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# Career adaptability and its relation to self-regulation, career construction, and academic engagement among Spanish university students

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#### 1. Introduction

The changes which have occurred in the labor market in recent decades have resulted in a more flexible attitude to career development given that, among other demands, many workers will have to change jobs a number of times. Although this notion is accounted for in current proposals such as the *Life Design approach* (Di Maggio, Ginevra, Nota, Ferrari, & Soresi, 2015; Nota & Rossier, 2015; Savickas et al., 2009), a change in the dynamics of the labor market has been observed for decades suggesting, for example, the benefits of developing skills to survive the 'workquake' of the '90s, and making proposals to promote an active response to not only successfully enter the labor market but to thrive within it (Bolles, 1994). It could be said that, to a certain extent, a job for life is something of the past, and hence vocational development theories based on the *person-environment fit* are losing practical relevance in relation to other approaches which promote a more active and dynamic attitude towards career development such as the *Career Construction Theory* (Savickas, 2013).

Within this theoretical model the paradigm known as "Life Design" arises (Savickas, 2012) which, by means of life stories, facilitates the exploration of how individuals have constructed their careers. In some cases, people may have to go through a process of *deconstruction* in order to clarify certain misconceptions. Following this, an individual will reconstruct their situation to include the corresponding modifications to correct the misconceptions (*reconstruction*); this process allows for adjustments to be made in order to minimize profound conflicts and facilitate the improvement of self-efficiency. Finally, the process of *co-construction* allows a new identity to emerge, offering new meanings which lead to action in career development.

In line with this shift in the dynamics of the labor market, and therefore in career development trends, the present study aims to examine the validity of the *Career Adapt-Abilities Scale (CAAS)* with Spanish university students, continuing a line of research that has investigated the CAAS in other countries and languages, such as Belgium, China, Italy Portugal, and South Africa (Savickas & Porfeli, 2012). As the scale has already worked well in many languages and different samples, this study aimed to address a major gap in the market to use the scale, namely in Spanish, a language spoken by almost 500 million people worldwide, of which more than 40 million live in the USA (Instituto Cervantes, 2015).

Given that the instrument has proven useful in other countries and with other samples, the aim of this study is to assess whether the CAAS may be applied to further samples, such as Spanish university students, addressing three of the six aspects of Messick's framework (1995) on construct validity: structural (factorial structure), generalizability (use of the CAAS with a Spanish university population), and external (relationships with other constructs).

In addition, this study aimed to test a theoretical model of relationships between the following variables: self-regulation, career adaptability, career construction, academic engagement, and burnout, in the manner outlined below in the theoretical proposal section.

#### 1.1. Career adaptability

Within a more dynamic approach to career development, the concept of career adaptability is becoming increasingly important both in research and in its practical application. Savickas (1997) carried out the first studies of the term inspired by the *life-span*, *life-space approach* (Super, Savickas, & Super, 1996). In recent years there have been a growing number of publications which focus on this concept (Coetzee & Harry, 2014; Porfeli

& Savickas, 2012; Santilli, Nota, Ginevra, & Soresi, 2014; Savickas & Porfeli, 2012; Zacher, 2014). Among the existing definitions of career adaptability it is worth highlighting that by Savickas (1997), who has defined career adaptability "as the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions" (p. 254).

Results obtained in the various studies carried out have generated very favorable data on the role which career adaptability exercises on a number of variables related to vocational development, as well as on a successful adaptation to the workplace environment. For example, results which show how career adaptability is associated with general and professional well-being have been found (Maggiori, Johnston, Krings, Massoudi, & Rossier, 2013). Furthermore, empirical evidence on the predictive value of career adaptability on professional success has been found which go beyond personality traits (Zacher, 2014).

The most influential model on career adaptability was developed by Savickas & Porfeli (2012), which takes into account four dimensions or career adaptation abilities: concern, control, curiosity, and confidence. The first of these, concern, relates to the intention to prepare for the future. The second of these dimensions is control, which entails how an individual assumes responsibility to construct their own career; therefore it is important that individuals assume the responsibility that the decisions they make will influence their professional options in the future. The third is curiosity, which relates to the exploration of oneself and the world of work to find the best possible fit. Career curiosity maintains a relationship with the search for occupational information, which has a long tradition in the field of vocational development. Certain studies have tested the influence of vocational information on a concept known as vocational differentiation; this concept refers to a number of independent dimensions contained within an individual's vocational decision-making

schemata (Parr & Neimeyer, 1994). On the other hand, the search for information has also been linked to the concept of human agency (Solberg, Good, Fischer, Brown, & Nord, 1995), a concept stemming from Self-Efficacy Theory (Bandura, 1986), and related to an individual's ability to exercise control over the events affecting their lives. Finally, the fourth dimension, confidence, relates to the perception of individual ability to successfully make educational and vocational choices; in this sense, effective decision-making training can be fundamental.

#### 1.2. Engagement and burnout

Engagement and burnout are two constructs of growing interest among researchers (Yagil, 2012). The most extended model of burnout considers the following three components: Exhaustion, cynicism, and lack of accomplishment (Maslach, 1976). In terms of the construct of engagement, one of the most used models of work engagement considers the following three components: Absorption, dedication, and vigor (Bakker, Albrecht, & Leiter, 2011). In some way, both variables can be considered opposite poles of a continuum ranging from wellbeing to distress. However, some researchers have gone beyond the traditional proposal of both concepts and have come to claim that "exhaustion and vigor items were scalable on a single underlying bipolar dimension labeled energy, whereas cynicism and dedication items were also scalable on a single, bipolar dimension labeled identification" (González-Romá, Schaufeli, Bakker, & Lloret, 2006, p. 172).

Research on engagement and burnout is broadening its field of interest beyond work settings and is growing within the educational context. Certain research has focused on both concepts with samples of teenagers (Salmela-Aro & Upadyaya, 2013), while others have

focused on the transition from university into the professional world (Salmela-Aro, Tolvanen, & Nurmi, 2011).

Although the study of engagement has fundamentally been applied in work settings, (Bakker et al., 2011), it is gradually becoming incorporated into the field of career development (Kenny, Blustein, Haase, Jackson, & Perry, 2006) and is generating increasing attention among the dynamic approaches to career development, given that it is a concept which is considered a type of proactive behavior. Engagement in vocational behavior has been related to proactive motivation because it relates to an active role in the creation and design of an individual's own vocational development (Hirschi, Lee, Porfeli, & Vondracek, 2013). Currently, there are several studies which address engagement in university students (Hirschi et al., 2013) and also with university students who are concurrently in employment (Creed, French, & Hood, 2015).

According to the theoretical applications derived from previous research, it is expected that positive correlations between career adaptability and engagement will be found given the positive, constructive and proactive nature of both variables. In fact, recent studies have already found positive relationships between career adaptability and work engagement (Rossier, Zecca, Stauffer, Maggiori, & Dauwalder, 2012).

On the other hand, negative correlations between career adaptability and burnout are anticipated, owing to the negative nature of the latter and, eventually, to the lack of dedication to the tasks being carried out at this time.

#### 1.3. Career management and self-regulation

Self-regulation theory has evolved from original perspectives (Bandura, 1986) to more modern views. Currently, theoretical notions of self-regulation have been applied to relevant areas in the workplace, such as employee motivation, goal setting behavior, and personal projects (Cervone, Shadel, Smith, & Fiori, 2006).

Self-regulation theory has also been proven to be a sound framework for career management. The theoretical model of career self-management includes activities such as goal commitment, plan quality, and knowledge of strengths and weaknesses. Among the principle findings, it can be highlighted that career self-management strongly links to career satisfaction, pay increase, and speed in job transition (Raabe, Frese, & Beehr, 2007). Hence, positive correlations between self-regulation and career adaptability can be expected, taking into account the dynamics of personal agency involved in both concepts.

#### 1.4. Theoretical proposal

The present study aimed to test a theoretical model that analyzes the relationship between the variables outlined in the introduction, specifically a four-step model that tests and supports the adaptation model. As Savickas (2013) highlights: "Career construction theory characterizes adaptation outcomes as resulting from adaptivity, adaptability, and adapting. These words denote a sequence ranging across adaptive readiness, adaptability resources, adapting responses, and adaptation results" (p. 157).

The model proposed in this study conceives self-regulation as a measure of adaptivity (which indicates readiness) predicting adaptability assessed by the CAAS, which indicates adaptability resources. This is followed by adapting responses or behaviors as indicated by the

Student Construction Career Inventory (SCCI), and finally, the two adaptation results or outcomes indicated positively by academic engagement and negatively by burnout.

Some studies have tested two or three parts of a four-step model, for example, adaptivity to adaptability to adaptation (see Savickas, 2013). Other research has examined the relationship between career adaptability and work engagement (Rossier et al., 2012). All have found good support. However, this is one of the few, or perhaps the only one, to test the complete four steps at the same time, a major contribution.

#### 1.5. Aims of the current study

Therefore, the general aim of this study was to carry out a validation of the Spanish adaptation of the CAAS with data from Spanish university students. This overall aim included the following specific objectives: (a) to test the reliability of the CAAS as well as its four dimensions; (b) to determine the factorial structure of the CAAS and to establish the consistency levels of the resulting factors. It was expected that the confirmatory analysis produced the four independent factors of concern, control, curiosity, and confidence; and (c) to determine the convergent and criterion-related validity of the CAAS, comparing the results with those obtained with other instruments of vocational development (i.e., SCCI, the Student Career Construction Inventory), and vocational identity (i.e., VIS, Vocational Identity Scale), and also comparing the results with other positive variables such as self-regulation and engagement, and with negative variables such as academic burnout.

We present the following hypotheses related to the validation of the scale:

Hypothesis 1: There is a positive relationship between self-regulation and career adaptability.

Hypothesis 2: There is a positive relationship between career adaptability and career construction (2.a), vocational identity (2.b), and academic engagement (2.c).

Hypothesis 3: There is a negative relationship between career adaptability and academic burnout.

In addition to these objectives and hypotheses, this study aims to test the theoretical model of mediation proposed and described above in section 1.4, theoretical proposal.

#### 2. Method

#### 2.1. Participants and procedure

The sample consisted of 577 Spanish university students (64.8% females), reflecting the current situation in Spanish universities, where more women than men pursue university study. Mean age was 21.66 (SD = 4.24). Data were collected during the academic year 2014-2015. Participants were informed of the aims of the study and were guaranteed anonymity throughout the process. Participants were chosen through non-probability sampling. Participation was voluntary, anonymous and unpaid. Instructions from the original questionnaire were given to the participants for answering the CAAS.

#### 2.2. Measures

The instruments used were translated into Spanish using the technique of back-translation, with the exception of the engagement questionnaire, of which a Spanish version was provided by the authors of the instrument.

#### 2.2.1. Career Adapt-Abilities Scale (Savickas & Porfeli, 2012).

This instrument, conceived within the Career Construction Theory (Savickas, 2013), aims at assessing peoples' abilities to adapt to and to cope with their career construction (Porfeli & Savickas, 2012; Savickas & Porfeli, 2012). The instrument consists of 24 items (e.g. "Thinking about what my future will be like") grouped within four dimensions: Concern (the degree in which a person is implicated in preparing for the future), control (the extent of self-regulation and conscientiousness in decision making), curiosity (the degree in which a person explores the environment and seeks information), and confidence (the extent of certainty a person shows when solving problems and overcoming hurdles). Previous international research (Savickas & Porfeli, 2012) has found internal consistency values for the overall scale of .92, and the following alphas for the subscales: .83 (concern), .74 (control), .79 (curiosity), and .85 (confidence). Subjects are required to answer items through a Likert-type scale ranging from 1 (*not strong*) to 5 (*strongest*) considering the way they have developed the abilities listed. A high score means more adaptability for the four components and for general career adaptability. See the Appendix with the items in Spanish.

#### 2.2.2. Student Career Construction Inventory (Savickas & Porfeli, 2011)

This instrument is a self-report inventory that consists of 25 items (e.g. "Forming a clear picture of my personality") grouped within the following five dimensions: self-concept crystallization, occupational exploration, career decision making, skilling or instrumentation,

and transition from school to work. The SCCI aims to measure coping behaviors or adapting responses that students have made to construct their careers so far. It measures behaviors, not attitudes or competencies. Subjects are asked to answer items through a Likert-type scale ranging from no behavior (1 = I have not yet thought much about it) to completed behavior (5 = I have already done this) relative to actions that address vocational development tasks at the item level, and vocational development tasks at the scale level. High scores indicate that an individual has engaged in more adapting responses or behavior relative to the five developmental tasks measured by the SCCI. Previous research has found internal consistency values for these dimensions ranging from .51 to .89 (Rocha & Guimaraes, 2012).

#### 2.2.3. Vocational Identity Scale (Holland, Daiger, & Power, 1980)

This instrument gives an assessment of the current status of vocational identity by measuring the clarity and stability of subjects' career goals, interests, and talents. The *Vocational Identity Scale (VIS)* has 18 items answered as True or False (e.g. "I need reassurance that I have made the right choice of occupation"). Reliability values found in previous research for the VIS scale ranged from .86 to .89 (Leung, Conoley, Scheel, & Sonnenberg, 1992). Once scores are inverted, a high score means a well-established vocational situation.

# 2.2.4. Academic Burnout-University Form (Boada-Grau, Merino-Tejedor, Sánchez-García, Prizmic-Kuzmica, & Vigil-Colet, 2015)

The original *School Burnout Inventory* (SBI-9; Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009) was created to measure burnout among secondary education students. This study used the Spanish version adapted for university students (Boada-Grau et al., 2015). The instrument

consists of 9 items (e.g. "I feel I am loosing interest in my academic work") grouped within the following three dimensions: exhaustion, cynicism, and inadequacy. Previous research has found internal consistency values between .70 and .77, these values can be considered acceptable if the limited number of items that make up each of the three subscales are taken into account. Items are answered through a Likert-type scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). Higher scores mean more burnout for the three components, and also global burnout.

# 2.2.5. The Self-Regulation Scale (Luszczynska, Diehl, Gutiérrez-Doña, Kuusinen, & Schwarzer, 2004)

The fifth instrument used in this study was a measure of dispositional self-regulation, the *Self-Regulation Scale (SRS)*. A Spanish version of the SRS was supplied directly by the research group at Freie University in Berlin, specifically the most recent version reduced to only seven items (e.g., "If I am distracted from an activity, I don't have any problem coming back to the topic quickly"). Participants answered the 7 items on a scale ranging from 1 (*not at all*) to 4 (*a lot*). Cronbach's alpha values vary between .63 and .87. The SRS yields just one dimension score, the higher the score, the higher the level of self-regulation.

#### 2.2.6. Academic engagement (Schaufeli, Salanova, González-Romá, & Bakker, 2002).

Engagement is a much studied construct in work settings; one of the most used instruments is the *Utrecht Work Engagement Scale (UWES)*. A version of the UWES adapted to university students was used in this study consisting of 24 items (e.g. "I am happy when doing work related to my studies") grouped in three dimensions: dedication, absorption, and vigor. Previous research with student samples has generated data with acceptable levels of

reliability (Cronbach's alpha of .78 for vigor, .84 for dedication, and .73 for absorption). Items are answered through a Likert-type scale ranging from 1 (*never*) to 5 (*always*). A high score means more engagement for the three components and also gives a global engagement score.

#### 3. Results

#### 3.1. Descriptive statistics and reliability analysis

As shown in Table 1, the mean obtained from the CAAS reaches a value of 3.86 (SD = 0.54). Meanwhile, the four dimensions of the CAAS reach similar mean values.

Reliability analysis, through Cronbach's alpha value, yield sound values of internal consistency in most of the variables. In the CAAS the Cronbach's alpha value is one of the highest, .92. These results for reliability are very similar or even better to those obtained in international studies, giving support to the first objective of this study.

In the rest of the variables included in this research, most of the alpha values are sufficient; the lowest reliability values are found in two components of the SBI: exhaustion (alpha = .69) and inadequacy (alpha = .65).

Variable	Minimum	Minimum Maximum		SD	Cronbach's	
					alpha	
CAAS	1	5	3.86	0.54	.92	
Concern	1	5	3.85	0.64	.79	
Control	1	5	4.04	0.65	.80	
Curiosity	1	5	3.67	0.68	.83	
Confidence	1	5	3.88	0.66	.84	
SCCI	1	5	3.40	0.66	.91	
Crystallizing	1	5	3.67	0.70	.77	
Exploring	1	5	2.92	0.86	.79	
Decision making	1	5	3.66	0.94	.87	
Skilling	1	5	3.60	0.86	.84	
Transitioning	1	5	3.09	1.09	.75	
VIS	0	18	11.87	3.78	.80	
SBI-U	1	6	2.74	0.89	.82	
Exhaustion	1	6	3.03	1.00	.69	
Cynicism	1	6	2.24	1.16	.81	
Inadequacy	1	6	2.91	1.24	.65	
Self-regulation	1	4	2.79	0.47	.74	
Engagement	1	7	4.75	0.95	.91	
Vigor	1	7	4.41	1.06	.79	
Dedication	1	7	5.61	1.10	.85	
Absorption	1	7	4.39	1.05	.81	

Table 1. Descriptive statistics and reliability values.

*Note. SBI-U* = *School Burnout Inventory-University form; CAAS* = *Career Adapt-Abilities Scale; SCCI* = *Student Career Construction Inventory; VIS* = *Vocational Identity Scale.* 

#### 3.2. Factorial validity

A second-order confirmatory factor analysis was conducted to check the structure of the CAAS-Spanish Form with the EQS program (Bentler, 2005). The hierarchical model used was composed by the four subscales of the CAAS (concern, control, curiosity, and confidence) which form the general career adaptability factor as in the original article on the CAAS (Savickas & Porfeli, 2012). A one-dimensional model was also estimated, but it presented a poor fit ( $\chi^2 = 1787.79$ , df = 252, p < .001, NNFI = .70, CFI = .72, RMSEA = .103, SRMR = .075). However, the hierarchical model with four factors showed a reasonable fit ( $\chi^2 = 1035.06$ , df = 248, p < .001, NNFI = .84, CFI = .86, RMSEA = .074, SRMR = .057) and a significant improvement over the one-dimensional model ( $\Delta \chi^2 = 752.73$ ,  $\Delta df = 4$ , p < .001). These indices of fit are close to established joint fit criteria by Hu & Bentler (1999) and they

are very similar to those obtained in previous studies performed in China, the Netherlands, and Switzerland, although they are lower than the CAAS-International model, which were CFI = .92, RMSEA = .053, and SRMR = .039 (see Savickas & Porfeli, 2012).

The fit of model is improved ( $\chi^2 = 751.0$ , df = 244, p < .001, NNFI = .90, CFI = .91, RMSEA = .060 and SRMR = .050) including four error covariances between items pairs (23-24, 1-2, 19-20, and 13-14), which represent systematic error rather than random measurement error derived from an overlap in item content (Byrne, 2006). This modification has also been performed in the previous CAAS adaptations carried out by Rossier et al. (2012) and Urbanaviciute, Kairys, Pociute, & Liniauskaite (2014).

The standardized loadings (see Table 2) suggest that all the items are strong indicators for the constructs of concern (.52 to .72), control (.49 to .71), curiosity (.61 to .71), and confidence (.57 to .73), which are in turn strong indicators of the adaptability construct (.80 to .90). These results give support to the second specific objective of this research.

Construct	Item (first-order indicators)	Mean	SD	Loading
Concern	1. Thinking about what my future will be like	3.92	0.93	.52
	2. Realizing that today's choices shape my future	3.85	0.89	.56
	3. Preparing for the future	3.91	0.91	.72
	4. Becoming aware of the educational and career choices	3.84	0.91	.64
	that I must make			
	5. Planning how to achieve my goals	3.67	0.95	.67
	6. Concerned about my career	3.88	0.92	.56
Control	1. Keeping upbeat	3.62	1.12	.49
	2. Making decisions by myself	4.10	0.88	.70
	3 Taking responsibility for my actions	4.17	0.82	.71
	4 Sticking up for my beliefs	4.21	0.84	.61
	5 Counting on myself	4.01	0.92	.71
	6 Doing what's right for me	4.12	0.85	.68
Curiosity	1. Exploring my surroundings	3.48	0.92	.61
	2. Looking for opportunities to grow as a person	3.71	0.97	.64
	3. Investigating options before making a choice	3.81	0.90	.71
	4. Observing different ways of doing things	3.71	0.87	.69
	5. Probing deeply into questions I have	3.48	1.01	.66
	6. Becoming curious about new opportunities	3.83	0.86	.65
Confidence	1. Performing tasks efficiently	3.78	0.90	.57

Table 2. Career Adapt-Abilities Scale: Items, descriptive statistics, and standardized loadings.

	2. Taking care to do things well	4.03	0.86	.62
	3. Learning new skills	3.78	0.91	.65
	4. Working up to my ability	3.80	0.95	.73
	5. Overcoming obstacles	3.95	0.86	.70
	6. Solving problems	3.95	0.84	.67
Construct	Construct (second-order indicators)	Mean	SD 1	Loading
Adaptabilit	y 1. Concern	3.85	0.64	.80
	2. Control	4.04	0.65	.83
	3. Curiosity	3.68	0.68	.81
	4. Confidence	3.88	0.66	.90
		0.01		

*Note:* All of the loadings are statistically significant at  $\alpha = 0.01$ .

#### 3.3. Convergent and criterion-related validity

The results obtained from this analysis are shown in Table 3. As shown, the Pearson correlation coefficients indicate that all variables displayed significant correlations in the manner expected, giving support to the external aspect of construct validity (Messick, 1995).

As was expected, positive correlations between the CAAS and self-regulation were found (r = .46, p < .001), most notably the dimension of control with the highest value (r = .47, p < .001), while the lowest value corresponds to curiosity (r = .31, p < .001). These results lend support to hypothesis 1.

As can be seen, the CAAS showed significant, positive correlations with the two instruments on career development: The SCCI (r = .64, p < .001), and the VIS (r = .32, p < .001). Furthermore, there are also positive and significant correlations between the global score of the CAAS and every factor of the SCCI, particularly with crystallizing, showing the highest value (r = .57, p < .001); meanwhile the lowest correlation was found with transition from school to work (r = .37, p < .001). These results give support to the convergent validity and also to hypotheses 2.a, and 2.b.

Moreover, the four dimensions of the CAAS also correlate with all of the dimensions on the SCCI, the highest obtained being that between concern and skilling or instrumentation and

between control and crystallizing, which reach the same value (r = .50, p < .001); meanwhile the lowest correlation was that which appears between control and transition from school to work (r = .21, p < .001). The remaining correlations between each of the factors of both instruments appear in detail in Table 3.

In terms of engagement, a positive and statistically significant correlation appeared both in the overall score of the CAAS (r = .55, p < .001), and in each one of the four dimensions: concern (r = .46, p < .001), control (r = .38, p < .001), curiosity (r = .40, p < .001), and confidence (r = .56, p < .001). As for the correlations between the factors of engagement and the CAAS, although these are not reflected in the table, positive and statistically significant correlations were also found: vigor (r = .51, p < .001), dedication (r = .45, p < .001), and absorption (r = .48, p < .001). These results lend support to hypothesis 2.c, and corroborate those obtained in previous studies in which the relationship between engagement and career adaptability assessed on the CAAS is confirmed (Rossier et al., 2012).

Regarding the state of burnout, the results of the CAAS correlate negatively and statistically significantly with academic burnout. The correlations were negative as much for the overall CAAS score (r = -.22, p < .001), as for the four dimensions: concern (r = -.11, p = .01), control (r = -.26, p < .001), curiosity (r = -.10, p = .023), and confidence (r = -.26, p < .001). Similar results were found with the relationship between two of the dimensions of burnout and the CAAS: cynicism (r = -.22, p < .001), and inadequacy (r = -.22, p < .001). The only dimension which did not produce significant results was exhaustion. These results give support to hypothesis 3.

Therefore, the results obtained are sufficiently sound to support the validity of the CAAS scale, given that positive correlations were found between the CAAS and the two instruments of career development, the SCCI and VIS (supporting the convergent validity), as well as

between the CAAS and positive variables such as engagement and self-regulation. Furthermore, negative correlations between the CAAS and one negative variable, academic burnout, were obtained (supporting the criterion validity). These results give support to the third specific objective of this research.

Table 3. Correlations between variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Self-Regulation									X						
2.Engagement	.31**							5							
3.SBI-U	21**	28**						5							
4.CAAS	.46**	.55**	22**												
5.Concern	.34**	.46**	11**	.80**			5								
6.Control	.47**	.38**	26**	.82**	.50**		2								
7.Curiosity	.31**	.40**	10*	.82**	.57**	.55**	*								
8.Confidence	.40**	.56**	26**	.84**	.55**	.63**	.55**								
9.SCCI	.37**	.39**	14**	.64**	.57**	.44**	.57**	.50**							
10.Crystallizing	.35**	.30**	11**	.57**	.48**	.46**	.50**	.42**	.73**						
11.Exploring	.27**	.28**	04	.46**	.39**	.27**	.46**	.36**	.81**	.42**					
12.Decision making	.31**	.35**	19**	.51**	.48**	.38**	.39**	.40**	.83**	.50**	.53**				
13.Skilling	.26**	.34**	15**	.53**	.50**	.34**	.46**	.42**	.78**	.46**	.52**	.65**			
14.Transitioning	.24**	.21**	09*	.37**	.34**	.21**	.37**	.28**	.66**	.35**	.48**	.50**	.50**		
15. VIS	.28**	.31**	34**	.32**	.29**	.29**	.18**	.29**	.32**	.27**	.12**	.37**	.32**	.20**	

Note. \*p < .05; \*\*p < .01; SBI-U = School Burnout Inventory-University form; CAAS = Career Adapt-Abilities Scale; SCCI = Student Career Construction Inventory; VIS = Vocational Identity Scale.

#### 3.4. Mediation analysis

Several analyses of models of structural equations with latent variables have been carried out in order to test the meditation model. The dimensions of the questionnaires were used as indicators for the latent variables (CAAS = concern, control, curiosity, and confidence; SCCI = crystallizing, exploring, decision making, skilling, and transitioning; academic engagement = dedication, absorption, and vigor; academic burnout = exhaustion, cynicism, and inadequacy), except in the case of self-regulation as, being one-dimensional, three groups of items with similar characteristics were formed. The indices of fit of the models considered can be seen in Table 4.

Table 4. Mediation models.

		$\chi^2$	df	NNFI	CFI	SRMS	RMSEA	$\Delta \chi^2 (\Delta df)$	р
Model 1	А	247.25	52	.909	.929	.053	.081	1.02(1)	313
Model 1	В	246.23	51	.908	.929	.053	.082	1.02(1)	.515
Model 2	А	455.76	87	.886	.905	.075	.086	01.88(3)	< 001
	В	363.95	84	.910	.928	.052	.076	91.00(3)	<.001

Note. A = indirect effects; B = direct effects; NNFI = nonnormed fit index; CFI = comparative fit index; SRMS = starndardized root-mean-square residual; RMSEA = root-mean-square error of approximation.

Initially, the three-step sequence was tested (Model 1). As can be seen in Table 4, the indices of goodness of fit are acceptable, both when direct effects are not included (A: NNFI = .909, CFI = .929, SRMS = .053, RMSEA = .081), and when these are introduced (B: similar values), with no statistically significant differences between them ( $\Delta \chi^2 = 1.02$ ,  $\Delta df = 1$ , p = .313). The indirect effect of SR upon the SCCI is statistically significant ( $\gamma = .371$ , p < .001), but not the direct effect ( $\gamma = .054$ , p = .308). Therefore, these results confirm the mediation model in Figure 1, which affirms that self-regulation influences career construction (SCCI) through the effect it has on the CAAS.



*Figure 1*. Model 1 with 3 steps (SR = Self-Regulation; CAAS = Career Adapt-Abilities Scale; SCCI = Student Career Construction Inventory). Indirect effects (above), and direct effects (below).

--> Indirect effects → Direct effects n.s. = not significant

On the other hand, the four-step sequence (Model 2), shows acceptable goodness of fit indices when the direct effects are not included (A: NNFI = .886, CFI = .905, SRMS = .075, RMSEA = .086), improving significantly when these are introduced (B: NNFI = .910, CFI = .928, SRMS = .052, RMSEA = .076;  $\Delta \chi^2 = 91.88$ ,  $\Delta df = 3$ , p < .001). The direct effect of SR upon the SCCI was not statistically significant ( $\gamma = .057$ , p = .277), although the indirect effect is ( $\gamma = .361$ , p < .001), confirming the mediator role of the CAAS (see Figure 2). However, the mediation by the SCCI between the CAAS and engagement was not supported as neither the direct influence of the SCCI upon engagement is significant ( $\gamma = .060$ , p =.399), nor the indirect effect of the CAAS ( $\gamma = -.042$ , p = .404). However, the results did indicate that the CAAS had a strong direct effect upon engagement ( $\gamma = .614$ , p < .001), and exercises a partial mediation between self-regulation and engagement, given that both the

direct effect ( $\gamma$  = .123, p = .024), and the indirect effect ( $\gamma$  = .294, p < .001) of self-regulation were statistically significant. When burnout was incorporated as a result within the model, the same pattern of results is obtained but with a worse goodness of fit.



*Figure 2.* Model 2 with 4 steps (SR = Self-Regulation; CAAS = Career Adapt-Abilities Scale; SCCI = Student Career Construction Inventory; EN = Engagement). Indirect effects (above), and direct effects (below).

- --> Indirect effects
- → Direct effects
- n.s. = not significant

#### Discussion

The overall aim of the present study was to validate the CAAS in Spanish. Taking into account the results obtained, the CAAS would seem to offer favorable psychometric properties for its use in the assessment of career adaptability in a different language to those studies carried out until now. There follows the conclusions relating to the degree of fulfillment of each of the three objectives outlined in the introduction.

In terms of the first objective, concerning the internal validity measured using Cronbach's alpha coefficient, the data obtained were favorable, as much for the scale in general as for each of its four components: concern, control, curiosity, and confidence. The results are in line with the reliability scores obtained in international studies with other samples and in other languages (Porfeli & Savickas, 2012; Savickas & Porfeli, 2012).

Furthermore, in terms of the second objective related to the internal structure of the scale, the confirmatory factorial analysis corroborated the same structure of four components proposed in the initial model and confirmed in the various countries in which validation of the CAAS has been carried out (Di Maggio et al., 2015; Rossier et al., 2012; Savickas & Porfeli, 2012).

In terms of the third objective, concerning construct validity, both the scale in general as well as each one of the four factors showed positive correlations with other instruments of vocational development such as the SCCI and the VIS, which supports the convergent validity of the scale and also hypotheses 2.a, and 2.b, respectively. Moreover, the results obtained support the criterion validity, given that the CAAS scale in general and each one of its four factors show positive correlations with positive variables such as the two used in this study, engagement and self-regulation. Particularly noteworthy for bearing the highest value is the

relationship between confidence and engagement, as well as the relationship between control and self-regulation. The results obtained for engagement lend support to the second hypothesis, and are in line with those found in previous studies with employed people (Rossier et al., 2012).

Furthermore, as it was expected, negative correlations were obtained between the CAAS in general and negative variables, in this case academic burnout. The four dimensions of the CAAS obtained negative correlations with the level of burnout with the most intense relationships found between the dimensions of control and confidence. These results give support to hypothesis 3, which states that there is a negative relationship between career adaptability and burnout.

The confirmation of the hypotheses established in this study serves to strengthen the theoretical model proposed. The model proposed in this study considers self-regulation as a measure of adaptivity predicting adaptability assessed by the CAAS, which indicates adaptability resources. This statement is related to hypothesis 1, which states that there is a positive relationship between self-regulation and career adaptability. In a second step, this relationship is followed by adapting responses or behaviors as indicated by the SCCI, which forms hypothesis 2.a, there is a positive relationship between career adaptability and career construction. In the final step, the two adaptation results or outcomes indicated by academic engagement and burnout are considered.

The mediation analysis confirms the three-step sequence model with the variables of selfregulation (adaptivity), career adaptability (adaptability resources), and career construction (adapting responses). However, the results do not support the four-step sequence model as the relationship between the SCCI and engagement is not supported. Therefore, the four-step model presents a limitation in the final phase with the incorporation of engagement and

burnout (adaptation results). Two possible explanations for this finding could be (a) the strong correlation between the CAAS and the SCCI and (b) that the variables in the sequence were measured at the same time in this cross-sectional study. Also, engagement and burnout may be process variables more similar to adapting and the SCCI than to true outcome variables such as satisfaction, success, and stability. Therefore, future studies could attempt to replicate these results with a different sample and other indicators of adaptation results (i.e., career satisfaction, job search success, promotions), in a longitudinal study which would allow the sequence of casual relationships in the model to be tested.

In conclusion, the CAAS, which has been proven useful in many countries, is also an appropriate tool for measuring levels of career adaptability among Spanish university students, as much for its psychometric properties of internal consistency, as for its factor and construct validity. The transcendence of this study stems from the fact that if we wish to aid university students to achieve a suitable career development, it may be beneficial to know beforehand their state and level of career adaptability, by means of the CAAS.

Using the CAAS could be beneficial for evaluating interventions into professional development which aim to help young people to join and remain within the labor market in a country such as Spain, in which the unemployment rate is around 21.18%, reaching almost 30% in certain sectors of the young population (Instituto Nacional de Estadística, 2015). The influence and impact that these figures may have on young people seeking employment should be taken into account within career adaptability interventions.

In terms of possible future lines of research there is, for example, the possibility to carry out a comparative study with students from different universities or plans of study to identify whether there are any significant differences between them in career adaptability. Other lines of study may also be considered, such as the relationship between the CAAS and emotional

intelligence, one aspect of growing interest among researchers of career development (Coetzee & Harry, 2013; Di Fabio, & Saklofske, 2014; Puffer 2011). Particularly, the mediating role of engagement and burnout or the influence of emotional intelligence on career adaptability could be studied.

Another future line of research could be a longitudinal analysis of whether university students participating in vocational development programs, make significant improvements in career adaptability. Furthermore, it would be extremely useful to test whether individuals with greater adaptability are capable of carrying out professional activities which are not directly related to their university studies.

In terms of the limitations of the study carried out, several may be noted. Firstly, the research is transversal and a convenience (not probability) sample was used. However, as Highhouse & Gillespie (2008) indicate, in many cases the use of accidental samples does not present a significant threat to the validity of the study and, furthermore, although in the present study the sample is accidental, it does include students from different disciplines. A longitudinal study would certainly aid in understanding the impact of career adaptability on university students, from the first year to the last.

Finally, the use of self-reporting could have caused the increased association among variables due to common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Despite this limitation, self-reporting has been widely used in studies into career adaptability (Savickas & Porfeli, 2012), given that this allows for individual perceptions of and attitudes to the construct being researched to be precisely recorded.

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#### Appendix. Career Adapt-Abilities Scale – Spanish Form

**Instrucciones:** Las personas usan diferentes estrategias (*entendidas como puntos fuertes o fortalezas*) para construir sus carreras. Nadie es bueno en todo, cada uno de nosotros hace hincapié en algunas estrategias más que en otras. Por favor, califica la intensidad con que has desarrollado cada una de las siguientes habilidades usando la escala que aparece a continuación: (1 = mínima; 2 = poca; 3 = media; 4 = mucha; 5 = máxima).

Constructo	Íte	ems
Implicaciór	n 1.	Pensando en cómo será mi futuro
	2.	Dándome cuenta de que las opciones de hoy determinan mi futuro
	3.	Preparándome para el futuro
	4.	Tomando conciencia de la educación y de las opciones vocacionales que debo
		tomar
	5.	Planificando cómo conseguir mis objetivos
	6.	Preocupándome por mi carrera
Control	7.	Siendo optimista
	8.	Tomando decisiones por mí mismo/a
	9.	Siendo responsable de mis acciones
	10.	Defendiendo las cosas en las que creo
	11.	Contando conmigo mismo/a
	12.	Haciendo lo que considero correcto para mí.
Curiosidad	13.	Explorando mi entorno
	14.	Buscando oportunidades para crecer
	15.	Explorando las opciones antes de hacer una elección
	16.	Observando diferentes formas de hacer las cosas
	17.	Indagando profundamente los interrogantes que tengo
	18.	Siendo curioso/a ante las nuevas oportunidades
Confianza	19.	Llevando a cabo las tareas de forma eficiente
	20.	Teniendo cuidado de hacer bien las cosas
	21.	Aprendiendo nuevas habilidades
	22.	Trabajando y/o estudiando de acuerdo a mis capacidades
	23.	Superando los obstáculos
	24.	Solucionando los problemas

#### HIGHLIGHTS

The Career Adapt-Abilities Scale (CAAS) showed sound psychometric properties.

CFA verified the four factors: Concern, control, curiosity, and confidence.

The CAAS correlated positively with vocational identity and career construction.

The CAAS correlated positively with engagement and self-regulation.

The CAAS correlated negatively with academic burnout.