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# College Satisfaction Scale (CSS): Evaluation of contextual satisfaction in relation to college student life satisfaction and academic performance

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✎ **ABSTRACT.** Molti studi, adottando prospettive legate alla prevenzione e alla promozione della qualità della vita, si sono focalizzati sulla rilevazione dei fattori che promuovono od ostacolano il benessere e i risultati accademici degli studenti universitari. Lo scopo del presente studio è di creare e validare un nuovo questionario per valutare la soddisfazione dominio-specifica nel contesto universitario: la College Satisfaction Scale (CSS). Il questionario è composto da 20 item che valutano la soddisfazione degli studenti in 5 dimensioni: congruenza della scelta del corso di laurea, qualità dei servizi universitari, rapporti con i colleghi e le colleghe, qualità del metodo di studio e utilità del corso di laurea per il futuro professionale. Hanno partecipato alla ricerca 425 studenti universitari italiani, ai quali vanno aggiunti 88 studenti che hanno partecipato al precedente studio pilota. Sia l'affidabilità, valutata con l'indice Omega, sia la validità di costrutto, stimata attraverso l'analisi fattoriale confermativa, offrono buoni risultati per tutte le dimensioni del questionario. I risultati hanno mostrato che i punteggi di efficienza accademica sono fortemente legati alla soddisfazione per la qualità del metodo di studio e leggermente correlati ad alcune delle altre aree di soddisfazione.

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✎ **SUMMARY.** A large number of studies have identified factors that foster or inhibit well-being and academic achievement of college students from the perspective of prevention and quality of life promotion. The aim of the present study was to create and validate a new questionnaire to assess domain-specific satisfaction at University: the College Satisfaction Scale (CSS). It is composed of 20 items to measure 5 dimensions: appropriateness of the student's choice, quality of the University services, relationships with his/her colleagues, quality of his/her study habits and usefulness for his/her future career. Participants were Italian college students: 88 in the pilot study and 425 in the actual one. Both reliability, assessed with Omega index, and construct validity, estimated through confirmatory factor analysis, were good for all the subscales. The results showed that both average grade scores and academic efficiency were strongly related to satisfaction with the efficiency of studying and slightly related with some of the other subscales.

**Keywords:** College satisfaction, Life satisfaction, Academic performance

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## INTRODUCTION

Students' persistence in college is a problematic issue for many countries. In the United States, around one fifth to one quarter of college students drop out at the end of their freshman year (Ryan, 2004). In Italy, 4 students in 10 leave the University system before obtaining a first-level college degree (Anvur - Biennial report on the status of universities and research, 2014), and the first year at college is a significant period for dropout risk (Census - 11th report on the status of University system, 2011). Regarding this issue, a large number of studies are focused on students' characteristics explained by the "student-centered research tradition" (Smart, Feldman & Ethington, 2006); other studies are focused on how universities can create conditions for student persistence (Berger & Milem, 2000; Chen, 2012). Interest in academic adjustment has recently been increasing along with the evaluation of domain-specific satisfaction, as various studies on students' well-being are related to their academic fit, retention and success. There is also a need for measuring domain-specific satisfaction because, from the perspective of prevention and health promotion, many psychological disciplines are focused on identifying factors that foster or interfere in well-being and quality of life (Seligman, 2002). Some authors have indicated that the concept of satisfaction is also important when applied to the educational context, but there are few studies about this subject, as well as a lack of reliable scales to measure it (Martins, 1998; Sisto et al., 2002). Actually, literature offers several instruments that show some criticism: some of them are multidimensional but they are too long, others are short but one-dimensional. Since domain-specific satisfaction contributes to overall satisfaction in students' lives (Lent et al., 2005), it is necessary to have a reliable, short and multidimensional domain-specific instrument to evaluate satisfaction in the academic context.

## LITERATURE REVIEW

### Domain-specific satisfaction and relationship with overall life satisfaction

Adopting a social-cognitive view of work and educational satisfaction, Lent (2004) proposed to unify perspectives on subjective and psychological well-being in which cognitive,

behavioural, social and personality variables jointly define domain-specific and global life satisfaction. This model, although primarily aimed to explain the assessment of job satisfaction, can be adapted to understand domain-specific satisfaction in the educational context. In fact, consistent with the framework of Social-Cognitive Career Theory (SCCT), education and work are interconnected areas. Consequently, Lent & Brown (2008) believe that the well-being model can be extended to students' satisfaction with the educational context (i.e. satisfaction with their role as a student). Domain satisfaction is one of the antecedents of overall life satisfaction, and it is determined by personality factors and socio-cognitive mechanisms such as self-efficacy and environmental supports (Lent, Taveira, Sheu & Singley, 2009). Education and work are so central to people's lives that satisfaction with social ties and the mood in the workplace (Judge & Ilies, 2004; Rain, Lane & Steiner, 1991) can be extended to all other areas, such as the family environment. In the same way, school or University is equally important in the lives of teenagers and young adults, and satisfaction in this field affects other areas of their lives. In fact, Lent et al. (2007) defined academic satisfaction as the enjoyment of one's role or experiences as a student.

Life satisfaction is influenced by various factors, such as personality traits (positive and negative affect), behavioural characteristics and cognitive processes (Diener Emmons, Larsen & Griffin, 1985; Lent & Brown, 2008). The concept of life satisfaction is associated with social, occupational, mental and physical health outcomes (Pavot & Diener, 2008; Whisman & Judd, 2015). Several authors (Brief, 1998; Heller, Judge & Watson, 2002) have found relationships between domain-specific and general life satisfaction. In particular, they have observed that the two fields are affected by a sort of "osmosis", a relationship between the part and the whole (Judge & Locke, 1993).

Since academic satisfaction is defined as the expected satisfaction with the accomplishment of academic goals or aspirations (Kumar & Dileep, 2006), domain-specific satisfaction can also be affected by variables related to career choice. In fact, academic satisfaction scores have been positively associated with career decision self-efficacy and negatively associated with career choice anxiety and indecision (Nauta, 2007). The congruence between professional interests and the type of academic major choice influences academic performance and satisfaction even more than academic abilities do; students enrolled in academic

programs that are coherent with their professional interests are the most satisfied (Tracey & Robbins 2006).

Finally, educational satisfaction, life satisfaction and satisfaction with one's relationships are significant predictors of positive outcomes in several spheres of life (Wilkins et al., 2014). In fact, adolescents with high life satisfaction have a higher level of physical health, experience enhanced social relationships and show better academic engagement and achievement (Lewis, Huebner, Malone & Valois, 2011; Salmela-Aro & Tuominen-Soini, 2010; Suldo, Huebner, Savage & Thalji, 2011; Suldo & Shaffer, 2008; Suldo, Thalji & Ferron, 2011; Wilkins et al., 2014).

## Academic persistence and academic performance: relationship with academic satisfaction

In the literature of the last decades, performance in college assessed by GPA (Grade Point Average) has been the most used indicator to explain the intention of leaving college. Some studies have shown that first-year college GPA is a significant predictor both of early dropout (Ma & Cragg, 2012) and late dropout: a longitudinal study of Spady (1971) underlined that formal academic performance was evidently the main factor related to attrition. Other studies have highlighted that during the freshman year, the combined effect of performance and satisfaction (with courses and college in general) conditions the dropout phenomenon (e.g. Edwards & Waters, 1982).

Several studies have shown that academic performance and satisfaction are related in many ways. From a socio-cognitive point of view, performance can be considered feedback about the progress toward objectives, and the perception of this kind of progress can be considered a predictor of well-being (e.g. Elliot, Sheldon & Church, 1997) that also conditions the motivation of the student (Lent, Brown & Hackett, 1994). Lent & Brown (2008) underlined that domain-specific goals affect students' satisfaction, in particular through their definition, commitment and advancement towards them. Moreover, academic satisfaction is linked to performance and predicts engagement and consequent academic advancement (Huebner & Gilman, 2006; Huebner & McCullough, 2000; Verkuyten & Thijs, 2002).

Nurmi, Aunola, Salmela-Aro & Lindroos (2003) found that students' anticipation of success predicted academic

achievement and satisfaction, which in turn improved their subsequent expectation of success. Chambel & Curral (2005) showed that satisfaction has a direct impact on academic performance and that it mediates between academic work control and performance. Strahan & Credé (2015), using a large dataset from 300 institutions, found that college satisfaction exhibits from moderate to strong relationships with retention intentions and weak relationships with academic performance. Kandemir (2014) argued that students' academic unproductiveness may reduce learning motivation, thus increasing academic procrastination. For this author, life satisfaction is a significant variable of academic procrastination (Kandemir, 2014), and other authors have underlined the negative effect of life satisfaction in predicting academic procrastination (e.g. Savithri, 2014). According to these studies, when students are satisfied with their life, their academic procrastination decreases, while their responsibility and motivation to cope with academic duties increase.

Another group of studies underlined the role of context on performance and satisfaction. El-Hilali, Al-Jaber & Hussein (2015), for example, found that students with high GPAs showed a higher level of achievement and satisfaction. Schmitt et al. (2008) showed that academic fit leads to academic satisfaction; in particular, changes in academic fit were related to similar changes in level of satisfaction and GPA and were negatively related to turnover intent. Karemera, Reuben & Sillah (2003) highlighted that satisfaction with the environment and academic services was related with performance, and the appropriateness of library services was linked with positive college results. Finally, some authors have also underlined the effects of elements of the "physical" environment (adequate materials, number of classrooms, campus cleaning, etc.) and the reliability and utility of the University (in terms of programs and acquired knowledge) on college students' level of satisfaction (Negricea, Edu & Avram, 2014). Finally, Silva (2001) argues that academic satisfaction refers not only to the training experience but also to factors such as the student's relationships with teachers, colleagues, administration, facilities and resources (Astin 1993).

## Assessment of Academic Satisfaction

The most used scales in previous research on academic satisfaction are the following:

- The *College Student Satisfaction Questionnaire* (CSSQ)

(Starr, Betz & Menne, 1971) consists of 70 items grouped in five scales that are related to various aspects of college life; it evaluates the student's degree of satisfaction on the following five scales: Working Conditions, Compensation, Quality of Education, Social Life and Recognition.

- The *Perceived Quality of Academic Life* (PQAL) (Staats & Partlo, 1990) consists of 10 items, which come from a modified version of the Feelings About College (FAC) scale (Okun et al., 1986).
- The *Student Satisfaction Inventory* (Elliott & Shin, 2002) consists of 116 items that cover a full range of college experiences. Students are asked to rate each college experience with regard to 'importance' and 'satisfaction'. Students are also asked three summary questions dealing with (a) 'overall satisfaction' with their educational experience (b) level of expectations met by their college, and (c) whether they would enrol again at their college.
- The *Academic Major Satisfaction Scale* (AMSS) evaluates global major satisfaction (Nauta, 2007) and is composed of six items. This scale has also been validated on a Korean sample (Sovet, Park & Jung, 2014)
- The *Scale of Academic Satisfaction* (Lent et al., 2007) is a 7-item scale. The authors found academic satisfaction to correlate in the expected direction with self-efficacy, outcome expectations and goal progress, and the scale was found to be strongly reliable.
- The *Academic Satisfaction Scale* (Schmitt et al., 2008) includes five items designed to assess students' academic satisfaction. This scale has also been validated on a Turkish sample (Balkis 2013).

Other scales, as the *Course Experience Questionnaire* (Ramsden, 1991), the *Brief Multidimensional Students' Life Satisfaction Scale* (Huebner, 1994), and the *Escala de Satisfação Acadêmica Universitária* (Sisto et al., 2008), have been designed to assess several facets of students' experience (i.e. quality of instructor, campus environment, friends, etc.), including satisfaction. One limitation of those scales is the large number of items necessary for assessing each facet of college students' life. In the end, some authors use brief scales created ad hoc (Negricea et al., 2014; Nurmi et al., 2003).

Considering the analysis of the literature review, the available instruments seem to have some limitations: some of them are too short and one-dimensional, providing information only on an global satisfaction; others, on the contrary, even though explore different dimensions of the academic satisfaction, are too long: in a perspective

of prevention, the use of a battery of instruments with many items makes difficult the realization of a screening for early detection of the academic difficulties. For these reasons, we decided to propose a new questionnaire, the College Satisfaction Scale (CSS), which serves as a more comprehensive measure of academic satisfaction in a multidimensional perspective, more concise, but with good psychometric characteristics. With respect to the previous scales, this new instrument assesses different dimensions of academic satisfaction (choice, study, environment, etc.) using a reduced number of items, despite the multidimensional nature of the information obtained.

## AIMS

Considering the analysis of the literature, the study presents the development of a new instrument for the assessment of academic satisfaction and its psychometric properties.

The main aims of this study are:

- 1) to build a reliable and useful instrument to assess different areas of college students' satisfaction in the academic context;
- 2) to confirm the validity of the scale scores through the *SWLS - Satisfaction With Life Scale* (Diener et al., 1985) as an external criterion;
- 3) to explore the relationship of the new instrument with academic performance and efficiency.

## METHODOLOGY

### Item development

Three independent experts in vocational and educational guidance selected 77 initial items from the analysis of scientific literature and existing tests (Nauta, 2007; Schmitt et al., 2008; Sisto et al. 2008). The initial form covered some macro areas of satisfaction (study, performance, relationship with teachers, relationship with colleagues, academic fit, course choice, physical environment, professional future). Then 36 items were discarded because at least one of three independent judges considered it inadequate to evaluate academic satisfaction or because there were already very similar items. At the end, 41 items remained and they were submitted to a small number of students in order to verify the

items' understandability and no modifications were made. This version was then administered in the pilot study. The final version, after the item analysis consists of 20 items.

## Pilot study: scale construction

The aim of the pilot study was to develop the basic structure of the CSS by:

- choosing latent factorial structure through principal component analysis (PCA);
- selecting a small number of items;
- providing evidence regarding the internal consistency through McDonald's omega, which overcomes some weakness of the Cronbach's alpha (Dunn, Baguley & Brunsden, 2014).
- *Participants.* A pilot study was conducted on 88 Italian college students attending a Psychometrics course during the second semester of the second year. Females were more represented than males (90.9% vs 9.1%), and 80.7% were 21 years old or younger.
- *Procedure.* We asked the students to compile the questionnaire anonymously online to build a database for class exercises indicating how satisfied they were with each sentence using a 5-point Likert scale: 1 = not at all, 2 = a little, 3 = somewhat, 4 = very, 5 = completely.
- *Results.* Descriptive statistics showed normal distribution for all the items with skewness and kurtosis from -1 to 1. This allowed us to test a Principal Axes Factoring with Oblimin Rotation with Kaiser Normalization. At a first step, we used an Eigenvalue bigger than 1 as the criterion. It extracted 10 factors explaining 63.14% of variance, some with a large number of items, some with a small number. After, a series of tests was conducted to eliminate those items that were less related to the others. Table 1 shows the final result; the Factorial Model Matrix describes a model composed of 5 factors of 4 items each, explaining 57.02% of variance: appropriateness of the student's choice (CH; i.e. "For choosing this academic path"); quality of the University services (SE; i.e. "Because my University is adequately equipped"); relationships with his/her colleagues (RE; i.e. "Because I have fellow students I'm studying well with"); quality of the his/her study habits (ST; i.e. "About my way of studying"); usefulness for his/her future career (CA; i.e. "Because my studies will be useful for finding future employment").

Subscales were moderately and positively correlated, and internal consistency was good for all of them, with McDonald's omega indexes between .746 and .845 (Table 2).

## Main study

The main study sought evidence of the validity and reliability of the CSS scores by:

- Testing a latent factorial structure through Confirmatory Factorial Analysis (CFA);
- Providing evidence regarding the internal consistency through McDonald's omega;
- Testing its concurrent validity with academic performance as the external criterion;
- Testing its concurrent validity by assessing the amount of variance of college satisfaction on general life satisfaction.
- *Participants.* The main study was conducted on two samples: a mixed sample (MS), composed of 278 Italian university freshmen students attending different courses, mostly in humanistic sciences, from two different Italian universities (F = 73.7%; M = 26.3%; 55.7% 20 years old or younger), and a psychology sample (PS), composed of 147 Italian university students attending the third year of a course in psychology (F = 85.0%; M = 15.0%; 65.3% 22 years old or younger).
- *Procedure.* All students were asked to fill out an anonymous questionnaire "about their experience as a college student". To reach all students, including ones who were not attending class, we chose an online survey, well aware that the response rate tends to be low for this option. For MS, the response rate was 8% of all freshmen of the two universities; such a rate is good according to "liberal conditions", but not good enough according to "stringent conditions" (Nulty, 2008) to be considered representative of the population of the two universities. PS students were requested to collaborate during their lessons. Students were free to answer the survey, and 82% responded to the questionnaire online at home. Those who did so had the option to indicate their name and surname in order to obtain a report. The CSS questionnaire was administered before the *Satisfaction With Life Scale* (SWLS, Diener et al., 1985) and some questions on demographic data (sex, age, average score, number of successfully taken exams, University and course attended).

**Table 1** – CSS Pilot: Factorial Model Matrix

	<b>CH</b>	<b>SE</b>	<b>RE</b>	<b>ST</b>	<b>CA</b>
<b>Item 25</b>	<b>.687</b>	.007	.130	<b>.308</b>	-.017
<b>Item 6</b>	<b>.644</b>	.128	.050	.027	.168
<b>Item 13</b>	<b>.560</b>	.074	.150	-.096	<b>.389</b>
<b>Item 27</b>	<b>.354</b>	-.085	.078	.244	.270
<b>Item 7</b>	.014	<b>.792</b>	-.087	-.043	-.117
<b>Item 14</b>	-.037	<b>.680</b>	-.012	-.045	.131
<b>Item 39</b>	-.050	<b>.562</b>	.221	.034	.144
<b>Item 11</b>	.088	<b>.506</b>	.028	.152	-.034
<b>Item 33</b>	.170	-.025	<b>.904</b>	-.114	-.034
<b>Item 18</b>	.023	-.097	<b>.870</b>	-.018	.012
<b>Item 22</b>	-.288	.179	<b>.459</b>	.101	.086
<b>Item 17</b>	.202	.179	<b>.454</b>	<b>.308</b>	-.058
<b>Item 23</b>	-.038	-.044	.010	<b>.710</b>	.007
<b>Item 15</b>	-.071	.107	-.053	<b>.647</b>	.109
<b>Item 32</b>	.403	.042	.133	<b>.567</b>	-.061
<b>Item 30</b>	.299	-.009	.004	<b>.559</b>	.167
<b>Item 24</b>	.037	.106	-.026	.034	<b>.792</b>
<b>Item 9</b>	.060	.100	-.114	.066	<b>.708</b>
<b>Item 31</b>	-.032	-.179	.182	.123	<b>.691</b>
<b>Item 2</b>	.331	.237	-.022	-.159	<b>.337</b>

*Note.* Boldface indicates saturation indexes > .300

*Legenda.* Satisfaction elements: CH = appropriateness of choice; SE = quality of the University services; RE = relationships with colleagues; ST = effectiveness of his/her study habits; CA = usefulness for future career.

**Table 2** – CSS Pilot: McDonald’s Omega and Correlation Matrix between Subscales

	<b>CH</b>	<b>SE</b>	<b>RE</b>	<b>ST</b>	<b>CA</b>	<b>Mean</b>	<b>SD</b>
<b>CH</b>	<b>.845</b>					15.41	2.85
<b>SE</b>	.302**	<b>.746</b>				8.38	2.47
<b>RE</b>	.410**	.271*	<b>.816</b>			12.97	2.83
<b>ST</b>	.592**	.262*	.421**	<b>.792</b>		13.99	2.61
<b>CA</b>	.627**	.361**	.313**	.424**	<b>.798</b>	12.27	2.66

Note. Boldface indicates McDonald’s Omega index. \*  $p < .05$ ; \*\*  $p < .01$

Legenda. Satisfaction elements: CH = appropriateness of choice; SE = quality of the University services; RE = relationships with colleagues; ST = effectiveness of his/her study habits; CA = usefulness for future career.

#### – Measures

*CSS-College Satisfaction Scale.* The questionnaire was the same as the one used in the pilot study, with the exception of four items which were partially modified to better focus on the topic of the specific subscale they belonged to. Descriptive statistics showed normal distribution for all the items for both samples.

*SWLS-Satisfaction With Life Scale* (Diener et al., 1985). This is a self-reported one-dimensional scale on general satisfaction with life, originally developed in the United States, that is composed of five items on a 7-point Likert scale (from ‘strongly disagree’ to ‘strongly agree’). It has been translated into and tested in several languages, and some cross-national analysis has been conducted (i.e. Caprara et al., 2012; Whisman & Judd 2015). The Italian version was validated on a college student sample by Di Fabio & Busoni (2009): the questionnaire was mono-factorial, and Cronbach’s Alpha was .88.

*Performance Index-Average Grade Score (AGS).* As underlined previously, Average Grade Score is the most used indicator for academic performance (e.g. El-Hilali et al., 2015; Ma & Cragg, 2012; Rotter, 1988). We asked the students to indicate their average grade score to one decimal. Frequency distribution shows that 77.5% of them indicated “zero” as the decimal, suggesting that these data were not as precise as requested, which may have lowered the strength of the relation to other dimensions. Scores could range from 18 to 30, and data distribution was normal.

*Performance Index-Efficiency (EF).* We calculated the ratio of the number of passed exams to all the exams each student should have taken. Scores ranged from 0 (no exams passed) to 1 (all exams passed), and data distribution was normal. This index, combined with AGS, is a good indicator of performance, since it has been adapted by Di Nuovo (2009) in a study on the effectiveness of ministerial academic paths.

## CSS Structural Validity

We tested the questionnaire structure through CFA using the maximum likelihood method and AMOS software. Goodness-of-fit indexes were examined through the chi-square test, Root Mean Square Error of Approximation (RMSEA) and Comparative Fit Index (CFI). Even if a non-significant chi-square is desired, which would suggest that the observed and reproduced covariance matrix do not significantly differ, models with a large sample can only be evaluated by RMSEA and CFI because this test is sensitive to sample size (Byrne, 2010). Models with acceptable fit also presented  $RMSEA < .08$  and  $CFI > .90$  (Bentler, 1990), whereas models with optimum fit presented  $RMSEA < .05$  and  $CFI > .95$  (Hu & Bentler, 1999; Jackson, Gillaspay & Purc-Stephenson, 2009).

Two different models were tested: a mono-factorial model and a 5 latent correlated variables model. Table 3 shows model

fit indexes: the mono-factorial model was unacceptable, while the 5 latent variables model had acceptable fits, considering covariance between some errors, and it worked better with the PS sample. Factor loadings ranged from .62 to .95 for MS, and from .59 to .94 for PS.

## CSS Reliability

Internal consistency was assessed for the five subscales, and all McDonald's Omega indexes were optimum (Table 4).

## CSS Concurrent Validity with Performance Indexes

We estimated concurrent validity by correlating the scores of each subscale with the two performance indexes and hypothesising positive relations mostly with study habits and in part with the other subscales. Statistically significant correlations in Table 5 confirm our hypothesis in part. Study habits were highly related with both AGS and EF for PS, while it was highly related with AGS, but less related with EF for MS. PS was related just with study habits, while MS was also related with choice for AGS and with relations for both performance indexes.

**Table 3** – Structural Validity: CFA good-of-fit-indexes

Model	$\chi^2$ (p)	df	RMSEA	CFI
<b>Monofactorial</b>				
MS	2097.34***	170	.210	.536
PS	1043.18***	170	.188	.563
<b>5 latents</b>				
<b>MS</b> (5)	337.19***	154	<b>.068</b>	<b>.956</b>
<b>PS</b> (2)	223.63***	158	<b>.053</b>	<b>.967</b>

Note. In brackets the number of covariances related.

Boldface indicates good and optimum fit indexes. \*\*\*  $p < .001$

Legenda. RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; MS = Mixed Sample; PS = Psychology Sample.

**Table 4** – Reliability: McDonald's Omega indexes

Scales	MS	PS
CH	.919	.919
SE	.891	.801
RE	.918	.920
ST	.873	.842
CA	.922	.903

Legenda. MS = Mixed Sample; PS = Psychology Sample. Satisfaction elements: CH = appropriateness of choice; SE = quality of the University services; RE = relationships with colleagues; ST = effectiveness of his/her study habits; CA = usefulness for future career.

**Table 5** – CSS: Concurrent Validity with Performance Indexes

	MS	PS
<b>Average Grade Score (AGS)</b>		
CH	.272**	.106
SE	.099	.132
RE	.179**	.001
ST	.434**	.469**
CA	.080	.124
<b>Efficiency (EF)</b>		
CH	.037	.110
SE	-.152	-.002
RE	.197*	.104
ST	.179*	.470**
CA	.098	.137

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

Legenda. MS = Mixed Sample; PS = Psychology Sample. Satisfaction elements: CH = appropriateness of choice; SE = quality of the University services; RE = relationships with colleagues; ST = effectiveness of his/her study habits; CA = usefulness for future career.

## CSS Concurrent Validity with SWLS

We hypothesized that college satisfaction explains part of general life satisfaction and is higher in freshman students because the University experience is more important for them because they are at the beginning of their career.

To be sure about the psychometric quality of the SWLS, we first tested its scores validity and reliability. Structural validity was tested with CFA, and goodness-of-fit-indexes were optimum both for the MS ( $\chi^2 = 6.925$ ,  $df = 5$ , n.s.; RMSEA = .039; CFI = .998) and PS ( $\chi^2 = 3.582$ ,  $df = 5$ , n.s.; RMSEA = .000; CFI = 1.000). Reliability was tested with McDonald's omega, and the indexes were very good (MS = .901; PS = .858).

Then, we tested the role of college satisfaction on general life satisfaction through regression analysis using SWLS as the dependent variable and CSS subscales as independent variables, inserting each one of them as a block. Considering

CSS subscales were correlated, multicollinearity was tested with a variance inflation factor (VIF). Values ranged from 1.281 to 3.153 for MS and from 1.106 to 2.732 for PS, indicating moderate collinearity in both samples. Table 6 shows that, for MS, study habits, relations and choice were able to explain 33.3% of variance, while career and services were not able to explain any of it. Table 7 shows, for PS, that study habits and relations were able to explain 16.5% of variance, which, according to our hypothesis, is smaller than (more or less half of) that explained for MS.

## DISCUSSION

The literature, item analysis, and explorative and confirmatory factor analysis conducted on two different samples led us to a new questionnaire able to assess five different areas of satisfaction in college students. Compared

**Table 6** – CSS: Linear Regression with SWLS as dependent variable for MS

Blocks	R	R <sup>2</sup>	Modification statistics		
			R <sup>2</sup>	F (df1, df2)	Sign.
ST	.525	.275	.275	94.953 (1,250)	.000
ST, RE	.560	.313	.038	13.868 (1,249)	.000
ST, RE, CH	.577	.333	.019	7.079 (1,248)	.008
ST, RE, CH, CA	.578	.334	.001	.473 (1,247)	.492
ST, RE, CH, CA, SE	.578	.334	.000	.100 (1,246)	.752

*Legenda.* Satisfaction elements: ST = effectiveness of his/her study habits; RE = relationships with colleagues; CH = appropriateness of choice; CA = usefulness for future career; SE = quality of the University services.

**Table 7** – CSS: Linear Regression with SWLS as dependent variable for PS

Blocks	R	R <sup>2</sup>	Modification statistics		
			R <sup>2</sup>	F (df1, df2)	Sign.
ST	.329	.108	.108	17.153 (1,141)	.000
ST, RE	.406	.165	.056	9.399 (1,140)	.030
ST, RE, CH	.406	.165	.000	.002 (1,139)	.961
ST, RE, CH, CA	.411	.169	.004	.692 (1,138)	.407
ST, RE, CH, CA, SE	.420	.176	.007	1.239 (1,137)	.268

*Legenda.* Satisfaction elements: ST = effectiveness of his/her study habits; RE = relationships with colleagues; CH = appropriateness of choice; CA = usefulness for future career; SE = quality of the University services.

to the previous questionnaires, this one was shown to be suitable to assess different dimensions using a reduced number of items despite the multidimensional nature of the information obtained. The CSS scores showed very good psychometric features with both good internal consistency and good structural validity. It seems to confirm that satisfaction involves different areas of academic experience of students and reflect its multidimensional structure (Pike,

1991; Soares, Vasconcelos & Almeida, 2002;), even though not all the areas are strongly related to the performance and the academic success, contrary to our expectations considering previous studies (e.g. Karemera et al., 2003; Negricea et al., 2014; Silva 2001).

The relations with both academic performance and overall life satisfaction proved its concurrent validity. Relations between domain-specific satisfaction and performance

confirmed previous research, such as El-Hilali et al.'s (2015) recent demonstration of the connection between GPA, level of achievement and domain-specific satisfaction. The strong correlation between performance indexes and satisfaction with the effectiveness of studying is congruent with the hypothesis that this factor is mostly related to the evaluation of one's own performance behaviour and results. Differences between freshman and third-year students can be explained in terms of a different level of maturity in managing the role of being a college student.

The close relation between domain-specific satisfaction and overall life satisfaction has also been previously highlighted by the literature according to the socio-cognitive vision of well-being, which sustains a direct relation between the part and the whole (Judge & Locke 1993). In agreement with previous studies (e.g. Heller, Watson & Ilies, 2004) our results confirm the strong relationship between domain-specific and general life satisfaction. The two samples are not completely comparable; however, it is possible and interesting to consider the reduced role of contextual satisfaction in general life satisfaction.

Finally, our results seem to confirm previous literature on the relationship between academic performance and academic satisfaction (Strahan & Credé, 2015): the weak relationship founded in our and previous study, maybe is also influenced by other variables not considered (such as personality traits or the importance level of domain context in a person's life).

## CONCLUSIONS

The aim of our research was to measure students' college satisfaction and its relations with academic performance and general life satisfaction. Considering that the literature did not provide a multifactorial questionnaire short enough to be used for research based on a large number of questionnaires, we decided to develop a new instrument, the College Satisfaction Scale, to assess contextual satisfaction for this target. It assesses five different satisfaction areas: appropriateness of choice (CH), quality of the University services (SE), relationships with colleagues (RE), effectiveness of study habits (ST) and usefulness for future career (CA). The questionnaire, composed of 20 items, showed very good psychometric features, and its relations with both academic performance and life satisfaction confirmed its validity.

The findings of our study should be considered in the light of its limitations. Firstly, the research was conducted on two samples that were not representative of the college population or completely comparable. In future studies the psychometric properties of the CSS should be tested with samples more numerous and more heterogeneous at least for sex, years of college attended and types of courses. This could maybe overcome the absence of predictability between some dimensions of the CSS (i.e. CA) and life satisfaction. Moreover, the cross-sectional nature of the study did not allow us to verify both changes over time and the predictive validity of the subscales; for this reason, longitudinal studies should be implemented. Furthermore, future studies should consider additional criterion variables, such as flourishing (Diener et al., 2009), or perceived quality of universities' services.

One more limit is that we did not assess the importance of academic career and academic performance for the students. According to the literature, a stronger relation between domain-specific measures and overall life satisfaction can be found considering the salience of college in the life of persons and the perceived importance of the student role (Lent & Brown, 2008; Rain et al., 1991). Future research should consider these variables as moderators in order to verify the existence of stronger relations with academic performance and life satisfaction. Despite these limitations, the CSS appears to be adequately valid to help clients to identify one or more potential areas of dissatisfaction from the early stages of students' adaptation to the University context.

Study results can be useful for University professionals and career counsellors because, during the first year, programs and practices can probably improve their effects by focusing on student persistence to prevent dropout (Chen, 2012). Researchers and practitioners can use the CSS to better understand the role of each dimension in improving students' satisfaction, considering its relation with academic success. The CSS can be used in College tutoring services for the identification of the dissatisfaction domains that could interfere with the academic success; in fact, a scientific knowledge and analysis of students' opinions about their satisfaction could help educational administrators to improve and to better change contexts and institutions (Silva, 2001). Moreover, college counsellors and tutors can trust in the subscales to recognize strengths and weaknesses of the relationship between students – especially freshmen students – and University, and to plan specific interventions to increase the quality of the services or the career intervention

at the beginning of the degree courses.

It could be useful to implement career counselling interventions based on improving the satisfaction of students, facilitating a higher level of performance and preventing the dropout phenomenon. Given the centrality of the academic

domain for college students, working on the creation of a positive academic adjustment from the first year of University could also increase overall life satisfaction (Lent et al., 2005) and perceived well-being (Cantor & Sanderson, 1999; Diener & Fujita, 1995).

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