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EVALUATION OF AN ACADEMIC SATISFACTION MODEL FOR FIRST-YEAR UNIVERSITY STUDENTS

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Abstract
In Argentina, when enrolling in higher education students are confronted with a series of challenges that can affect both their academic performance and psychological well-being. In addition to this, it has been shown that the highest academic dropout rate in Argentine public universities occurs during the first year of study. Therefore, the objective of this study was to evaluate the Academic Satisfaction model in a first-year university student population in Argentina, since said construct has proven to be a key contribution with regards to academic behavior (Özgüngör, 2010). 682 first-year university students participated in this study, mainly women (55.1%) and first-year students under the age of 20 (M=20.91; SD=5.39). The results supported what the original Academic Satisfaction model (Lent, 2004) proposed, demonstrating significant contributions on all paths. However, the relationship between perceived support for goal progress and outcome expectations were not replicated. In general terms, the model presented an optimal fit, showing that the proposed model adequately explains the process for forming opinions about Academic Satisfaction in the first-year university student population in Argentina.

Keywords: academic satisfaction; first-year students; university students; social cognitive career theory

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Introduction

In Argentina, access to university education is restricted by completion of a series of courses, which seek to ensure foundation studies and knowledge and skills across all students, followed by an entrance exam. During this transition period from high school to university, students must take on new roles and face new challenges, which can cause stress, loss of confidence and demotivation, factors that affect academic performance and psychological well-being of first-year students (Medrano, Galleano, Galera, & Fernández, 2010; Medrano & Marchetti, 2014).

Access to university education is one of the most significant moments in a person's life and has the greatest impact on people's lives. A wide corpus of research has highlighted that employment prospects, social mobility opportunities, and personal development depend in large part on undertaking and continuing higher education studies (García Fanelli & Jacinto, 2010). However, several works have indicated that a high percentage of students that enroll in university do not successfully finish their degree. In particular, it has been observed that most dropouts occur during the first year, making this group the most vulnerable university population (SITEAL, 2012; Shih, 2011).

As highlighted by the Social Cognitive Theory (Bandura, 1987), people act proactively in academic adaptation processes and their opinions regarding Academic Satisfaction (AS) play an important role. This variable has reported key contributions in the development of academic behavior (Kuo, Walker, Schroder, & Belland, 2014; Özgüngör, 2010). On the other hand, AS is negatively impacted by postponing enrollment, academic failure, stress during educational transitions and dysfunctional behavior throughout the degree (Lounsbury et al., 2003; Tessema, Ready, & Yu, 2012), and it is positively impacted by academic fit (Lent, Taveira, Sheu, & Single, 2009), social integration (Suldo, Riley, & Shaffer, 2008), and academic persistence and retention (Fernandes Sisto et al., 2008; Kuo et al., 2014). The importance of AS, which refers to how positively the student evaluates their university learning experiences (Kuo et al., 2014), lies in that the cognitive opinions students form guide their behavioral processes. That is, it allows the student to determine if they will continue to invest energy and resources in a particular behavior or goal or if, to the contrary, it would be wiser to re-direct these resources and efforts.

According to the model created by Lent (2004), AS is affected by students' goals, more specifically, by their perception of goal progress. That is, people are more likely to be satisfied if they have been actively involved and have made real progress toward their key goals. On the other hand, feeling capable of successfully completing a task (self-efficacy) and expecting positive results (outcome expectations), encourages people to become actively involved in accomplishing their goals and making the progress they seek. In addition, support from the environment can help develop efficacy beliefs, which triggers visualizations of positive scenarios and consequences, and ultimately, provide resources that contribute to goal attainment (see Figure 1). Similar to what is affirmed by Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994), which recognizes the mediator role that other proximal or distal variables could assume (Lent, Brown, & Hackett, 2000), the AS model integrates the role of positive features or affects (Lent, 2004), which influence one's perception of support from the environment, self-efficacy beliefs, and opinions regarding satisfaction.

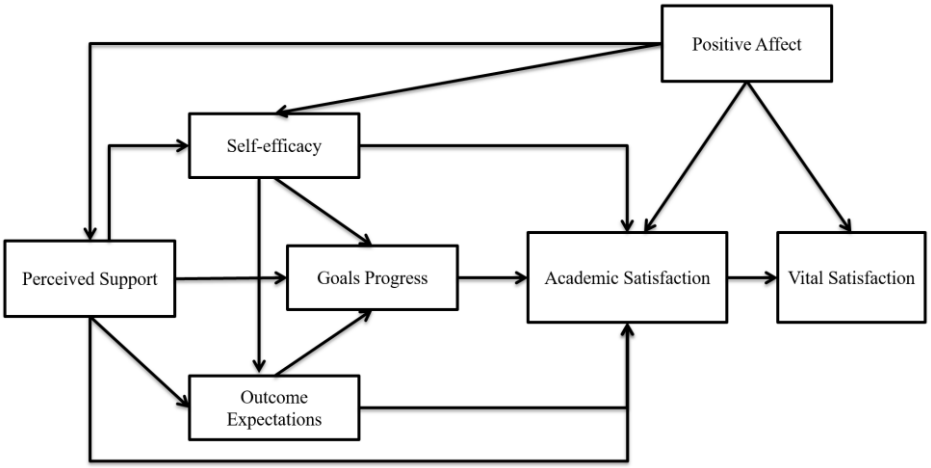

Figure 1. Social Cognitive Model of Academic Satisfaction (adapted from Lent, 2004)

In educational literature, different variants of the satisfaction model have been evaluated in samples of students in the United States (Lent et al., 2005; Lent, Singley, Sheu, Schmidt, & Schmidt, 2007; Navarro, Flores, Lee, & Gonzalez, 2014; Lent et al., 2013; Lent et al., 2015), Asia (Hui, Lent, & Miller 2013), Portugal (Lent, Taveira, Sheu, & Single, 2009; Lent, do Céu Taveira, &

Lobo, 2012; Singley, Lent, & Sheu, 2010), Mexico (Ojeda, Flores, & Navarro, 2011), and Africa (Lent et al., 2013; Ezeofor & Lent, 2014). In particular, in a meta-analysis study conducted by Flores Kanter, Losano, Moretti and Medrano (2017), the authors analyzed the items linked to the academic satisfaction model, observing that the different models have proven an optimal fit, are theoretically-based and have shown empirical evidence that supports the model.

Objectives

Despite the importance of this construct, the AS model has not been studied in the Latin American context. As different studies highlight (for example, Lent, Brown, & Hackett, 2000; Sheu & Lent, 2009), due to the limited attention given to how certain contextual and cultural influences can come to model personal/cognitive variables, transcultural studies have gained momentum in recent years, in order to evaluate relevant factors pertaining to each context that help improve the model's usefulness and relevance (Brown & Lent, 2017). In this context, the purpose of this study is to evaluate the AS model in a first-year university student population in Argentina for the first time.

Based on the original model provided by Lent (2004), this study proposes the following hypotheses (*see* Figure 2): H_1, Positive Affect indirectly influences AS through Perceived Support; H_2, Positive Affect indirectly influences AS through Academic Self-Efficacy beliefs; H_3, Positive Affect directly influences AS; H_4, Perceived Support directly affects AS; H_5, Perceived Support indirectly influences AS by influencing Academic Self-Efficacy beliefs; H_6, Perceived Support indirectly influences AS by influencing Outcome Expectations; H_7, Perceived Support indirectly influences AS by influencing Goal Progress; H_8, Academic Self-Efficacy beliefs indirectly affect AS by influencing Outcome Expectations; H_9, Academic Self-Efficacy beliefs indirectly affect AS by influencing Goal Progress; H_{10}, Outcome Expectations indirectly affect AS by influencing Goal Progress; H_{11}, Outcome Expectations directly affect AS; H_{12}, Goal Progress directly affects AS.

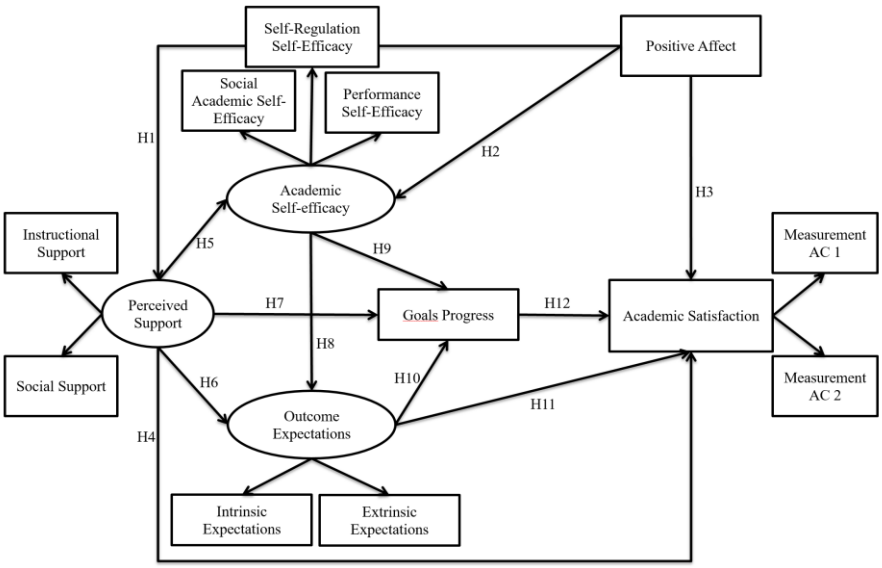

Figure 2. Social Cognitive Model of Academic Satisfaction for First-year University Students

Method

Participants

682 first-year university students from different degree programs, from public (60.6%) and private (39.4%) universities in the city of Cordoba and the larger metropolitan area participated in this study. The sample was mainly made up of women (55.1%) and first-year students under the age of 20 (M=20.91; SD=5.39). The students were enrolled in different degree programs in the fields of technology (22%), social sciences (45.6%), natural sciences (15.2%) and the arts and humanities (8.4%).

Instruments

Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). This scale includes 20 items, 10 evaluate positive affective states (for example, "Active", "Strong", "Inspired") and 10 negative affective states (for example, "Guilty", "Afraid" and "Hostile"). Participants must respond by indicating how often they experience each one of the affective states on a five-point scale: "Very Rarely or Never" to "Very Often or Always".

In the Argentine adaptation, Medrano, Flores Kanter, Trógolo, Curarello & González (2015), were able to replicate the two-factor structure and established acceptable internal consistency indices (α=.83 for Negative Affect; α=.82 for Positive Affect). For this study, only the Positive Affect factor was used due to the fact that the literature has shown that said factor significantly contributes to Academic Satisfaction (Lent, 2004; Medrano, 2011).

Perceived Support Scale (Lent et al., 2007). This instrument has nine items that evaluate the extent to which the student's immediate environment supports them in achieving their academic goals. Participants must indicate the extent to which they agree with each affirmation ("my friends encourage me to continue with my studies", for example), using a five-point Likert scale (*strongly disagree* to *strongly agree*). The psychometric studies reported by Lent et al. (2007) indicate satisfactory internal consistency (α=.84) and a unidimensional structure. Unlike the original scale (Lent et al., 2007), in the Argentine adapted study (Medrano, Perez, & Liporace, 2014) two underlying factors were observed. It should be mentioned that this structure theoretically corresponds to the model proposed by Lee, Srinivasan, Trail, Lewis, & Lopez (2011), who differentiate instructional support (referring to guidance that instructors and tutors provide to facilitate learning and goal attainment) and social support (referring to family and classmate support in relation to both academic and non-academic matters). With regard to the internal consistency analysis (Cronbach's Alpha), satisfactory values were observed (α=.77 for Perceived Instructional Support; α=.68 for Perceived Social Support).

Social Academic Self-Efficacy Scale (SA-SELF). This is the sub-scale of the Social Self-Efficacy for University Students instrument (SSE-U, Olaz & Medrano, 2007). The SSE-U evaluates student beliefs regarding their own interpersonal skills, and is made up of seven items ("asking the professor questions out loud in front of your classmates", for example). Regarding its psychometric properties, this scale presents predictive validity studies in relation to the academic performance of first-year university students (Medrano & Olaz, 2008) and satisfactory internal consistency values (α=.84).

Self-Efficacy for Performance Scale in First-Year University Students (EAR-I, Medrano & Pérez, 2009). This scale is made up of six items and evaluates the beliefs that students have regarding their ability to pass and attain a grade point average above 4, 5, 6, 7, 8, and 9. Participants must respond using a ten-point Likert scale (from 1 "I can't do it" to 10 "I am certain I can do it").

The psychometric studies reveal a unidimensional structure and optimal internal consistency (α=.94; Medrano, 2009).

Self-Efficacy for Learning Scale (SELF-A), (Zimmerman & Kitsantas, 2007). This self-reporting instrument is made up of ten items that evaluate students' perceived ability to autonomously commit to learning processes such as planning, organization and memorization (for example, "When you are trying to learn details related to a concept, are you able to find a way to relate them in order to remember them?"). In this study, the Argentine and abridged version of SELF were used, adapted by Bugliolo and Castagno (2005). This version includes translation studies, structure analysis and internal consistency, as well as validity evidence with external variables with satisfactory results.

Academic Outcome Expectations (Lent et al., 2005). This scale is made up of 10 items that examine the possible outcomes of graduating. In a study developed by Lent et al. (2005), the authors reported a factorial structure consisting of two factors: intrinsic academic expectations (related to subjective experiences such as interest and satisfaction) and extrinsic academic expectations (reinforcing external or tangible consequences such as money and the respect of others). Participants must respond using a ten-point Likert scale, where 0 represents "Strongly Disagree" and 9 "Strongly Agree". The original version of this scale includes internal consistency studies (α=.90).

Academic Goal Progress Scale (Lent et al., 2007). This scale is made up of six items that evaluate the progress students perceive they are making toward their academic goals. For this, students should indicate to what extent they have overcome each goal presented to them in the different items (for example, "Study effectively for exams"). Participants must respond using a five-point Likert scale (from "I have not fully progressed" to "I have made excellent progress"). The psychometric studies reported by Lent et al. (2007) reveal a unidimensional structure and satisfactory internal consistency (α =.81).

Academic Satisfaction. Two instruments were used to evaluate this construct. The first instrument used, Academic Satisfaction 1, is the scale developed by Lent et al. (2007), which is made up of seven items, where the participant must assess their level of satisfaction in different aspects of their academic experience ("I enjoy my classes the majority of the time", for example). The examinees must use a ten-point Likert scale to indicate to what extent they agree with each affirmation. The original psychometric studies suggest that the scale has a unidimensional factorial structure and high internal

consistency (α=.94). The second instrument used, Academic Satisfaction 2, is the sub-scale of satisfaction with the pedagogical environment (Fernándes Sisto et al., 2008). This instrument was adapted to the Argentine context by Medrano and Pérez (2010), and evaluates to what extent students are satisfied with their pedagogical environment ("The course meets my expectations", for example). The psychometric studies conducted on the local population suggest that it has a unidimensional structure and suitable homogeneity (α=.84). The decision to use both instruments was based on the ability to implement several construct indicators in order to subsequently use the structural equation models methodology.

Procedure

The different scales were part of a computerized test battery called SESA-U. Following the recommendations of ITC (2005), SESA-U was administered using modalities with varying control levels. Specifically, the data was collected using two modalities. The first modality consisted of asking first-year students to respond to SESA-U after their regular class schedule and under the supervision of the administrator. For this modality, a desktop computer or laptop was provided so the student could complete the SESA-U scale at the university and in the presence of the administrator. This modality is called "managed" as the conditions in which the test is administered are supervised and monitored (Lozzia et al., 2009). The second modality consisted of going into classrooms and inviting anyone interested in participating to visit the SESA-U website to fill out the questionnaires from home, without the administrator's supervision. This modality is called "controlled" since participants are only provided with a system access code and the evaluation process is unsupervised (Lozzia et al., 2009). It should be highlighted that regardless of the administration modality, all participants were duly informed of the aims of the research and the anonymous and confidential nature of their responses.

Design

A prospective design with more than one causal step (Montero & León, 2007) was used to test the socio-cognitive model of academic satisfaction. Students were recruited through a self-selected sampling and provided written informed consent before completing the computerized SESA-U protocol.

Results

Initial Exploration and Descriptive Analysis of the Data

In order to detect univariate and multivariate atypical cases, the z scores were calculated for each item, taking note of any values in the range of z ± 3, and applying the Mahalanobis distance statistical procedure (D^2). A total of 46 univariate and 7 multivariate atypical cases were identified. To determine if the atypical cases had an impact on the correlation coefficients, the bivariate correlation matrices were calculated with and without the atypical cases and then Cohen's *q* (1988) was calculated to determine if there were any differences worth considering between the *r* values. *q* values below .10 were obtained, which denotes a very small effect size. Taking this into consideration, the decision was made to keep the atypical cases.

A prevalence of less than 5% of lost cases was observed, which is why the method of elimination by case ("*listwise*") was chosen. After calculating the asymmetry and kurtosis descriptive statistics, it was verified that all variables revealed a close to normal distribution, taking into account the criterion of values in the range of ±2 (George & Mallery, 2010; *see* Table 1). The multivariate normality was verified using Mardia's coefficient, which yielded a Mardia value = 19.34, which was below the critical value of 70 (Rodríguez Ayán & Ruiz, 2008).

Table 1. Descriptive statistics for mean (M), standard deviation (SD), asymmetry and kurtosis of the variables that make up the Social Cognitive Model of Academic Satisfaction

Variables	M	SD	Asymmetry	Kurtosis
Instructional Support	34.33	8.68	-.56	.03
Social Support	34.04	5.31	-1.74	4.46
Positive Affect	34.26	6.59	-.33	.08
Social Academic Self-Efficacy	33.52	13.41	-.16	-.93
Self-Regulation Self-Efficacy	76.59	12.87	-.57	.32
Performance Self-Efficacy	41.20	9.82	-.32	-.35
Extrinsic Expectations	24.10	4.86	-.98	.96
Intrinsic Expectations	35.48	4.53	-1.54	2.93
Goal Progress	49.25	11.08	-.89	1.60
Academic Satisfaction 1	57.33	8.49	-1.06	1.69
Academic Satisfaction 2	62.95	11.65	-.98	1.17

The assumption of linearity was verified using linear and curvilinear estimates between pairs of items (Gardner, 2003). In all cases, it was observed

that the linear function yielded greater values than the curvilinear function, thus verifying the assumption of linearity. On the other hand, in order to explore the bivariate ratios and determine the possible existence of multicollinearity, the intensity of the ratios was examined using Pearson's *r* correlation coefficient (*see* Table 2). All the ratios were statistically significant, with moderate and strong *r* values, albeit not greater than the critical value of .90 proposed by Tabachnick and Fidell (2001), ruling out the existence of variable overlapping.

Table 2. Bivariate correlations between variables of the Social Cognitive model of Academic Satisfaction (Pearson's *r*)

	Variables	1	2	3	4	5	6	7	8	9	10
1	Positive Affect										
2	Instructional Support	.21**									
3	Social Support	.15**	.34**								
4	Social Self-Efficacy	.33**	.24**	.15**							
5	Self-Regulation Self-Efficacy	.34**	.24**	.20**	.31**						
6	Performance Self-Efficacy	.33**	.28**	.15**	.43**	.45**					
7	Extrinsic Expectations	.24**	.18**	.27**	.11**	.29**	.20**				
8	Intrinsic Expectations	.22**	.16**	.15**	.07*	.26**	.14**	.45**			
9	Goal Progress	.35**	.27**	.12**	.34**	.42**	.48**	.13**	.12**		
10	Academic Satisfaction (1)	.38**	.46**	.23**	.33**	.38**	.38**	.28**	.39**	.37**	
11	Academic Satisfaction (2)	.31**	.53**	.20**	.29**	.34**	.29**	.28**	.30**	.28**	.80**

Note: *p<0.05; **p<0.01.

Evaluation of the Social Cognitive Model of Academic Satisfaction

Once the over-identification of the model was verified (gl=34), the Maximum Probability method was used for its estimation. In order to evaluate the model's fit, the following statistics were used: Chi-squared (χ^2), the Ratio of Chi-squared divided by the degrees of freedom (χ^2/gl), the comparative fit index (CFI), the goodness-of-fit index (GFI) and the root mean square error of approximation (RMSEA). CFI and TLI values between .90 and .95 or higher are considered acceptable to excellent fits, while RMSEA values between .05 and .08 are considered satisfactory (Hu & Bentler, 1999), and the χ^2/gl coefficient is expected to be below the critical value of 3 (Kline, 2005). The results obtained indicated that the model presented optimal fit (χ^2=99.03, χ^2/gl=2.91, CFI=.96, GFI=.96, RMSEA=.06, 90% CI .05-.08), which is why the model's suitability is solid enough to report standardized path coefficients.

Table 3. Social Cognitive Model of Academic Satisfaction Fit Indices

	χ^2	gl	χ^2/gl	CFI	GFI	RMSEA	RMSEA CI (90%)	$\Delta\chi^2$
1- Academic Satisfaction Model	99.03**	34	2.91	.96	.96	.06	.05 - .08	
2- Re-specified Satisfaction Model	101.05**	36	2.80	.96	.96	.06	.05 - .08	
Dif. M1 and M2								2.02

Note: χ^2 = chi-squared; df = degrees of freedom; CMIN/DF = chi-squared divided by degrees of freedom; GFI = goodness-of-fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation; 90% CI for RMSEA = 90% Confidence Interval for RMSEA; ** p <.001.

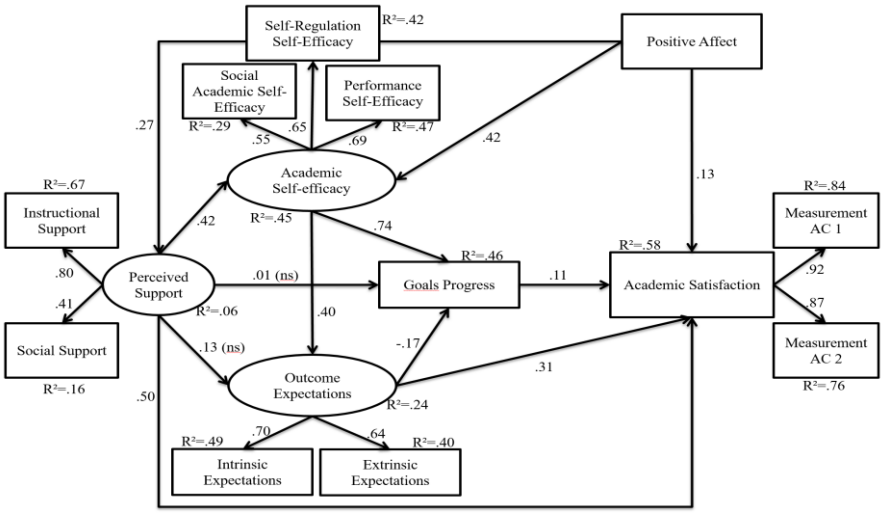

Figure 3. Social Cognitive Model of Academic Satisfaction standardized path coefficients and determination coefficients (R^2). *Note: (ns)* = not statistically significant

As shown in Figure 3, all of the model's path coefficients were statistically significant (p<0.001) except for two paths: 1) Perceived support for goal progress, and 2) Perceived support for outcome expectations. Apparently, the effect of perceived support on these variables is mediated by academic self-efficacy beliefs. Based on this, the decision was made to re-specify the model, eliminating these two paths. After comparing the fit indices of both models, the re-specified model shows a slight improvement in fit, but does not reach the point of becoming statistically significant (Table 3). On the other hand, after examining the changes that occur in the path coefficients by removing the aforementioned paths, a slight increase in the effect of self-efficacy on outcome

expectations and goal progress is observed (Figure 4). This is consistent with the hypothesis that self-efficacy moderates the effect of perceived support on outcome expectations and academic goal progress.

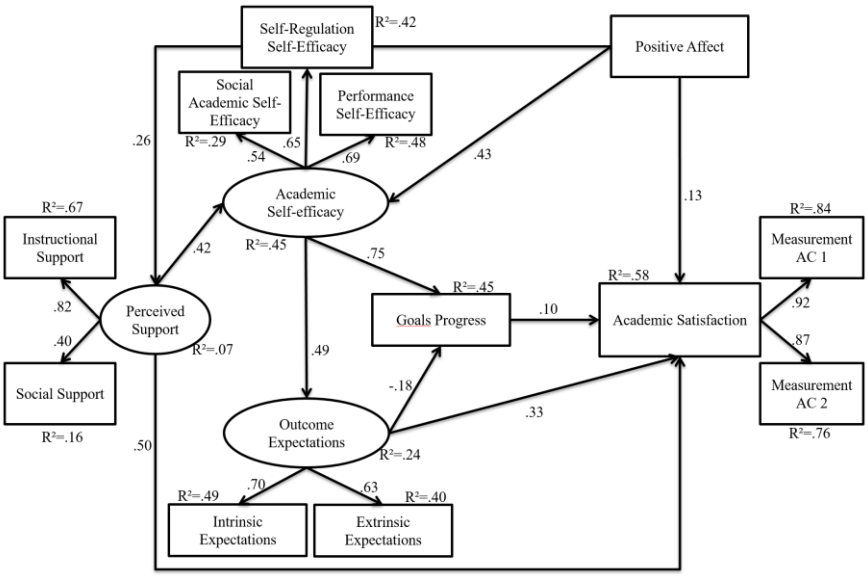

Figure 4. Re-specified Social Cognitive Model of Academic Satisfaction standardized path coefficients and determination coefficients (R^2)

In addition, the indirect effects were estimated (Table 4). To evaluate the statistical importance of the indirect effects of the model, the Sobel test was used, which consists of dividing the results of the non-standardized path coefficients by their standard error (Edwards & Lambert, 2007). After examining the magnitude of the total effects, it was observed that the variables that contribute most to AS are perceived support (β *total*=.60), positive affect (β *total*=.38), academic self-efficacy (β *total*=.31) and outcome expectations (β *total*=.31). Goal progress showed a low, albeit significant and direct effect on AS (β *total*=.10). On the other hand, it was observed that academic self-efficacy beliefs is the variable that most contributes to goal progress (β *total*=.66). Positive affect (β *total*=.35) and perceived support (β *total*=.27) also have an effect, albeit notably less. Contrary to what is stated in the literature, outcome expectations contribute inversely (β *total*=-.18), indicating

that the more expectations one has, the less progress they perceive. For its part, outcome expectations reveal a similar pattern since academic self-efficacy is the variable that has the greatest influence (β *total*=.49), followed by positive affect (β *total*=.34) and perceived support (β *total*=.26). These variables notably influence academic self-efficacy, observing that positive affect (β *total*=.54) makes a greater contribution than perceived support (β *total*=.42), although it should be mentioned that both variables have a considerable effect.

Table 4. Total effects, direct and indirect, of the academic satisfaction model

Model Variables	Effect		
	Direct	Indirect	Total
Positive Affect			
on Perceived Support (Latent)	.26**	-	.26**
Instructional Support	-	.21**	.21**
Social Support	-	.11**	.11**
on Academic Self-Efficacy (Latent)	.43**	.11**	.54**
Self-Efficacy for Performance	-	.37**	.37**
Self-Efficacy for Learning	-	.35**	.35**
Social Academic Self-Efficacy	-	.29**	.29**
on Outcome Expectations (Latent)	-	.26**	.34**
Intrinsic Expectations	-	.18**	.18**
Extrinsic Expectations	-	.17**	.17**
on Goal Progress	-	.35**	.35**
on Academic Satisfaction (Latent)	.13**	.25**	.38**
Satisfaction measurement 1	-	.35**	.35**
Satisfaction measurement 2	-	.33**	.33**
Perceived Support			
Instructional Support	.82**	-	.82**
Socio-Emotional Support	.40**	-	.40**
on Academic Self-Efficacy (Latent)	.42**	-	.42**
Self-Efficacy for Performance	-	.26**	.26**
Self-Efficacy for Learning	-	.24**	.24**
Social Academic Self-Efficacy	-	.21**	.21**
on Outcome Expectations (Latent)	-	.20**	.26**
Intrinsic Expectations	-	.14**	.14**
Extrinsic Expectations	-	.13**	.13**
on Goal Progress	-	.27**	.27**
on Academic Satisfaction (Latent)	.50**	.10**	.60**
Satisfaction measurement 1	-	.54**	.54**
Satisfaction measurement 2	-	.52**	.52**
Academic Self-Efficacy			
Self-Efficacy for Performance	.69**	-	.69**
Self-Efficacy for Learning	.65**	-	.65**

Table 4. Total effects, direct and indirect, of the academic satisfaction model - *continued*

Model Variables	Effect		
	Direct	Indirect	Total
Social Academic Self-Efficacy	.54**	-	.54**
on Outcome Expectations (Latent)	.49**	-	.49**
Intrinsic Expectations	-	.34**	.34**
Extrinsic Expectations	-	.31**	.31**
on Goal Progress	.75**	-.09**	.66**
on Academic Satisfaction (Latent)	-	.23**	.31**
Satisfaction measurement 1	-	.21**	.21**
Satisfaction measurement 2	-	.20**	.20**
Outcome Expectations			
Intrinsic Expectations	.70**	-	.70**
Extrinsic Expectations	.63**	-	.63**
on Goal Progress	-.18**	-	-18**
on Academic Satisfaction (Latent)	.33**	-.02	.31**
Satisfaction measurement 1	-	.28**	.28**
Satisfaction measurement 2	-	.27**	.27**
Goal Progress			
on Academic Satisfaction (Latent)	.10**	-	.10**
Satisfaction measurement 1	-	.09	.09
Satisfaction measurement 2	-	.10	.10
Academic Satisfaction			
Satisfaction measurement 1	.92**	-	.92**
Satisfaction measurement 2	.87**	-	.87**

Note: *p<0.05; **p<0.001

Lastly, the effect size of the determination coefficients was estimated using Cohen's f^2 statistic, taking into account the following critical values: f^2=.02 small effect size; f^2=.15 medium and f^2=.35 large. Perceived Social Support was the only endogenous variable of the model that showed a small effect size (f^2=.07). The remaining variables showed moderate f^2 values (outcome expectations =.31) and high (academic self-efficacy =.81; goal progress =.81 and academic satisfaction =1.38).

Conclusions

The goal of this study was to assess an Academic Satisfaction model in a population of first-year university students, taking into account the variables stipulated by the model developed by Lent (2004). The results obtained corroborated the majority of the hypotheses proposed.

In relation to the role of positive affect, its direct influence on AS was verified (H_3) as well as its indirect influence through perceived support (H_1) and self-efficacy (H_2). The existence of these effects is explained on the basis of the *affect infusion* phenomenon. As Bower's associative network model (1991) proposes, affect could influence the way that people retrieve information. Different research shows that memory can be affected by state of mind, and that memories consistent with one's immediate emotional state are more easily recalled (Medrano, Flores Kanter, Moretti, & Pereno, 2015; Lent et al., 2013). For example, students in a positive emotional state will be more likely to recall memories consistent with this valence effect. Therefore, they will be more likely to recall previous experiences of success and support, which favorably impacts the opinions they form regarding AS, self-efficacy or perceived support.

On the other hand, perceived support proved to be a key variable when first-year university students form opinions regarding AS. This variable's direct effect on AS (H_4) and indirect effect through self-efficacy beliefs (H_5) was verified. However, the contribution of perceived support through outcome expectations (H_6) and goal progress (H_7), was not corroborated. In principle, the results obtained are consistent with previous studies (in relation to H_4 and H_5). In fact, it was observed that the greatest levels of AS occur in first-year students that perceive support and guides in their environment that contribute to a suitable learning process, as well as adequate social and emotional support (Lee et al., 2011; Mullen & Tallent-Runnels, 2006). On the other hand, it is expected that first-year students feel more capable if they believe that they have support from their environment to face the demands of their academic context. As stated by Bandura (1997), social environment can cause academic demands to be seen as less difficult, which increases confidence in one's ability to face them.

The results corresponding to H_6 and H_7 are less clear, given that no significant effect of perceived support on outcome expectations and goals was verified. Different studies have stated that support from the environment helps create more positive and realistic expectations (Lee et al., 2011), and also facilitates moving from goals to action (Lent et al., 2000), thus contributing to academic goal progress. One possible explanation could be the fact that support provided at the start of university differs from that offered in other contexts. That is, in our environment, university placement program teachers limit

themselves to providing guidance and support for attaining immediate academic objectives (university admission, for example), and provide less support for establishing intrinsic positive expectations (enjoying the degree program, for example) or medium term expectations (graduating or being able to earn a living working in my profession, for example).

According to Lent (2004), it is more likely that students go from goals to actions if they perceive support from the environment (H_7). However, the results obtained in this study suggest that this effect is completely mediated by self-efficacy beliefs. That is, a first-year student may perceive support from teachers and family members, but will only decide to accomplish their goals if they feel capable of doing so. To the contrary, if the student has support, but does not feel capable, it is unlikely that they will accomplish their goals or perceive the consequent progress. It should be mentioned that these results are consistent with Bandera's self-efficacy theory (1997), since these beliefs determine the election of behaviors, and this variable is closer to the decision-making process than perceived support. Despite the fact that the effect of perceived support on expectations and goal progress was not verified, it is the variable that makes the greatest total contribution to forming AS opinions. One factor that would explain the fact that this variable has a greater effect compared to previous studies (Lent et al., 2005; Lent et al., 2009; Lent et al., 2012; Lent et al., 2015) would probably be that the sample was of first-year university students. As Mih and Mih (2013) propose, during periods of transition or intense vital changes, the perception of support appears to be a critical variable, showing a greater effect than usual.

After analyzing the role of self-efficacy beliefs, all the proposed hypotheses were verified. In particular, it was corroborated that self-efficacy beliefs have a significant effect on outcome expectations (H_8) and goal progress (H_9). According to previous studies academic self-efficacy beliefs play a key role during university commencement (Medrano, 2011), and this study observed a strong (β values of .40 and .74) and greater effect than that reported in previous studies (Ezeford & Lent, 2014; Lent et al., 2007; Ojeda et al., 2012). The importance of this construct lies in that it determines the decision to expose oneself to determined activities, persistence when facing difficult situations, and organizing one's own resources, among other factors (Bandura, 1997). These characteristics cause the first-year students that feel more capable

to expect more successful and positive results, and invest more effort, which affects academic goal progress.

On the other hand, it should be mentioned that this study analyzed three dimensions of self-efficacy that had not been contemplated in previous AS studies (Ezeford & Lent, 2014; Lent et al., 2005; Lent et al., 2007; Lent et al., 2009; Lent et al., 2012; Lent et al., 2015). It was corroborated that the three dimensions of self-efficacy (performance, study self-regulation and social-academic) showed significant contributions in the model. The importance of these dimensions is probably due to the fact that going from high school to university involves changes in performance standards, one's interpersonal context and study autonomy, since the student must face new academic requirements without the support and supervision they had in high school (Pérez, Valenzuela, Díaz, González-Pienda, & Núñez, 2013; Medrano, 2011). Thus, this new context would cause academic self-efficacy beliefs to become more relevant than those they normally have in other types of academic situations.

Even though there are contradictory results in the literature with regard to outcome expectations' contribution to goals (H_{10}), showing zero contribution in some cases (Flores Kanter et al., 2017; Lent et al., 2007), the behavior exhibited in this study was the opposite of what was expected (H_{10}), since they had a negative effect on goal progress. However, expectations' direct significant effect on AS opinions was corroborated (H_{11}). Similarly to what is stated previously, this negative contribution could be due to the particular context of first-year university students. That is, regardless of whether expectations are extrinsic or intrinsic, the student does not have enough space to evaluate their consequences due to the fact that they prioritize incorporating knowledge in order to get into university.

With regard to goals, the existence of a significant effect between this construct and AS (H_{12}) was verified, although the value obtained was lower than the one reported in previous studies (Ezeoford & Lent, 2014; Hui et al., 2013; Lent et al., 2005; Lent et al., 2015). The particularities observed in the behavior of these variables could be attributed to characteristics of the population under study since the population of first-year students has a series of particularities that they do not share with the rest of the university population. Not only must first-year students adapt to new academic and social demands, but they must do so in a short period of time (approximately eight weeks). This

begs the question, then, if during this brief lapse of time first-year students are able to perceive academic goal progress, which does not only require suitable behaviors, but also time. That is, the student could implement the behaviors required to achieve their goals, but only perceive progress once the first-year entrance course has ended. Perhaps that is why first-year student AS opinions are primarily affected by the perception of support, positive affect and self-efficacy, the contribution of goal progress being poor in comparison with previous studies. This could also explain the inverse relationship between expectations and goal progress. Even though having positive expectations can motivate the student to try to achieve their goals, having high expectations and little time to meet them can negatively affect the perception of achievement.

In general terms, although some of the model's hypotheses revealed behavior that was different than what was expected, most of them were verified. Likewise, the model exhibited optimal fit, proving to be a solid model in theoretical and empirical terms. It should be mentioned that the differences observed in relation to previous studies are justifiable in theoretical terms and follow particularities of the population under study. Based on the results obtained, it can be affirmed that the AS model is a suitable model for explaining the process of forming AS opinions among the first-year student population in Argentina.

With regard to practical implications, considering that programs aimed at boosting university entrance and permanence tend to be general, without specifying the individual needs of each first-year student, based on the academic satisfaction model's result, it is possible to determine which variables reveal a critical behavior for each student. That way, specific interventions can be developed, focused on strengthening specific variables such as, for example, self-efficacy, positive affect or perceived support. Some developments in this direction are programs to increase positive affect (Medrano & Moretti, 2013), outcome expectation and academic goal restructuring programs (Imberti & Medrano, 2011) and academic self-efficacy strengthening programs (Medrano & Marchetti, 2014).

Limitations

Despite the implications aforementioned, this study has limitations that should be acknowledged. First, the sample included a disproportionately high number of students from natural sciences, while students from arts, technology

and humanities were under-represented. Thus, it would be valuable for further research to include a more representative sample of students and to test the robustness of the model across different university careers. Second, data were partly collected using web-based survey. Although this method has many advantages compared to traditional paper-and-pencil data collection (Gosling, Vazire, Srivastava, & John, 2004), it may also suffer from self-selected biases (Khazaal et al., 2014) which may limit the external validity and the interpretation of the findings (Bethlehem, 2010). Thus, more research is needed to examine the extent to which the results herein are generalizable to other students. Third, as the current study exclusively relies on self-report data, results might also be biased due to common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Therefore, we recommend further replicating the study by including multiple data sources such as teachers and classmates.

References

Bandura, A. (1987). *Pensamiento y acción* [Thought and Action]. Madrid: Martinez Roca.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bethlehem, J. (2010). Selection bias in web surveys. *International Statistical Review*, *78*, 161-188.

Bower, G. H. (1991). Mood congruity of social judgments. *Emotion and social judgments*, 31-53.

Bugliolo, E., & Castagno, A. (2005). *Adaptación de una escala para evaluar la autoeficacia autorregulatoria de jóvenes universitarios, SELF-A* [Adaptation of a Scale to Evaluate the Self-regulated Self-Efficacy of Young University Student, SELF-A]. Tesina de Licenciatura. Inédita. Facultad de Psicología, Universidad Nacional de Córdoba, Argentina.

Coenders Gallart, G., Batista-Foguet, J. M., & Saris, W. W. (2005). *Temas avanzados en Modelos de Ecuaciones Estructurales* [Advanced Topics in Structural Equation Models]. Madrid: La Muralla.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Edwards, J., & Lambert, L. (2007). Methods for integrating Moderation and Mediation: A General Analytical Framework using Moderated Path Analysis. *Psychological Methods, 12,* 1-22.

Ezeofor, I., & Lent, R. W. (2014). Social cognitive and self-construal predictors of well-being among African college students in the US. *Journal of Vocational Behavior, 85*(3), 413-421

Fernandes Sisto, F., Muniz, M., Bartholomeu, D., Vítola Pasetto, S., Francisca de Oliveira, A., & Guimarães Lopes, M. W. (2008). Estudo para a Construção de uma Escala de Satisfação Acadêmica para Universitários [Study to the Construction of an Academic Satisfaction Scale to College Students]. *Avaliação Psicológica, 7,* 45-55.

Flores Kanter, P. E., Losano, C., Moretti, L., & Medrano, L. (2017). Empirical Evidence for a Socio-Cognitive Model of Academic Satisfaction: A Review and Meta-Analysis Approach. *Psychology and Education, 54*(2), 1-25.

García Fanelli, A., & Jacinto, C. (2010). Equidad y Educación Superior en América Latina: el Papel de las Carreras Terciarias y Universitarias [Equity and higher education in Latin America: The role of third education and university degree courses]. *Universia, 1*(1), 58-75.

Gardner, R. (2003). *Estadística para Psicología Usando SPSS* [Psychological Statistics Using SPSS]. México: Pearson Education.

George, D., & Mallery, M. (2010). *Using SPSS for Windows step by step: a simple guide and reference.* Boston, MA: Allyn y Bacon.

Gosling, S. D., Vazire, S., Srivastava, S., & John, O. P. (2004). Should we trust web-based studies? A comparative analysis of six preconceptions about internet questionnaires. *American Psychologist, 59,* 93-104.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling,* 6, 1-55.

Hui, K., Lent, R. W., & Miller, M. J. (2013). Social cognitive and cultural orientation predictors of well-being in Asian American college students. *Journal of Career Assessment, 21*(4), 587-598.

Imberti, G., & Medrano, L. (2011). *Expectativas de Resultados y Progreso en Metas Académicas en Ingresantes Universitarios* [Outcome Expectations and Goals Progress Academic in University Admissions]. Actas de Resúmenes de la XIII Reunión Nacional y II Encuentro Internacional de la

Asociación Argentina de Ciencias del Comportamiento. *Revista Argentina de Ciencias del Comportamiento, Suplemento, 40*.

Internacional Test Commission (ITC, 2005). *Guidelines on computer-based and internet-delivered testing.* Extraído en septiembre del 2010 de http://www.intestcom.org

Khazaal, Y., Van Singer, M., Chatton, A., Achab, S., Zullino, D., Rothen, S., Khan, R., Billieux, J., & Thorens, G. (2014). Does self-selection affect samples' representativeness in online surveys? An investigation in online video game research. *Journal of Medical Internet Research, 16*(7).

Kline, R. B. (2005). *Principles and practices of structural equation modeling*. New York, NY: Guilford Press.

Kuo, Y. C., Walker, A. E., Schroder, K. E., & Belland, B. R. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. *The Internet and Higher Education, 20*, 35-50.

Lee, S. J., Srinivasan, S., Trail, T., Lewis, D., & Lopez, S. (2011). Examining the relationship among student perception of support, course satisfaction, and learning outcomes in online learning. *The Internet and Higher Education, 14*(3), 158-163.

Lent, R. (2004). Toward a Unifying Theoretical and Practical Perspective on Well-Being and Psychosocial Adjustment. *Journal of Counseling Psychology, 51*(4), 482-509.

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*, 79-122.

Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of counseling psychology, 47*(1), 36-49.

Lent, R. W., do Céu Taveira, M., & Lobo, C. (2012). Two tests of the social cognitive model of well-being in Portuguese college students. *Journal of Vocational Behavior, 80*(2), 362-371.

Lent, R. W., Miller, M. J., Smith, P. E., Watford, B. A., Hui, K., & Lim, R. H. (2015). Social cognitive model of adjustment to engineering majors: Longitudinal test across gender and race/ethnicity. *Journal of Vocational Behavior, 86*, 77-85

Lent, R. W., Miller, M. J., Smith, P. E., Watford, B. A., Lim, R. H., Hui, K., Morrison, A., Wilkins, G., & Williams, K. (2013). Social cognitive predictors of adjustment to engineering majors across gender and race/ethnicity. *Journal of Vocational Behavior*, *83*, 22-30.

Lent, R. W., Singley, D., Sheu, H. B., Gainor, K. A., Brenner, B. R., Treistman, D., & Ades, L. (2005). Social cognitive predictors of domain and life satisfaction: Exploring the theoretical precursors of subjective well-being. *Journal of Counseling Psychology*, *52*(3), 429-442.

Lent, R. W., Singley, D., Sheu, H. B., Schmidt, J. A., & Schmidt, L. C. (2007). Relation of social-cognitive factors to academic satisfaction in engineering students. *Journal of Career Assessment*, *15*(1), 87-97.

Lent, R., Taveira, M., Sheu H., & Single, D. (2009). Social cognitive predictors of academic adjustment and life satisfaction in Portuguese college students: A Longitudinal analysis. *Journal of Vocational Behavior, 74,* 190-198.

Lounsbury, J., Loveland, J., Sundstrom, E., Gibson, L., Drost, A., & Hamrick, F. (2003). An investigation of personality traits in relation to career satisfaction. *Journal of Career Assessment*, *11*, 287-307

Lozzia, G. S., Abal, F., Blum, G., Aguerri, M. E., Galibert, M. S., & Atorresi, H. F. (2009). Test Informatizados. Nuevos desafíos prácticos y éticos para la Evaluación Psicológica [Computerized Test. New Practical and Ethical Challenges for Psychological Assessment]. *Summa Psicológica, 6*(1), 135-148.

Medrano, L., & Marchetti, P. (2014). Impacto de un programa de entrenamiento en aprendizaje autorregulado y habilidades sociales académicas sobre el rendimiento y la deserción en ingresantes universitarios [The Impact of a Training Program in Self-regulated Learning and Academic Social Skills on the Performance and Desertion of University Candidates]. *European Journal of Education and Psychology*, *7*(2), 131-144.

Medrano, L., & Moretti, L. (2013). Eficacia de un programa de entrenamiento para disminuir manifestaciones cognitivas de ansiedad ante los exámenes en ingresantes universitarios [Effectiveness of a training program to decrease cognitive manifestations of anxiety in college freshmen before academic exams]. *Informes Psicológicos*, *13*(1), 41-52.

Medrano, L., & Olaz, F. (2008). Autoeficacia Social en Ingresantes Universitarios: su Relación con el Rendimiento y la Deserción Académica

[Social self-efficacy in university admissions: their relationship to performance and academic dropout]. *Revista de Psicología General y Aplicada, 61*(4), 369-383.

Medrano, L., & Pérez, E. (2010). Adaptación de la Escala de Satisfacción Académica a la Población Universitaria de Córdoba [Adaptation of Academic Satisfaction Scale to University Population from Córdoba]. *Summa Psicológica, 7*(2), 5-14.

Medrano, L. (2009). *Deserción Académica en Ingresantes Universitarios: Aplicación de un Análisis Discriminante* [Academic Dropout in University Admissions: Application Of Discriminatory Analysis]. XXXII Congreso Interamericano de Psicología. (Guatemala). Disponible en http: // sip 2009. programacientifico.info / cronograma.php

Medrano, L. (2011). Emociones Positivas y Negativas en el Contexto Académico Universitario [The Relationship Between Academic Self-Efficacy, Positive and Negative Emotions in University Candidates] (pp. 225-244). In M. C. Richaud & V. Lemos (Eds.), *Psicología y Otras Ciencias del Comportamiento. Compendio de Investigaciones Actuales*. Libertador San Martin: Universidad Adventista del Plata. Buenos Aires: Consejo Nacional de Investigaciones Científicas y Técnicas.

Medrano, L., Flores Kanter, P. E., Trógolo, M., Curarello, A., & González, J. (2015). Adaptación de la Escala de Afecto Positivo y Negativo (PANAS) a la Población de Estudiantes Universitarios de Córdoba [Adaptation of the Positive and Negative Affect Scale (PANAS) to Student University Population from Córdoba]. *Anuario de Investigaciones de la Facultad de Psicología.*

Medrano, L., Pérez, E., & Fernández Liporace, M. (2014). Sistema de Evaluación Informatizado de la Satisfacción Académica para ingresantes a la Universidad [Computerized Assessment System for Academic Satisfaction (ASAS) for first-year University Student]. *Electronic Journal of Research in Educational Psychology, 12*(2), 541-562.

Medrano, L., Flores Kanter, P. E., Moretti, L., & Pereno, G. (2015). The Effects of Positive and Negative Emotional induction on Academic Self-Efficacy. *Educational Psychology, 22*(2), 135-141.

Medrano, L., Galleano, C., Galera, L., & Fernández, R. (2010). Creencias Irracionales, Rendimiento y Deserción Académica en Ingresantes

Universitarios [Irrational Beliefs, Academic Performance and Academic Desertion in University Candidates]. *Liberabit*, *16*(2), 183-191.

Mih, V., & Mih, C. (2013). Perceived autonomy-supportive teaching, academic self-perceptions and engagement in learning: toward a process model of academic achievement. *Cognition, Brain, Behavior*, *17*(4), 289-313.

Montero, I., & León, O. (2007). A guide for naming research studies in Psychology. *International Journal of Clinical and Health Psychology*, *7*, 847-862.

Mullen, G. E., & Tallent-Runnels, M. K. (2006). Student outcomes and perceptions of instructors' demands and support in online and traditional classrooms. *The Internet and Higher Education*, *9*(4), 257-266.

Navarro, R. L., Flores, L. Y., Lee, H. S., & Gonzalez, R. (2014). Testing a longitudinal social cognitive model of intended persistence with engineering students across gender and race/ethnicity. *Journal of Vocational Behavior*, *85*, 146-155.

Ojeda, L., Flores, L. Y., & Navarro, R. L. (2011). Social cognitive predictors of Mexican American college students' academic and life satisfaction. *Journal of Counseling Psychology*, *58*(1), 61-71.

Olaz, F., & Medrano, L. (2007). *Construcción de una escala de autoeficacia social para estudiantes universitarios. Evidencia de contenido y de estructura interna* [Construction of a Scale Of Social Self-Efficacy for University Students. Evidence of Content and Internal Structure]. Resumen publicado en el libro de resúmenes del XXXI Congreso Interamericano de Psicología.

Özgüngör, S. (2010). Identifying Dimensions of students' ratings that best predict students' self efficacy, course value and satisfaction. *Eurasian Journal of Educational Research*, *38*, 146-163.

Pérez, M. V., Valenzuela, M., Díaz, A., González-Pienda, J. A., & Núñez, J. C. (2013). Dificultades de aprendizaje en estudiantes universitarios de primer año [Learning Difficulties in First Year University Students]. *Atenea (Concepción)*, *508*, 135-150.

Podsakoff, P., MacKenzie, S., Lee, J., & Podsakoff, N. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879-903. Doi:10.1037/0021-9010.88.5.879

Rodríguez Ayán, M., & Ruiz, M. (2008). Atenuación de la asimetría y de la curtosis de las puntuaciones observadas mediante transformaciones de variables: Incidencia sobre la estructura factorial [Attenuation of the asymmetry and the kurtosis of the scores observed through transformations of variables: incidence on the factorial structure]. *Psicológica, 29*, 205-227.

Shih, S. S. (2011). Perfectionism, implicit theories of intelligence, and Taiwanese eighth-grade students' academic engagement. *The Journal of Educational Research*, *104*(2), 131-142.

Singley, D. B., Lent, R. W., & Sheu, H. B. (2010). Longitudinal test of a social cognitive model of academic and life satisfaction. *Journal of Career Assessment*, *18*(2), 133-146.

Sistema de Información de Tendencias Educativas en América Latina (SITEAL; 2012). Perfiles de Países [Country Profiles]. Extraído en Marzo del 2017 de http: // www.siteal.iipe-oei.org / sites / default / files / siteal_perfil_argentina_20140731.pdf

Suldo, S., Riley, K., & Shaffer, E. (2008). A Social-Cognitive-Behavioral Model of Academic Predictors of Adolescents´ Life Satisfaction. *School Psychology Quartely*, *23*(1), 56-69.

Tabachnick, B., & Fidell, L. (2001). *Using multivariate statistics* (Fourth edition). Needham Heights, MA: Allyn and Bacon.

Tessema, M. T., Ready, K., & Yu, W. C. (2012). Factors affecting college students' satisfaction with major curriculum: Evidence from nine years of data. *International Journal of Humanities and Social Science*, *2*(2), 34-44.

Universidad Nacional de Córdoba (UNC, 2012). *Anuario Estadístico* [Statistical Yearbook]. Córdoba: National University of Cordoba.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063-1070.

Yamauchi, C. (2010). Parental investment in children: Differential pathways of parental education and mental health. *Economic Record*, *86*(273), 210-226.

Zimitat, C. (2004). The first-year university experience frames students' later university experiences. Article presented in Turning the Kaleidoscope. *ANZARE Annual Conference*, *Wellington*, New Zealand.

Zimmerman, B. J., & Kitsantas, A. (2007). Reliability and validity of Self-efficacy for Learning Form (SELF) scores of college students. *Zeitschrift für Psychologie/Journal of Psychology*, *215*(3), 157-163.

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