same procedure was followed that was used in the descriptive discriminant analysis described in the first part of the study to select the variables that maximising the separation between the groups.

### High vs. Low Academic Performance

*First-year training.* It was found that love of learning ( $r = .51$ ; adjusted  $F(1, 109) = 6.63, p < .05$ ) and fairness ( $r = -.36$ ; adjusted  $F(1, 109) = 4.58, p < .05$ ) were the character strengths that contributed the most to maximising the differences between high and low academic performance in the first year of training. The first-year cadets with the higher levels of academic performance scored higher on love of learning ( $M = 3.58, SD = 1.02$ ) and lower on fairness ( $M = 4.00, SD = 0.89$ ) compared to the cadets with the lower levels of academic performance (respectively,  $M = 2.99, SD = 0.93$ ;  $M = 4.37, SD = 0.85$ ); their corresponding unadjusted univariate analyses were statistically significant,  $F_s(1, 132) = 12.58 (p < .01)$  and  $6.18 (p < .05)$ , respectively.

*Fourth-year training.* The strength of persistence ( $r = .34$ ; adjusted  $F(1, 33) = 12.16, p < .01$ ) contributed the most to the differences between the groups of fourth-year students with high and low academic performance. The fourth-year cadets with the higher levels of military performance reported higher scores on the character strength of persistence ( $M = 4.66, SD = 0.72$ ) compared to the cadets with the lower levels of performance ( $M = 3.97, SD = 0.87$ ),

and the unadjusted univariate analysis was significant,  $F(1, 56) = 10.87, p < .01$ .

### High vs. Low Military Performance

*First-year training.* Fairness ( $r = .36$ ; adjusted  $F(1, 109) = 7.38, p < .01$ ), was the character strength that contributed the most to the maximisation of group differences. The first-year cadets with the higher levels of military performance reported lower scores on the strength of fairness ( $M = 4.01, SD = 0.88$ ) than did the cadets with the lower levels of military performance ( $M = 4.42, SD = 0.78$ ), and the unadjusted univariate analysis was statistically significant,  $F(1, 132) = 7.87, p < .01$ .

*Fourth year training.* Similar to what was found for academic performance, persistence ( $r = -.40$ ; adjusted  $F(1, 33) = 5.19, p < .05$ ), again contributed the most to the separation between the groups with the higher and the lower military performance in the fourth year. The fourth-year cadets with the higher levels of military performance scored higher on persistence ( $M = 4.62, SD = 0.68$ ) than did the cadets with the lower levels of military performance ( $M = 3.90, SD = 0.86$ ), resulting in a statistically significant unadjusted univariate analysis,  $F(1, 56) = 12.70, p < .01$ .

## Discussion

Our study of positive traits yielded diverse results that not only provide broader knowledge about character but also broaden the relevance of positive psychology. The findings of our study show that the higher presence of some character strengths is linked to good outcomes. Moreover, the lower presence of other positive traits, and even combinations of higher and lower presence of different character strengths, are associated with good outcomes. At first glance, these findings seem controversial. Nevertheless, they are completely consistent with our perspective on positive psychology: we do not assume that all positive traits will always lead to good outcomes in any context. Aspinwall and Staudinger (2003) have maintained that it would be a grave error to assume that all beliefs, characteristics, and positive experiences have the same favourable effects on both people and social nets. They asserted that, in addition, there could be situations and contexts where attributes or processes that often function as strengths function as weaknesses and vice versa. Aspinwall and Staudinger proposed adopting a balanced and realistic position and maintained that only further research efforts will identify situations in which a strength character is linked to good outcomes and those in which it is not.

Our study found that military and civilian male students, controlling for age and year of study, differ in many strengths of character. The military students scored higher than did the civilian students on various positive traits and

very noticeably in the character strength of spirituality, i.e., beliefs and practices that are based on the conviction of the existence of a transcendent dimension beyond the physical realm of life, belief in purpose and greater meaning, and a belief that they occupy a place in the great scheme of life. Similarly, among the character strengths that were possible contributors to the separation between the groups of civilian and military students, the character strength of spirituality was identified as the best contributor. In light of these findings, some of the results of research on spirituality or conceptually similar variables with relevance for the focus of positive psychology will be reviewed.

First, the findings of research on spirituality according to the character classification of Peterson and Seligman (2004) will be discussed. One study showed that spirituality is positively associated with life satisfaction, even after controlling for variables such as nationality, age, and sex (Park et al., 2004). Spirituality is positively associated with happiness (Ruch et al., 2010), and it is linked to a meaningful life (Beermann, Huber, & Ruch, 2004; Peterson, Ruch, Beermann, Park, & Seligman, 2007). Additionally, spirituality was one of the character strengths that increased in the U.S. following the terrorist attacks of September 11, 2001 (Peterson & Seligman, 2003). Second, findings for variables that are conceptually similar to spirituality have been reported. Many studies have found that greater spirituality or religiosity is linked to better physical and mental health (Hill & Pargament, 2008). For example, a meta-analysis concluded that greater religiosity is associated with less depressive symptomatology, without evidence that age, gender, or ethnicity affected this relationship. In addition, various meta-analyses and studies with a representative sample have found that religious involvement is associated with lower mortality (e.g., Hummer, Rogers, Nam, & Ellison, 1999; McCullough, Hoyt, Larson, Koenig, & Thoresen, 2000). Finally, a cognitive neuroscience study showed that stronger religious zeal and greater belief in God is associated with commission of fewer errors and with lower anterior cingulate cortex activity (a cortical system that is involved in the experience of anxiety) in response to error, beyond personality or cognitive ability (Inzlicht, McGregor, Hirsh, & Nash, 2009). According to Inzlicht et al., religion conviction buffers against anxiety.

Additionally, the clear presence of higher levels of the character strength of spirituality in military students compared to civilian students is consistent with the results of a study on values conducted in the same military academy where our research took place. The previous study showed that, compared to civilians, the cadets more strongly endorse the tradition and conformity types of values of the Schwartz theory (Castro Solano & Nader, 2006; see Schwartz, 2006, for a synthesis of his proposal). In effect, religious people endorse these same types of values (Saroglou, Delpierre, & Dernelle, 2004), as shown by a meta-analysis performed on research from 15 countries with

monotheistic religious traditions. Argentina is a country of monotheistic religious tradition (Mallimaci, Esquivel, & Irrazábal, 2008).

Finally, the presence of higher levels of the character strength of spirituality among military students compared to civilian students is also compatible with the doctrine that sustains the military educational institution. Spirituality is considered a part of the fundamental rules that ensure efficient leadership, and it is a crucial element of leadership in critical moments (Ejército Argentino, 1990).

The difference on positive traits scores between Argentinean military university students and civilian students shows remarkable parallels with the results of the research by Matthew et al. (2006) with a U.S. sample. Nevertheless, it should be mentioned that there are at least two aspects that limit the scope of the interpretation of a comparison between these studies: first, in the U.S. samples, character strength scores were not adjusted for social desirability; and second, different instruments were used to assess the positive traits. Moreover, the research of Matthew et al. was focused mainly on univariate comparisons, in which each positive trait is evaluated in isolation from the others. Therefore, we will focus on similar analyses in our research to make a more fair comparison. Both studies showed that military students score higher on many character strengths in comparison to civilian students and, conversely, that civilian students score higher on appreciation of beauty and excellence than military students (this is the only character strength that shows an effect in opposite direction). Upon conducting an in-depth comparison, it was observed that all of the differences in character strengths for the Argentinian sample were also present in the U.S. sample, with the exception of the difference in love, which was uniquely present in the Argentinian sample. It should be noted that the military students score higher than the civilian students on more character strengths (curiosity, fairness, honesty, hope, and persistence) in the U.S. sample in comparison to the Argentinian sample.

One of the institutional objectives of military cadet training is to develop the personal abilities necessary to exercise military leadership (Ejército Argentino, 1990). It can be inferred that one of the aims of military institution is to achieve excellent personal characteristics that are most conducive to taking on supervisory responsibility in cadets in their last year of training so that future military leaders can perform their functions successfully. The military doctrine explicitly lists the characteristics that a military leader should have, which are largely character traits that correspond, with diverse levels of congruence, to the positive traits of the Peterson and Seligman (2004) classification. We believe that to accomplish this goal, the military institution, on one hand, pursues the increase, the decrease, the maintenance, or simply ignores certain character traits of the cadets; on the other hand, it selects cadets using performance scores. Given that students in

their last year have successfully adapted to the requirements of military life by achieving to complete four years of training, we consider them to be closer in their personal characteristics (mostly character traits) to the military leaders that the educational institution and the military doctrine intend them to become.

Our study found that military students in their first and final years of training differ in their character strengths scores. Two of these strengths made the largest contributions to maximising the separation between the groups of cadets in their first and final years. The cadets at the end of their tenure, in comparison to the cadets at the beginning of their tenure, are distinguished principally by scored lower on teamwork (i.e., loyalty and subordination to the decisions coming from the group and capacity to work in an integrated manner with their team) and scored lower on kindness (i.e., doing favours and treating others well, offering help and aid). Given that the military academy is an educational institution dedicated to the development of leaders, it is interesting to interpret these results based on the conceptual framework of leadership.

Although the area of leadership studies is very diverse, with its broad spectrum of theories, definitions, and philosophies, the majority of the current research agrees that leadership can be defined as a natural process of influence between a leader and his or her followers (Castro Solano & Nader, 2008). The study of the implicit leadership theories (ILTs) is part of the trend that studies leadership from a social cognition frame (Lord, 2000), focusing on the perceptual processes that underlie leadership (Epitropaki & Martin, 2004). The ILT model maintains that both leaders and followers have prototypes, schemas, or beliefs system that set the behaviours, traits, attributes, or abilities that characterise a leader (Castro Solano & Fernández Liporace, 2006; Epitropaki & Martin, 2004). As we will see later, in referring to ILTs, we are referring to a subjective phenomenon that occurs in people's minds, as opposed to the objective traits, behaviours, abilities, or attributes of leaders. More simply stated, ILTs refer to what individuals think about leaders.

In general, various perspectives on ILTs research exist (Schyns & Meindl, 2005). One line of research is focused on the application of ILTs and another on the content of these theories. Moreover, some researchers define ILTs as theories about good or successful leaders, whereas others view them as theories about leaders in general. According to Schyns & Meindl, a summarizing definition of ILTs that incorporates all lines of research would be the following: is a person's image of a leader in general, or of an effective leader. This definition allows for the possibility that the individual applies this image to a target person in order to identify this target as a leader, or apply it to a person previously labelled as a leader.

According to Castro Solano and Nader (2008), one can regard ILTs as dynamic and search for differences, for

example, between novices and experts. These authors conducted one of the few studies on ILTs in a real organisational context that found differences between the ILTs of experts and novices. These authors studied the same group of military students from their second year of training (before they were given supervisory responsibilities) through their last year of training (when they had undertaken supervisory responsibilities for longer than a year). The authors found that the ILTs in reference to an effective leader among the cadets in their last year of training had changed towards an image of a leader that was more oriented to himself and had fewer participatory attributes. According to Castro Solano and Nader, the fourth-year cadets, after receiving training and practice in leadership at the military academy, believed that an effective leader should be less cooperative, consider the decisions of others less, and be more egocentric and less charismatic. These results are similar to the results from a cross-sectional study previously conducted in the same military institution, which compared military students with and without a supervisory role and revealed that the military students with supervisory roles exhibited ILTs related to greater orientation towards oneself and reduced involvement of subordinates in decision-making (Castro Solano, 2006).

These results on the variations of ILTs between military students before and during the carrying out of their leadership duties (Castro Solano, 2006; Castro Solano & Nader, 2008) are consistent with our results regarding variation in the positive traits between first- and fourth-year students. The fourth-year cadets scored lower on strength of teamwork and lower on the strength of kindness compared to the first-year cadets. Consequently, a possible synchrony is conjectured between the mental image that one has about a leader and the traits that the leader displays.

Given that a cross-sectional and longitudinal study (Vickers, Hervig, Paxton, Kanfer, & Ackerman, 1997) found changes in personality between the beginning and end of basic military training lasting approximately seven weeks for Marine recruits in the U.S. and that another longitudinal study on cadets from the same military educational institution in which we conducted our research showed that the leadership styles of military students change as they advance in their schooling, we conjecture that the positive traits of military students could be modified. Stated more clearly, the empirically determined differences on character strengths scores between first- and fourth-year cadets can be interpreted as reflecting the real changes in the character of the cadets during the time that they spent in the military academy. We want to highlight that the change in character could be produced in another direction; depending on a cadet's level at the beginning of the training, certain positive characteristics could be increased with time spent in the military academy. Moreover, we cannot rule out the possibility that adjustments to positive traits in the cadets could be simultaneous to the institutional retention of cadets

whose character is more suitable to the requirements of military life.

Nevertheless, there are alternative interpretations to the possible character modification of the cadets. For example, it could be that the supposed decrease in positive traits is a negative result of the time spent in the military institution; as such, it would be an undesired effect of the development of leadership characteristics. However, it could be that this supposed modification of positive traits could result from an adaptive adjustment to the personal traits necessary to adequately perform leadership functions in the military environment, constituting a desirable effect of spending time in the military training system. The previously mentioned modification of the ILTs related to gaining supervisory duties and the military doctrine does not give the former interpretation preference over the latter. Moreover, the military doctrine, which governs the training of cadets, affirms that the military leader has the obligation to lead his subordinates with authority without subjecting himself to the decisions offered by others (Ejército Argentino, 1990). In other words, although the positive trait of teamwork is important because it implies working effectively in groups and a military leader should possess this characteristic, the character strength of teamwork should be adjusted to the characteristics of the exercise of military leadership. Finally, regarding the character strength of kindness, the military leaders must take care of their subordinates, but the military doctrine also affirms that a military leader should carry out the objectives given by his superiors, including sending subordinates on missions that could result in psychological or physical harm or even death (Ejército Argentino).

Although it seems obvious, we want to highlight that neither our findings nor our conjectures lead us to suggest that military students display an absence of strengths of character, specifically the character strengths of teamwork and kindness, which are positive traits that we found lower scores in the fourth year in comparison to the first. On the contrary, it was shown that military students report, in general, higher scores of character strengths than do the civilian students; specifically, a comparison between military and civilian students did not detect differences in the character strengths of teamwork and kindness.

We consider two hypotheses to explain the finding that military students score higher than do civilian students on many character strengths in samples from both Argentina and the U.S.: that people with higher levels of many positive traits tend to enrol in military academies or that military life develops existing character strengths. We aimed to put the latter hypothesis to the test by comparing the character strengths of military students in the beginning and at the end of their tenure but found differences only in certain character strengths, which did not differ in the comparisons conducted between military and civilian students. This finding led to the idea of combining the two hypotheses

into one: that people with higher levels of many positive traits tend to enrol in the military academy, with further adjustment to their traits due to their life in the institution. This idea is not only consistent with the theoretical characteristics of character strengths as stable and malleable (Peterson & Seligman, 2004) but also converges with empirical studies proposing that genetic influences and contextual and situational conditions impact positive traits. In effect, these existing studies show that, similar to other human psychological traits (Bouchard, 2004), differences in character strengths could be genetically influenced (Steger, Hicks, Kashdan, Krueger, & Bouchard, 2007) but could also be susceptible to changes in response to environmental stimulation, such as positive interventions (Seligman, Steen, Park, & Peterson, 2005) or potentially traumatic personal or social events (Peterson et al., 2008; Peterson & Seligman, 2003).

With regard to both academic and military performance, our study found diverse results for cadets in both their first and fourth years.

It was found that character strengths are related to performance in military context. This result once again supports the general hypothesis that non-intellectual factors are related to performance and, more specifically, that non-intellectual factors are related to performance in the military university environment.

The results of this study regarding the relationship between the character strengths and academic performance of first- and fourth-year cadets, which we expected would be more similar to academic performance in the civilian university due to the subject matter, can be compared to the results of a study on the relationship between character strengths and performance conducted with a sample of university students from upper-division psychology courses at a state university in the U.S. (Lounsbury et al., 2009). Although there are clear limitations of this comparison (e.g., the number of men and women is more balanced in the U.S. sample, the instrument for measuring character strengths is different, and subjective reports of performance were used with the U.S. sample), the comparison of results shows the following, in general: a) the simple correlations between character strengths and academic performance do not exceed a medium effect-size and b) in analysing the coefficients of multiple correlations between character strengths and performance, the character strengths explain score variation with a close to medium effect-size, according to the conventions of Cohen (Dunlap, Xin, & Myers, 2004). Nevertheless, our results did not coincide with the finding of Lounsbury et al. (2009) that character strengths are always positively associated with performance. In other words, in our research, for some positive traits, lower scores of character strengths were found to be associated with higher levels of academic performance.

The comparison of high- and low-performance groups also reveals the diversity of the relationships between

positive traits and performance within the sample of Argentinean cadets. The character strength of fairness makes a further contribution to the separation between first-year cadets with high versus low academic and military performance. Specifically, the cadets with the higher academic grades reported higher levels of love of learning (i.e., be cognitively active and typically experience positive feelings in the process of acquiring new abilities, satisfying their curiosity, systematically increasing their knowledge, and/or learning something that is new) and lower levels of fairness (i.e., active compromise with the principles of justice and equality; sound judgment in their social relationships and the ability to make equitable agreements; relational comprehension; and displays of compassion and protection of others) than did the cadets with the lower academic grades in the first year. Moreover, for military performance, cadets with the higher grades reported lower levels of the character strength of fairness than did cadets with the lower grades in the first year.

The pattern of results related to high and low performance in the last year of training is different from what was found for cadets in their first year. Moreover, the results for performance of cadets in their fourth year of training are, in general, more convergent.

Persistence is the strength of character that achieves a reliable distinction between the groups of high- and low-performing cadets in their fourth year in the military academy, in both academic and military performance. Cadets with the higher grades are described as more persistent (i.e., presence of a voluntary continuity of their active behaviours directed at a goal, which are maintained despite obstacles, difficulties and discouragement in order to finish what is started, and deriving pleasure from finishing the task) in comparison to the cadets with the lower grades. We believe that the cadets with the higher grades at the end of their schooling do not just show their adaptation by completing four years of training in the military academy; they also receive the highest approval from their military professors because of their similarity to the military leaders that the university military institution values.

Finally, character strengths show the greatest explanatory power for the variation of academic or military performance for cadets in the final year of training in comparison to cadets in their first year. This result seems to reflect the emphasis placed by the military institution on the character traits of future military leaders.

### *Limitations*

Our research has various critical limitations that should be kept in mind when interpreting the results of this study. A general limitation of the results is that the instrument used to assess the character strengths from the Peterson and Seligman (2004) classification consists of a single bipolar item for measuring each strength character. It is a

limitation that we included social desirability scores as an adjustment variable for the comparison between groups in distinct conditions, given the association found between social desirability and positive traits. Another limitation is that women were not included in the comparison of positive traits between groups. For the comparison between cadets in their first and final years, given that our study was cross-sectional, it is not possible to unequivocally attribute the differences between recently enrolled cadets and those that finished their training to the time spent in military life. As for our conjecture that people with higher levels of many positive traits seek to enrol in military schooling, there was no assessment of the positive traits of cadets before enrolling in the military academy. The study of cadet performance is limited in that we did not include other variables, making it impossible to conduct a more detailed analysis that could, for example, determine if spurious relationships exist between positive traits and academic and military performance.

### *Future Research*

Future research should clarify if those who choose to attend a military university exhibit differences in character strengths compared to other individuals before beginning their military education. In our study, the positive traits that differentiate male military students from male civilian students, controlling for age and year of study, are different from the positive traits that differentiate students within the military educational institution. To verify if the differences between civilians and soldiers exist prior to initiating military university education, we could conduct research on the positive traits of individuals who apply to the military academy, considering that even short-term military education could affect a person's positive traits. For example, one study showed differences in personality between the beginning and end of military basic training after only seven weeks for Marine recruits in the U.S. (Vickers et al., 1997).

The results of the comparison of positive traits between first- and fourth-year cadets should be supported by a longitudinal study that produces more compelling evidence for the hypothesis that spending time in a military academy leads to modifications in the character of cadets. A previous study leads us to believe that this is possible. This longitudinal study examined the following variables for over four years in a group of cadets from the same institution in which our study was conducted: coping, personality style, intelligence, and academic performance. It produced "identical results" (p. 208, Castro Solano & Casullo, 2005) to a previous cross-sectional study conducted with a sample from the same institution (Castro Solano & Casullo, 2002). This result suggests a certain homogeneity of the samples from this institution. Given that our research was conducted with a sample of cadets from the same military institution as the studies by Castro Solano and Casullo and that

variables of performance and positive traits (conceptually similar to the constructs of personality) were used, it is analogously conjectured that a future longitudinal study of positive traits in Argentinean cadets in the military could produce results similar to those found in the present study.

Future studies should empirically analyse the relations between character strengths and ILTs and values, given the significant concordance that was shown between these constructs among military personnel.

Future research should study the character strengths of female military students. Moreover, it should study gender differences in the relationships between character strengths and academic and military performance.

Finally, research should be conducted on Argentinean civilian students, focusing on the relations between positive traits and academic performance, in order to develop a more complete picture of these relations in different types of students within the same culture and to enable more complete comparisons for civilian and military students. Besides, given that men and women display different character strengths, the inclusion of female civilian students in future work will make it possible to determine if the relation between character strengths and performance varies by gender.

Despite the mentioned limitations, we believe that our research makes original contributions to the fields of positive psychology and military psychology. This study is the first to compare Latin American civilian and military populations based on the character classification of Peterson and Seligman (2004). In addition, our research constitutes the first empirical comparison of character according to the Peterson and Seligman classification between cadets in their first and final years in the military academy. We believe that this study is one of the first to publish extensive empirical results on the differentiation between academic and military performance and its relationship to positive traits in military university students.

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