

# Assessment of Academic Engagement and Grit: Strengths of Character to Be Developed in Postgraduate Students

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## Abstract

This paper introduces the results of an ongoing study, aimed at describing Academic Engagement and Grit standards in students attending postgraduate studies. To comply this a quantitative, descriptive and correlational study was applied to a convenience sample of 188 students who filled out the UWES-SS and the Grit Scale. The results showed that women scored better in the Academic Engagement dimensions and the Consistence of Interest factor in the Grit Scale. In addition, significant, positive correlations were found in both constructs. Conversely, no significant differences were found among postgraduate programs, nor among global Academic Engagement and global Grit by program or weekly study time. These findings showed the relevance of guiding students with specific strategies.

**Keywords:** Character Education, Academic Engagement, Grit, Postgraduate Students, Higher Education..

## Evaluación del Compromiso académico y Grit. Fortalezas de carácter a desarrollar en estudiantes de postgrado

### Resumen

Este trabajo presenta los resultados de un estudio en curso que tiene como objetivo determinar la relación entre el Compromiso Académico y Grit de alumnos argentinos de postgrado. Para ello, se aplicó una metodología cuantitativa, descriptiva y correlacional, con una muestra seleccionada por conveniencia de 188 estudiantes, los cuales completaron la UWES-SS y la Escala Grit. Los resultados indican que las mujeres presentan mejores índices en las dimensiones del

Compromiso Académico y en el factor Consistencia de Interés de la Escala Grit. Asimismo, se encontraron correlaciones positivas y significativas entre ambos constructos; por el contrario, no se hallaron diferencias según el postgrado que cursan los estudiantes, como tampoco entre los niveles de Compromiso académico global y el Grit global según la carrera y las horas semanales dedicadas al estudio. Estos hallazgos muestran la importancia de orientar a los alumnos con estrategias concretas.

**Palabras clave:** Educación del carácter, Compromiso Académico, Grit, Postgrado, Enseñanza Superior.

## Avaliação do comprometimento acadêmico e do Grit. Forças de caráter a serem desenvolvidas em estudantes de pós-graduação

### Resumo

Este trabalho apresenta os resultados de um estudo em curso que tem como objetivo determinar a relação entre o Envolvimento Acadêmico e o Grit de alunos argentinos de pós-graduação. Para isso, foi aplicada uma metodologia quantitativa, descritiva de correlação, com uma mostra selecionada por conveniência de 188 alunos, os quais completaram a UWESS e a escala Grit. Os resultados indicam que as mulheres apresentam melhores índices nas dimensões de Envolvimento Acadêmico e no fator Consistência de Interesse da Escala Grit. Da mesma forma, foram encontradas correlações positivas e significativas entre ambas as construções. Pelo contrário, não foram achadas diferenças segundo o pós-graduação que os alunos cursam, nem entre os níveis de Envolvimento Acadêmico global e Grit global segundo a carreira e as horas semanais dedicadas ao estudo. Os descobrimentos mostram a importância de orientar os alunos com estratégias concretas.

**Palavras-chave:** Educação do Caráter, Envolvimento Acadêmico, Grit, Pós-Graduação, Ensino Superior.

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This paper addresses the link between Academic Commitment and the Grit, constructs that are particularly relevant at all educational levels, and that are to be promoted through the so-called Character Education (Bernal, González-Torres, & Naval, 2015). In that sense, it is necessary to emphasize that this work is framed within the ongoing research project entitled "Academic Commitment, Determination, and Temporary Orientation in University Students of Programs Aimed at Developing Leadership. Its Impact on Academic Performance and Retention," and receives funding from the Vice-Rector's Office for Research at Universidad Austral (Argentina). This approach—which has resurfaced in the last few decades—is aimed at the

comprehensive development of people's abilities (Almilburu, 2015), considering all its dimensions, including the cognitive, volitional-affective, physical, social, and transcendental ones, in order to provide students with a personal and moral education with which they can consolidate their personality and their life project. It is based on the contributions made by Philosophy, Psychology (especially Positive Psychology), Sociology, Ethics, and Neurosciences, as being considered sciences that offer methods and concepts that facilitate education in values and the acquisition of virtues in students (Naval, González-Torres, & Bernal, 2015). For this reason, its approach surpasses previous models on values education oriented towards civic education.

Character Education is inspired by various disciplines. One of them is Positive Psychology, which offers a new and preventive orientation to explain both Academic Commitment and Grit. After delving into them at a theoretical level, and reviewing them in light of what happens in graduate university programs aimed at developing leadership skills in different types of organizations, the following questions arise: What are the differences in the levels of Academic Commitment and Grit in the students? And how does the university manage to promote higher levels of Academic Commitment and Grit in the students?

It is from these questions that two objectives arise: to describe the levels of Academic Commitment and Grit that graduate students possess aimed at developing leadership skills, and to propose pedagogical strategies to be implemented at the university level to favor both abilities.

Accordingly, first, a brief theoretical framework on the main study variables—which are located within the scope of Character Education—is presented. Secondly, the methodological design adopted, which is of quantitative nature, is described. It was developed with a non-probability convenience sample made up of 188 graduate students, who completed a socio-demographic questionnaire designed ad hoc, the Utrecht Work Engagement Scale for Students (UWES-17S) (Schaufeli, Salanova, González-Romá, & Baker, 2002), as adapted for the Argentine population by Mesurado, Richaud, & Mateo (2016); and the Grit Scale (Duckworth et al., 2007) which is being validated for the Argentine population (Tortul & Daura, under evaluation).

Due to its characteristics, this is a study that stands out for its originality insofar as—although research focused on the Academic Commitment and the Grit in Argentine population was found—it is one of the first formal works carried out in this geographical context, in which both constructs are linked in graduate students and which presents enriching data from the use of the questionnaires mentioned.

### **Educating in Emotions and Character Strengths at University**

In the educational field, those of us who play the role of instructors, aspire to a achieve

comprehensive process aimed at developing all the student's potential. Some of these will be derived from each of the trainable dimensions of the human being, (a) the cognitive-intellectual, (b) the social, (c) the affective-motivational,

(d) the physical, and (e) the transcendental ones (Barni, 2019; Vázquez, 2012).

From our perspective, this interest coincides with the presence of two views or trends that prevail in the development of the teaching process. The first of these—which we consider to be of a preventive nature—is focused on promoting all the qualities of each student. Due to its characteristics, it considers the student to be the main protagonist of the process, who needs the guidance and orientation of the professor. The other, of a palliative nature, deals with learning problems—personal or not—once they are established.

The concomitance of both approaches is not a problem in itself. In fact, when an attempt is made to guide students to solve any academic difficulty, it is done in order to promote their comprehensive development. On the contrary, the problem arises when energies and time are invested more in addressing this type of issues and not in preventing them (Barni, 2019).

Primarily, the second view is inspired by the traditional or academic paradigm that is still in force today, according to which prevalence is given to the transmission and acquisition of information, knowledge, and purely cognitive skills (thus, for example, in the first levels, priority is given to learning writing, reading, and calculus; in the following levels, priority is given to the contents expected for each stage and/or program), and to the development of one of the trainable dimensions of the student (the intellectual dimension), to the detriment of the others that favor self-knowledge, the development of personal strengths or habits, and the design of a life project (such as the affective-motivational dimension); to go beyond oneself in order to make contributions in the socio-cultural context of which one is a part, and to be willing to help others (Barni, 2019).

The prevalence of this approach lead the educational process to focus only on obtaining objective numbers that account for a certain

level of success, neglecting the development of the welfare of the student, faculty, and family system. This perspective does not imply the disregard of one of the fundamental tasks of the educational institution—which is specified in the transmission of conceptual contents, essential for personal growth and for human beings' entry into the social, labor, and professional world—but it allows us to emphasize that this task must go hand in hand with other actions that tend to promote self-knowledge and the development of character strengths to be taught, perfected, and assessed, so that each student consolidates a life project (Barni, 2019; Roegiers, 2010).

A twist on this perspective is offered by the Positive Psychology approach applied to education. Indeed, at present, there are numerous works and efforts made to apply, in the field of formal and informal education, several of the constructs addressed by this discipline, which is only 20 years old (Palomera Martín, 2017).

Some of these constructs are studied in relation to the 3 basic pillars that support this discipline (Seligman, 2002): (a) positive emotions, (b) positive traits (among which are virtues, personal strengths, and skills), and (c) educational institutions or organizations, which may or may not favor the development of these emotions and traits.

We could say that the development of emotions and positive character traits are the personal keys to achieve higher levels of life satisfaction in all areas in which the subject performs. Of course, this process does not take place alone, but in interaction with others and within a given institutional context. In fact, the third pillar mentioned, the educational institution, constitutes the place in which individuals, from their first years of life to the university level, spend most of their time outside the family environment.

In this regard, Palomera Martín (2017), explains that those schools that provide more extracurricular activities, significant tasks according to the age of the students, and a safe environment predict higher levels of happiness in children. This statement helps us to understand how, in recent years, many efforts have been made to introduce into formal education content linked to emotional intelligence, and to the development

of emotions, of habits or virtues, and of strengths of character (Arguis Rey, Bolsas Valero, Hernández Paniello, & Salvador Monje, 2012; Mayer, Salovey, Caruso, & Cherkassky, 2015; Pascual Ferris & Cuadrado Bonilla, 2001; Renom Plana, 2003; Seligman, Erns, Gilham, Reivich, & Kinkins, 2009; Soldevila, 2009).

But what happens in higher level institutions, particularly at the graduate level?

What are the character strengths that ultimately impact on obtaining higher levels of academic performance or retention? What levels for each of these do graduate students present? These questions allow us to consider how, among character strengths, there are particularly two that are directly linked to obtaining better performance and academic continuity from students and that will be delved into in the following sections: Academic Commitment and Grit.

#### **Academic Commitment**

Academic Commitment is a meta-construct that has been approached from different theoretical lines (Daura, 2015), and that is directly linked to the addressing of dropout and retention. This allows it the opportunity to study the complex phenomenon of student retention from a positive and preventive approach. In that sense, just as the first two constructs focus on studying the factors that influence dropout or continuity in studies, commitment or involvement focus on analyzing the personal, attitudinal or contextual aspects that help students feel part of the learning process in which they participate, of the institution of which they are a part of, and that the educational organization carries out actions that contribute to this goal (Tinto, 2006-2007).

Although this study began in the 1980s, based on the work of Astin (1984) on the participation of the student body, there are numerous definitions of it.

In this context, we take the work of Schaufeli (Schaufeli, Martínez, Marqués-Pinto, Salanova, & Bakker, 2002; Schaufeli, Salanova, et al., 2002) as a reference aligned with the Positive Psychology approaches.

This author understands it "as a positive mental state related to work and academic activity, which is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, et al., 2002,

p. 79), variables that are manifested through energy, resistance and effort—regardless of the difficulties that may arise—; enthusiasm and inspiration to study; and a great capacity for concentration to carry out the task.

In Latin America, and particularly in Argentina, most of the work carried out on Academic Commitment involved students from the first levels of the educational system (Arguedas Negrini, 2010, 2011; Dabenigno, Larripa, Austral, Tissera, & Goldenstein, 2010; Dabenigno, Larripa, & Austral, 2012; Dabenigno & Tissera, 2011; Larripa, 2012; Rigo, 2013, 2016, 2019; Rigo & Donolo, 2014a; Rigo & Donolo, 2014b). In recent years, studies have also begun to be conducted at the higher level (Daura, 2015; 2016; Daura, Baravalle, & Barni, 2016; Daura & Durand, 2018; Mesurado et al., 2015; Mesurado, Tortul, & Schonfeld, 2018; Rigo, 2019), which is an aspect of crucial importance because it allows us to delve into its relationship with academic retention and performance, as well as with other psycho-pedagogical variables that influence the learning process. Among the latter, we find the opportunity to analyze the relation to the Grit, a recent construct in the geographical context mentioned.

### **Grit: Passion and Perseverance to Achieve Long-Term Goals**

The Grit, which has several translations (bravery, determination, courage, strength, endurance, among others), was coined by Duckworth (2016) to refer to the passion and perseverance to achieve long-term goals. In agreement with previous studies (Barni & Daura, 2019; Daura, Barni, González, Assirio, & Lúquez, 2019), in the present work, we decided to use the same term used by the original author, that is, as a proper noun.

This concept started being addressed only 12 years ago in several recently published works (Duckworth, Peterson Matthews, & Kelly, 2007; Duckworth & Quinn, 2009; Robertson-Kraft & Duckworth, 2014). Such research works show the interest that exists for this concept, by analyzing its relevance for achieving good performance in diverse aspects of personal development: sports, professional life, and particularly education (Christopoulou, Lakioti, Pezirkianidis, Karakasidou, & Stalikas, 2018; Duckworth,

Kirby, Tsukayama, Berstein, & Ericsson, 2010; Duckworth, Quinn, & Seligman, 2009; Eskreis-Winkler, Shulman, & Duckworth, 2014; Perkins-Gough, 2013; Yeager, Henderson, Paunesku, Walton, D'Mello, Spitzer, & Duckworth, 2014).

Its development is independent of the level of IQ achieved, since several studies have shown that people do not stand out in their careers particularly because of their innate qualities, but rather thanks to the effort and dedication they show to achieve goals (Duckworth et al., 2007).

Its two variables are based on its definition: (a) consistency of interest and (b) perseverance in the effort that refer, respectively, to the tendency to keep the established objectives, and to work intensely in the face of setbacks and difficulties.

There are points of contact between Academic Commitment and Grit if we consider that the fundamental reason why the former arose was to understand and find strategies to prevent student dropout, and to promote the perseverance necessary to complete their studies (Office of Educational Technology, 2013). In this regard, there are several works that show the relationship between determination and Academic Commitment (Atapattu, 2015; Hodge, Wright, & Bennett, 2018; among others).

The main purpose of the study was to determine the relationship between the Academic Commitment and the Grit of students from different graduate programs. In addition, the following specific objectives are posed:

- a) to define whether there are different levels of Academic Commitment and Grit depending on the gender of the students who participated in the study;
- b) to corroborate if there are positive and significant correlations between the levels of commitment and Grit that students have, according to their sex;
- c) to find out if students have different levels of Academic Commitment and Grit depending on the graduate course they are taking; and
- d) to corroborate if they present significant links between the global levels of Academic Commitment and Grit according to their programs and the hours of study devoted during the week.

## Method

### Design

The work adopted a quantitative approach with the aim of analyzing the studied reality with numerical data. In this context, we chose to use a descriptive and correlational design in order to know and describe the relationship between the study variables (Hernández Sampieri, Fernández Collado, & Baptista Lucio, 2010).

### Participants

The study was conducted involving a graduate university population, considering two fundamental aspects: on the one hand, the possibilities of accessing this population; and on the other, the need to cover a knowledge gap, since there are no previous studies on the link between the two main researched constructs in Argentine students of this age group.

Based on this, a non-probability convenience sample was made up of 188 students, according to the authorization granted by their institutions. The subjects that made up the sample were enrolled in graduate programs aimed at training in leadership skills; among them, 120 (63.8%) were female and 68 (36.2%) were male, and their average age was 40.63 years old. Of the groups mentioned, 123 belonged to a graduate degree program (P1) aimed at training managers of educational institutions that held a previous degree at the tertiary level, with a 2-year study plan.

34 were students from a 2-year graduate program (P2), which is also aimed at training managers of the same type of organizations, but who had a previous university degree. It is important to clarify that the majority of students of both programs held a managerial role in their working environments at the same time as they were studying for their graduate degree. Another 6 students were studying a Master's degree in Business Administration (P3) in an intensive modality, so they were just studying and not working in any organization at the same time. These three graduate programs are taught by a private management institution, which is located in the province of Buenos Aires (Argentina)

Likewise, 25 students were taking a 1-year graduate program (P4) aimed at training managers

of military institutions, who had a previous university degree. This graduate program is taught by Universidad de Defensa Nacional, which is responsible for training the entire officer corps of the Argentine Armed Forces. Due to its characteristics, this program is managed by the State. It is worth mentioning that this graduate program has a significant impact on the professional development of the students, so its completion implies obtaining better jobs in the future. Although the sample of students is very heterogeneous, the common factor is that all of them are study programs aimed at developing leadership skills to exercise them in organizations of various kinds. For practical purposes, this sample was reorganized for further analysis into three subsamples consisting of 26 students from P1 and 27 from P2, who were selected at random, and the 25 students from P4. Of these students, 34 were female (43.4%) and 44 were male (56.4%), and their average age was 40.96 years old.

### Data Collection Techniques

#### Socio-Demographic Questionnaire

A questionnaire was designed to collect information on various socio-demographic variables. In particular, information was requested concerning: 1. age; 2. sex; 3. marital status; 4. institution of membership; 5. graduate degree program taken; 6. year of entry; economic benefit received from the university; 7. the intended educational level; 8. current occupation; and 9. the weekly hours devoted to study. Of all these variables, four were considered in the present work, specifically: 2, 4, 5 and 9.

#### Utrecht Scale on Student Engagement

The Utrecht Work Engagement Scale for Students was applied as adapted for students from the Utrecht-Work Engagement Scale (UWES-SS) (Schaufeli, Martínez et al., 2002; Schaufeli, Salanova et al., 2002), adapted and validated for the Argentine population (Mesurado et al., 2016) showing high Alpha coefficients for each of the instrument's dimensions and for the Global Academic Commitment variable: Vigor: 0.76; Dedication: 0.89; Absorption: 0.74; Global Academic Commitment: 0.88. Similarly, the Confirmatory Factor Analysis showed the existence of the three factors proposed by the original authors (Schaufeli,

Martínez et al., 2002) and those who carried out the validation in Argentina.

The instrument has a Likert-type scale design, with 7 answer options ranging from 0 (never) to 6 (always), and is made up of 14 items that evaluate three dimensions of Academic Commitment: Vigor (5 items), which refers to the presence of high levels of energy and mental resistance during the development of a task, as well as the willingness to make an effort and persist in it even in the face of difficulties; Dedication (5 items), which refers to the sense of importance, enthusiasm, inspiration, pride, and challenge that the task provides; and Absorption (4 items), which refers to the state of concentration and happiness experienced while performing the task. A high level of Academic Commitment corresponds to high scores in all three dimensions. To use it in further analysis, the overall Academic Commitment was calculated, as a result of which, subjects who score less than 3 points are considered to have a low level of involvement.

### **Grit-Original Scale**

The Grit-Original scale was designed by Duckworth et al. (2007) and adapted for the Argentine population (Tortul & Daura, in press).

The analysis of the internal consistency of this instrument yielded an Alpha of 0.83 for the entire scale, 0.80 for the Consistency of Interest (CI) factor, and 0.79 for the Perseverance of Interest (PI) factor. Likewise, its 12 items prove a proper discriminative capacity by showing highly significant differences ( $p = 0.000$ ). In turn, the Exploratory Factor Analysis confirmed the existence of the two factors proposed by the authors (Duckworth et al., 2007), explaining 41.98% of the variance. The first factor explained 31.53% of the variance and the second one explained 10.45%.

The instrument has a Likert-type scale design with 5 options and is made up of 12 items, distributed equally into two factors: Consistency of Interest (CI), which explores the tendency to maintain the objectives and interests that have been proposed, and Perseverance of effort (PE), which measures the inclination to work intensely in the face of setbacks and difficulties. The instrument allows to obtain an overall level of Grit, which ranges from 1 to 5 points, corresponding to subjects who have a very low and high level

of capacity, respectively. For the purpose of the present study, we consider that individuals have a low score if they reach a valuation lower than 2.50 points, as this is the average score between the minimum and the maximum shown by the scale.

### **Procedures**

The instruments were completed by the students in regular classroom situations, in the presence of the researchers, on days and at times agreed upon with the authorities of the educational institutions. The students who made up the sample participated voluntarily. To this end, they were first informed of the objectives of the research, guaranteed the confidentiality of the data collected, and asked to sign an informed consent form.

### **Data analysis**

Due to the nature of the study, the average value of the dimensions that make up the UWES-SS and the Grit Scale was calculated.

Similarly, the Global Academic Commitment and the global Grit score was calculated by adding the values of all their items and dividing them by the total number of indicators.

To perform the statistical analyses, an Excel database was created and then imported into the IBM SPSS 23.0 statistical package. Next, and respecting the order of the specific objectives established, successive analyses were carried out according to the following detail: a) in order to analyze the differences between the levels of Academic Commitment and Grit according to the sex of the students in the sample, descriptive analyses and the Student t-test were carried out for independent samples. b) In order to confirm whether or not there are positive and significant correlations between the levels of Academic Commitment and Grit that students possess, according to their sex, descriptive analyses and a Pearson's correlation were carried out. c) In order to explore whether or not there are significant differences between the levels of Academic Commitment and Grit that students possess, according to the graduate degree program they are taking, the selected subsamples from the total sample were used in order to have subsamples comparable to each other, and the analysis of variance (ANOVA) of one factor was carried out.

d) In order to corroborate whether or not there are significant links between the Global Academic Commitment and Global Grit levels depending on the program and the hours of study devoted by the students during the week, a Multivariate Analysis of Variance (MANOVA) was carried out. In order to obtain the size of the effect and the statistical power of some of the results achieved, the statistical package G\*Power was used.

As regards to the Grit Scale factors, they show a greater Perseverance of Effort ( $M = 4.15$ ), which indicates that they make a constant effort to achieve the proposed goals, regardless of the obstacles or difficulties that may arise.

These results are corroborated by the Student t-analysis for independent samples, which showed statistically significant differences in favor of women in all three dimensions of the UWES-SS: in Vigor ( $t = 2.76; p = 0.006, IC95\% [0.12; 0.73]$ ),  $1 - \beta = .75, d = .40$ ; in Dedication ( $t = 3.70; p = .0001, IC95\% [0.23; 0.75]$ ),  $1 - \beta = .94, d = .53$ ; in Absorption ( $t = 3.43; p = .0001, IC95\% [0.24; 0.89]$ ),  $1 - \beta = .94, d = .54$ ; and in Global Academic Commitment ( $t = 3.768; p = .0001, IC95\% [0.23; 0.76]$ ),  $1 - \beta = .91, d = .50$ . On the other hand, for the Grit Scale, they only achieved a significant difference in their favor in the Consistency of Interest factor ( $t = 2.207; p = .0029, IC95\% [0.22; 0.40]$ ),  $1 - \beta = .58, d = .33$ .

## Results

### Academic Commitment and Grit Levels: Descriptive Analysis and Gender Differences

The results (Table 1) indicate that the women who participated in the study have higher rates in both the UWES-SS subscales and the Grit Scale factors. With regard to the first questionnaire, they stand out for showing greater dedication ( $M = 5.11$ ) compared to the study and all learning situations, expressing enthusiasm and inspiration by considering them a challenge in themselves.

### Correlation Between Academic Commitment Dimensions and Grit Factors According to Sex

In order to analyze the correlation between the levels of Academic Commitment and Grit that

**Table 1.** Descriptive Statistics of the UWES-SS Dimensions and Grit Scale Factors by Sex

Variables	Dimensions	Sex	N	Min	Máx	M	DE
Academic Commitment	Vigor	Female	120	1,60	6,00	4,48	0,915
		Dedication	68	0,60	6,00	4,05	1,18
	Absorption	Female	120	2,00	6,00	5,29	0,76
		AC	68	0,60	6,00	4,80	1,05
	PE	Female	120	1,50	6,00	4,63	1,00
		CI	68	0,50	6,00	4,06	1,23
	Grit	Female	120	1,97	6,00	4,81	0,77
		Male	68	1,17	6,00	4,30	1,03
Grit	PE	Female	120	2,33	5,00	4,15	0,47
		Male	68	2,33	5,00	4,13	0,54
	CI	Female	120	1,83	5,00	3,64	0,63
		Male	68	1,33	4,67	3,42	0,65
	Grit	Female	120	2,08	4,83	3,89	0,42
		Male	68	1,83	4,83	3,78	0,52

Note. AC: Academic commitment, PE: Perseverance of effort, CI: Consistency of interest

students possess, according to their sex, the Pearson's correlation indexes  $r$ , statistical significance, effect size ( $p$ ), and statistical power ( $1-\beta$ ) were calculated (see Table 2).

In all cases, significant and positive correlations were found, for both women and men, among the the UWES-SS variables, the Grit Scale factors, and the variables. The exception is in female students, between the two factors of the Grit Scale that have no significant relation. On the other hand, when the same analysis is applied to the total sample, the positive correlation does appear. In fact, the Perseverance of Effort  $r(188) = 0.279^{**}$ ,  $p = 0.01$  is positively associated with the Consistency of Interest.

These results seem to indicate that the greater energy to carry out a task and willingness facing effort (Vigor), the greater enthusiasm to carry out a task (Dedication), and concentration and joy while executing it (Absorption). Likewise, the subjects are likely to maintain interest (Consistency of Interest) facing previously established goals, and to work intensely to achieve them (Perseverance of Effort), regardless of potential difficulties.

**Comparison Between UWES-SS Dimensions, Grit Scale Factors and Students' Graduate Program**

An analysis of variance (ANOVA one way) was performed to check for differences between the

**Table 2**  
Correlations Between UWES-SS Dimensions and Grit Scale Factors by Sex

Dimensions	1	2	3	4	5	6	7
Vigor		,667**	,808**	,912**	,424**	0,328**	0,427**
$p$		0.81	0.89	0.95	0.65	0.57	0.65
$1-\beta$		1	1	1	1	0.99	1
Dedication	,588**		,686**	,847**	,406**	0,269*	,381**
$p$	0.76		0.82	0.92	0.63	0.51	0.61
$1-\beta$	1		1	1	1	0.99	1
Absorption	,622**	,711**		,931**	,436**	0,269*	0,397**
$p$	0.78	0.84		0.96	0.66	0.51	0.63
$1-\beta$	1	1		1	1	0.99	1
CA	,858**	,866**	,890**		,469**	0,323**	,448**
$p$	0.92	0.93	0.94		0.68	0.56	0.66
$1-\beta$	1	1	1		1	0.99	1
PE	,253**	,311**	,255**	,314**		,510**	,842**
$p$	0.50	0.55	0.50	0.56		0.71	0.91
$1-\beta$	1	0.99	0.99	0.99		1	1
CI	,251**	0,184*	,215*	,251**	0,125		,893**
$p$	0.50	0.42	0.46	0.59			
$1-\beta$	0.99	0.99	0.99	0.99			
Grit	,333**	,315**	,307**	,367**	,657**	,830**	
$p$	0.57	0.56	0.55	0.69	0.81	0.91	
$1-\beta$	0.99	0.99	0.99	0.99	1	1	

Note: the upper diagonal shows the correlations obtained in the male's sample; the lower diagonal shows the correlations obtained in the female's sample. \*\* $p \leq .01$ . \* $p \leq .05$ .

UWES-SS dimensions and the Grit Scale factors according to the graduate program the students were taking (see Figure 1). For this analysis, the variables that make up each instrument were taken as dependent variables and, as an independent variable, the subsamples of study programs that were selected from the general sample that participated in the study; this way, it was possible to obtain 3 homogeneous groups to compare in a more accurate manner (P1; P2 and P4).

The model value for the Vigor dimension was [F (2.75) 0.123,  $p > .88$ ,  $f = 0.57$ ]; for Dedication [F (2.75) 2.183,  $p > .120$ ,  $f = 0.90$ ]; for Absorption [F (2.75) 0.862,  $p > .426$ ,  $f = 0.74$ ]; for Global Academic Commitment [F (2.75) 872,  $p > .422$ ,  $f = 0.74$ ]; for Perseverance of Effort [F (2.75) 713,  $p > .493$ ,  $f = 0.72$ ]; for Consistency of Interest [F (2.75) 1.664,  $p > .196$ ,  $f = 0.85$ ]; and for Global Grit [F (2.75) 1.455,  $p > .240$ ,  $f = 0.83$ ]. Scheffe was carried out as a post hoc analysis, without finding significant differences between the groups.

However, there is a crossover effect between P1 and P4 students on the UWESS-S subscales and the Grit factors.

In particular, P1 students are more favored in the Academic Commitment indices, while those in

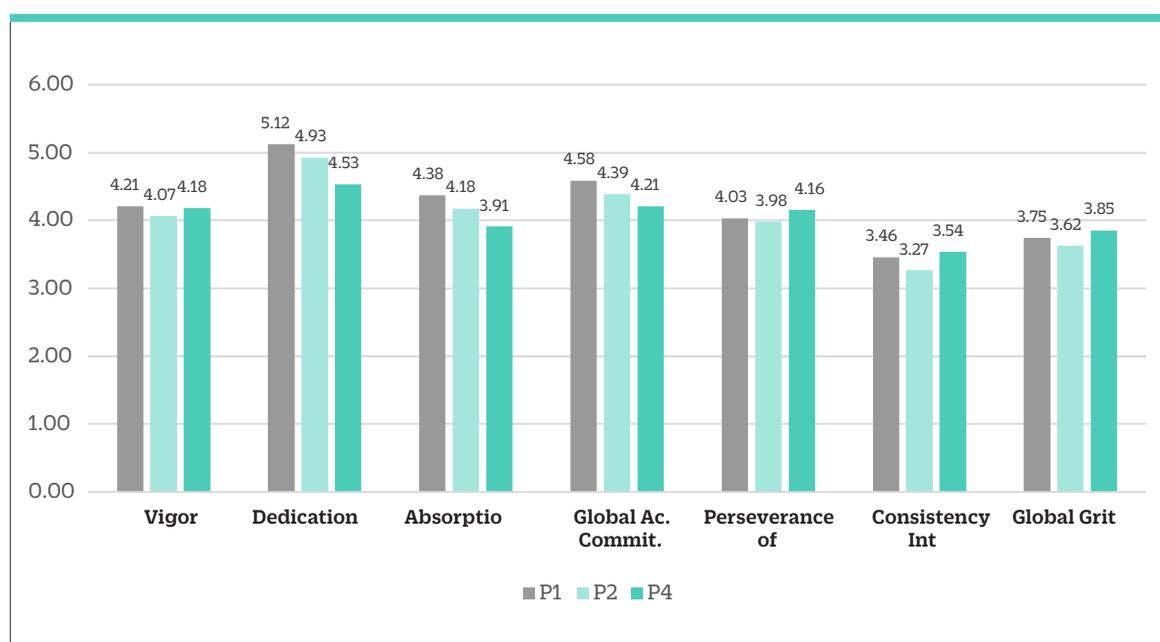
the P4 have greater advantages in persevering and maintaining interest in achieving academic goals.

**Comparison Between the Global Academic Commitment and the Global Grit According to the Graduate Program and the Hours Devoted to Study During the Week**

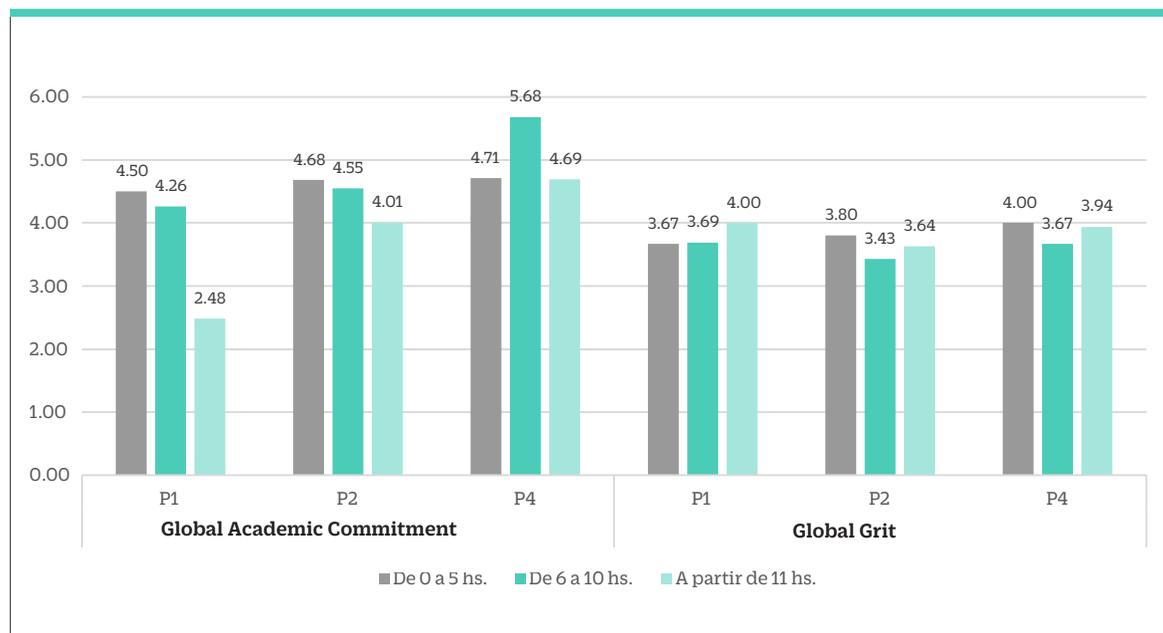
A MANOVA analysis was carried out to confirm if there are statistically significant differences between the global Academic Commitment and the global Grit in terms of the graduate program taken by the students and the hours devoted to study during the week. To this end, the first two dimensions mentioned were taken as dependent variables, and the graduate program and the hours devoted to study during the week were taken as independent variables.

To facilitate the analysis of the data, the latter were categorized into three levels: 1. from 0 to 5 hours; 2. from 6 to 10 hours; and 3. from 11 hours or more to study from Monday to Friday.

In this case, although no statistically significant differences were found either, for the 3 graduate programs, the more hours devoted to study, the higher the level of Academic Commitment and overall Grit achieved by the students were (Figure 2).



**Figure 1.** Comparison between UWES-SS dimensions, Grit Scale factors, and the graduate program  
 Note: own elaboration



**Figure 2.** Comparison Between the Global Academic Commitment and the Global Grit, according to the Graduate Program and Hours Devoted to Study During the Week.

Note: own elaboration

## Discussion

The study of Academic Commitment and Grit, and particularly, their correlation, occupies a preponderant place in the academic and educational field, as these are competencies or character strengths to be promoted within the framework of Character Education.

Through the lines developed, the importance of promoting a comprehensive educational process is reinforced, which contemplates the development of all the student's potential, making special emphasis on all the dimensions of the human being (cognitive, social, affective-motivational, physical, and transcendental), and not focusing only on one or some of them. This way, without undermining the transmission of knowledge, it is crucial that formal education also promotes the social and affective dimension of learners through the development of emotions and positive character traits both in the early stages of the education system and in higher education. The latter—today more than ever—must prioritize the promotion of greater autonomy in its students, which is reflected

not only in their academic results, but also in other aspects of their personal performance, which are those that will ultimately have to be implemented in the labor and social spheres.

It is precisely in this area that this work was developed focusing, in particular, on the study of the Academic Commitment and the Grit, as competencies or character strengths that favor academic retention and performance, and which may present different characteristics in students according to their sex and the program they are studying.

In line with these ideas, the results obtained through the application of the Utrecht Scale on Student Engagement (UWES-SS) and the Grit Scale—aimed at evaluating, in one case, three dimensions of Academic Engagement, and in the other, two factors of Grit or tenacity—show that there are differences according to the sex of graduate students.

In this sense, women achieved the best results in the three dimensions of the UWES-SS and in the Consistency of Interest factor of the Grit Scale, results that coincide with those obtained by other studies, in which the female students stand out

for having higher scores in the Grit Scale (Bazelaïs, Lemay, & Doleck, 2016; Chaustre Jota, 2018; Christensen & Knezek, 2014; Rojas, Reser, Usher, & Toland, 2012) and which would be linked to the natural predisposition of the female sex towards self-discipline, effort, tenacity, and obtaining higher levels of academic performance.

Agreeing with previous studies (Hodge et al., 2018), positive and significant correlations between the UWES-SS subscales and the Grit Scale factors were found, which explains that, at higher levels of academic involvement, higher levels of Grit are found, and vice versa. The only exception that occurred in women, was among the factors of the Grit Scale, which do not present a positive and significant correlation.

This effect could be related to the internal structure of the instrument, as pointed out by Cerda, Saiz, and Vergara (2018).

At the same time, to interpret these results more accurately, Cohen's (1988) suggestions are considered. According to this author, in order to interpret correlations, values between 0.50 and 1.00 points are considered to have a strong correlation; those between 0.30 and 0.50 points, a moderate correlation; those between 0.10 and 0.30 points, a weak correlation; and those between 0.00 and 1.00 points, a null correlation.

This way, the values found in both sexes, between the dimensions of Vigor and Dedication, Absorption, and Global Academic Commitment present a strong positive and significant correlation; the same result is shown among the Grit Scale factors, and between these and the global Grit. In contrast, moderate and weak correlations were found between the UWES-SS dimensions and the Grit Scale factors in both females and males. Thus, if strategies that favor the development of any strength in students are considered, the increase of the other skill will be benefited. These effects also allow to connect the variables inherent to the involvement of the Schaufeli model (Schaufeli, Salanova et al., 2002) with the variables that make up the Grit. In this sense, vigor, dedication, and absorption would be ways through which Perseverance and Consistency of Interest are manifested, thus allowing a subject to achieve long-term goals, which entail, due to the distance in time, to regulate effort, persevere, and

have strength and tenacity.

If we look closely at the results of the Academic Commitment and the Grit according to the students' graduate programs, the absence of statistically significant differences could be related to their current stage of the life process: adulthood. From this perspective, the motivation to participate in a formal or informal educational process is associated to the satisfaction of life goals and to inner enrichment (such as being promoted, adapting to the work environment, solving problems in the labor market, acquiring more knowledge, being able to serve others better) (D'anna & Hernández, 1998), which would coincide with high rates of commitment and Grit.

At the same time, these effects would be related to the characteristics of the students who take each of the graduate programs and who, in the case of those in P1 and P2, work while attending classes, while those in P4 devote themselves exclusively to study.

A similar inference could be associated after corroborating that there are no significant differences between the Global Academic Commitment and the Global Grit according to the students' careers and the hours they spend studying during the week. However, it is worth noting that devoting more hours to study is related to higher levels of Commitment and Grit, a result that is consistent with previous research works (Duckworth et al., 2007). Similarly, the hours devoted to study during the week could be related to the teaching style used in each graduate program, a topic that has been addressed in other research works (Barni, 2019) and that could be further studied in future works to delve into Academic Commitment and Grit.

## Conclusions

On the one hand, the results found allowed to achieve the proposed objectives. In this sense, significant differences were found in the variables studied according to sex, and correlations between them were established. However, no statistically significant differences were found between the levels of Academic Commitment and

Grit in the students of the subsamples made for this study. Likewise, no significant connections were found between the levels of Global Academic Commitment and Global Grit according to the program and the hours devoted to study.

In this sense, the findings allow to consider some strategies to be implemented in educational institutions to facilitate the development of both character strengths in graduate students.

The first of these is aimed at providing theoretical and practical training on the main study constructs of this work to professors and tutors, so that they can stimulate them in students within the learning spaces they are in charge of.

The second one is aimed at monitoring the skills mentioned through the application of the UWES-SS and the Grit Scale instruments, in their versions adapted for the Argentine population, in undergraduate and graduate students with the aim of using the data collected and improving in the learning process that takes place in classrooms or outside them. The development of this strategy will involve the collaborative participation of different areas of the university, such as the areas of quality assessment, pedagogical orientation, and student welfare, among others.

The third strategy could be applied to individual and/or group interviews in the tutoring environment. Specifically, it refers to focusing them on working on aspects derived from the competencies of Academic Commitment and Grit. With regard to the former, the ability to regulate the effort in the face of the difficulties that arise in academic and working life, and the enthusiasm and satisfaction to carry out the activities requested in graduate programs could be addressed. The second ones may focus on addressing topics related to the ability to select ambitious academic, personal, and professional goals that can be achieved. Likewise, it would be convenient to complement the topics addressed in the interviews with other activities organized in the university agenda, allowing them to be integrated into the students' family, professional, and social life.

The fourth strategy refers to applying the suggestions given in the previous point in each subject, and in its pedagogical-educational design. This way, achieving a distant goal in time, such as performing, taking a course, and passing a final exam, is likely to be achieved more easily by setting short-term objectives (Moritz, 2015<sup>1</sup>)—using the strategy known as SMART, in which students are encouraged to learn in a variety of ways—involving the whole group of students—so as to simultaneously promote collaborative learning and self-regulation, and to avoid procrastination.

Due to the nature of the work developed and the sample with which it was carried out, the results achieved—although not generalizable to the study population—are relevant as they provide a description of the profile of the participating students and lay the foundations for future research. Among these, it is worth mentioning the effects that both constructs have on performance, on academic continuity, and on leadership skills; quasi-experimental studies in which the results of a pedagogical experience oriented to promote Academic Commitment and Grit are analyzed. At the same time, it is also recommended to promote research on these topics, including more representative samples of study populations made up of students from various institutions, from other social and geographical contexts of the country, who are studying other programs, and who are part of other levels of the educational system.

Beyond the limitations found, the present work contributes to promote the development of Academic Commitment and Grit in Argentine graduate students. The objective is to design and apply strategies that favor their involvement with learning and the development of skills that are necessary in the labor and social environment.

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1 Moritz (2015) calls this strategy SMART and distinguishes in it several aspects.

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