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# Measuring Strategies to Cope with Boredom in Spanish Speaking Population: A Study with Argentinean University Students

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Abstract. A study was conducted in order to validate the Boredom Coping Scales and test its psychometric properties on a sample of Argentinean university students (namely BCS-AR). The BCS-AR, adapted into Spanish, was applied to a sample of students at National University of Córdoba and the National Technological University (N = 250). Internal consistency was estimated through Cronbach's alpha ( $\alpha$ ). Evidence about the test's internal structure was obtained from evaluating and comparing three measurement models for boredom coping strategies. Criterion validity evidence was provided by bivariate correlations with task value, attention, academic boredom and enjoyment. The scales showed acceptable internal consistency scores (between  $\alpha$  = .69 and  $\alpha$  = .92). The four factor model showed an acceptable fit ( $\chi$ 2/df = 1.65, CFI = .95, GFI = .91, RMSEA = 0.051). Test criterion evidence partially corresponded to the expected results. Results are discussed within the framework of control-value theory of achievement emotions and boredom coping.

**Keywords:** academic boredom, boredom coping, enjoyment, task value, attention, validation

**Resumen**. Se realizó un estudio para validar las Escalas de Afrontamiento del Aburrimiento y analizar sus propiedades psicométricas en una muestra de estudiantes universitarios de Argentina (BCS-AR). La BCS-AR, adaptada al español, se aplicó a una muestra de estudiantes en la Universidad Nacional de Córdoba y la Universidad Tecnológica Nacional (N = 250). La consistencia interna se estimó mediante el alfa de Cronbach ( $\alpha$ ). Se obtuvo evidencia de la estructura interna al evaluar y comparar tres modelos de medición de estrategias de afrontamiento del aburrimiento. Se aportó evidencia de validez criterio mediante correlaciones bivariadas con valor de la tarea, atención, aburrimiento y disfrute académico. Las escalas demostraron valores aceptables de consistencia interna ( $\alpha$  = .69 hasta  $\alpha$  = .92). El modelo de cuatro factores relacionados demostró un ajuste aceptable ( $\chi$ 2/df = 1.65, CFI = .95, GFI = .91, RMSEA = 0.051). La evidencia test criterio se correspondió parcialmente con los resultados esperados. Se discuten los resultados en el marco de la teoría control-valor de las emociones de logro y del afrontamiento del aburrimiento.

Palabras clave: aburrimiento académico, afrontamiento del aburrimiento, disfrute, valor de la tarea, atención, validación

#### INTRODUCTION

The concept of coping strategies appeared three decades ago, emerging from research on stress (Lazarus & Folkman, 1985). Studies in this field intend to examine people's reactions in the face of stressful events (Figueroa & Cohen Imach, 2006; Vázquez Valverde, Crespo López, & Ring 2003). In general lines, the term coping strategies refers to thoughts and actions that enable people to handle difficult situations (Vázquez Valverde et al., 2003). In line with these thoughts, Lazarus and Folkman (1985) define it as those constantly-changing cognitive and behavioral efforts which aim at managing specific external and/or internal demands deemed as exceeding or surpassing of an individual's resources.

Following the classification proposed in a model addressing stress coping (Holahan, Moos, & Schaefer, 1996), Nett, Goetz and Daniels (2010) developed the Boredom Coping Scales, which allow identifying four strategies used by students to handle boredom in class. The scales have been adapted to Chinese (Tze, 2011), Canadian and Turkish (Eren, 2013) populations, obtaining good reliability and validity indices. In addition, they proved to be useful in predicting self-efficacy for self-regulated learning (Tze, 2011), student engagement (Eren, 213), boredom, enjoyment, anxiety, effort, interest (Nett et al., 2010), as well as in differentiating subject groups according to the strategies they use (Nett et al., 2010; Tze, 2011).

This research consists in the validation of the Boredom Coping Scales in a sample of Argentinean university students (namely BCS-AR). Specifically, it provides evidence on internal consistency, internal structure and criterion validity for the scales.

# The control-value theory of achievement emotions: Boredom

Boredom is an emotion that arises in achievement situations such as studying a particular subject or attending classes. It is understood as a negative emotion, since it is experimented as an unpleasant feeling; as well as a behavior-deactivating emotion, since it reduces physiological activation. This emotion contains specific components such as affective (unpleasant feelings), cognitive (time passing slowly feelings, distraction), physiological (low activation level), bodily-expressive (low body posture, facial expression, monotonous tone of voice) and motivational components (a drive for abandoning or changing the situation) (Pekrun, Goetz, Daniels, Stupinsky, & Perry 2010).

This research is conducted within the framework provided by the control-value theory of achievement emotions framework (Pekrun, 2006). This theory implies that two main factors determine boredom emergence: control appraisals (e.g., skill) and value appraisals (e.g., importance, utility). Therefore, boredom is experienced when the activity value is low (Goetz, Pekrun, Hall, & Haag, 2006; González, Paoloni, & Rinaudo, 2013; Nett et al., 2010; Pekrun et al., 2010; Tze, 2011; Vodanovich, Weddle, & Piotrowsky, 1997); and when the activity control is either high or low (Acee et al., 2010; Pekrun, Goetz, Titz, & Perry, 2002; Pekrun et al., 2010), though more frequently when it's low (Perry, Hladkyj, Pekrun, & Pelletier, 2001).

#### **Boredom-related coping strategies**

Nett et al. (2010) developed the Boredom Coping Scales following the classification proposed by Holahan et al. (1996) in their model about stress coping; and validated its implementation in the academic emotions domain, in order to elucidate what students do and think when bored.

This model identifies two dimensions underlying coping strategies: (1) Orientation: It divides the strategies according to their objective into approach-oriented (trying to address the boredom-generating situation), and avoidance-oriented (withdrawing from the boring situation) strategies; (2) Action: It divides the strategies according to their nature into cognitive and behavioral strategies.

The possible combinations of these dimensions delimit four boredom-coping strategies:

- 1. Cognitive-approach strategies involve a student's voluntary change on the way they perceive the situation. An example would be a student that, bored in a Physics class, remembers the value of paying attention in class so as to pass the test.
- 2. Cognitive-avoidance strategies refer to making use of cognitive resources with the aim of distracting oneself from a boredom-generating situation. Many students carry out this strategy by resorting to fantasy, or thinking about something else when they are in class.
- 3. Behavioral-approach strategies imply efforts to change the boredom-generating situation itself. Some of the most common strategies consist in asking the teacher for more

interesting tasks, proposing alternatives to the assignment, or simply informing the teacher about the situation.

4. Finally, behavioral-avoidance strategies refer to actions the student takes in order to disengage from the boring situation, looking for some distraction, such as talking to a classmate or playing on their mobile phones.

# Boredom, boredom-coping strategies and task value

Little research has been dedicated to boredom, especially in achievement contexts, despite the fact that its effects can be detrimental to students. For instance, boredom can be considered an antecedent for behaviors like missing classes or leaving before the class is over (Triado-Ivern, Aparicio-Chueca, Guardia-Olmos, & Jaría Chacón, 2009), reduction of task-related attention and engagement in irrelevant thoughts (Pekrun et al., 2010), impairment of self-regulated learning (Tze, 2011) and decreases on motivation and academic performance (González et al., 2013).

A great deal of research (González et al., 2013; Mann & Robinson, 2009; Nett et al., 2010; Pekrun et al., 2010; Tze, 2011; Tze, Daniels, Klassen, 2015) highlights a negative correlation between the frequency of boredom in class and subsequent student's performance. The influence of boredom on performance can be presented as an indirect effect. Mann and Robinson (2009) explain that it may be due to the fact that bored students are prone to leave the class before it ends or simply miss it (Massingham & Herrington, 2006; Triado-Ivern et al., 2009). Perceived task value could be related to boredom and to the choices students make about in relation to remain engaged in the current task (Eccles, 2005; Pekrun et al., 2010).

Task value refers to student's perceived interest, importance and utility regarding learning materials and contents (Pintrich, Smith, García, & Mckeachie, 1993). The value of an achievement activity instigates positive emotions such as enjoyment (Pekrun, Elliot, & Maier, 2006), and lack of it promotes negative emotions, such as boredom (Pekrun, 2006). This affirmation is supported by Pekrun et al. (2010), whom evaluated the correlation between boredom and value in five studies, finding in all cases negative relations for these constructs. In particular, it was confirmed that lack of value is an antecedent of experiencing boredom in class.

Regarding boredom coping strategies, their correlations with activity value are

diverse. In Nett et al. (2010), cognitive approach shows a positive correlation with value, while behavioral approach shows no correlation and cognitive and behavioral avoidance present negative and weak correlations. The authors posit that cognitive-approach strategies are the most adaptive ones. This is due to the fact that they predict positive academic outcomes such as increased students' performance and engagement, low boredom and anxiety levels as well as high levels for enjoyment.

Cognitive-approach strategies' main characteristic is a change in the situation's perception resulting from a positive reappraisal. The student carries out a cognitive effort in order to increase the value that the activity represents to him or herself so as to change the situation's perception as well. In this sense, Eren's studies (2013) show that class perceived instrumentality positively correlates with this kind of strategies. This means that if a student considers a class to be useful to accomplish his personal goals, when bored he will resort to strategies that allow him to link the activity back with its corresponding value.

# Boredom, Boredom-coping and Attention

Attention is an essential resource when it comes to successfully learning or performing in learning contexts. An attention deficit may cause students to have a poor academic performance. Pekrun et al. (2010) argued that bored students tend to pay attention to stimuli regarded as more interesting, or to become distracted by thoughts unrelated to the class, which eventually has an influence on their academic performance. According to these studies, boredom is strongly related to attention problems. Individuals who suffer from boredom experience a progressive loss of attention, which subsequently results in a lack of concentration, which results in lack of concentration, distraction and activity-irrelevant thoughts.

According to Vogel-Walcutt, Fiorella, Carper and Schatz (2012), boredom occurs when an individual experiences a neurological state of low arousal concurrently with a psychological state of dissatisfaction, frustration, or disinterest in response to the low arousal. This neurophysiologic low arousal is defined in terms of under-stimulation, activity disconnection, and desire for sensory stimuli, and mental state of inactivity or prolonged exposure to monotony. Boredom could be reduced by increasing the arousal through implementation of adequate teaching strategies (Rosegard & Wilson, 2013), teacher enthusiasm (Wood, 1998), and teacher attitudes that promote student engagement

(Sánchez Rosas, Takaya, & Molinari, 2016, in press).

Nett et al. (2010) and Tze (2011) assert that positive reappraisal of a boring situation (i.e. cognitive approach) not only improves attention readdressing it to the important material, but also increases activity value. On the contrary, avoidance strategies (either cognitive or behavioral) would impair attention in class since they imply diverting it towards more interesting stimuli, unrelated to the activity.

#### **Boredom, Boredom-coping and Other Achievement Emotions**

Empirical evidence (González, Donolo, & Rinaudo, 2009; González et al., 2013; Nett et al., 2010; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011) shows a negative correlation between boredom and enjoyment. This might be explained by the fact that boredom mitigation gives rise to the occurrence of more positive emotions. In addition, enjoyment is presented as conceptually opposed to boredom since it also constitutes an activity-related emotion but its perceived value and control are high (Pekrun, 2006).

Pekrun et al. (2010) posit that while feeling bored, students simultaneously experience other negative emotions such as disappointment, despair (Goetz et al., 2013; Pekrun et al., 2011), anger, shame (Goetz et al., 2013; González et al., 2009; Pekrun et al., 2011) and anxiety (Nett et al., 2010).

Boredom-coping strategies yield diverse correlations with achievement emotions. In Nett et al. study (2010), cognitive approach yielded a positive correlation with enjoyment, effort, interest and value; and a negative one with boredom. The remaining strategies correlated positively with boredom and anxiety, and negatively with enjoyment, effort, interest and value. Tze (2011) replicated some of these results, obtaining a negative correlation between cognitive approach and boredom with two samples of Chinese and Canadian university students. On the other hand, the remaining strategies yielded no correlation, except for behavioral avoidance that positively correlated with boredom in the Chinese sample.

# **The Current Study**

At this time, there exist three validations of the Boredom Coping Scales carried out with university population in China, Canada (Tze, 2011), and Turkey (Eren, 2013) besides the original study carried out on a sample of German primary students (Nett et al. 2010). In

all cases, the instrument proved to have good psychometric features of internal structure, reliability and criterion validity. For these reasons, it constitutes a trustworthy instrument, since there is no evidence about other instruments for measurement of boredom coping in Spanish. Furthermore, the insights into this construct are novel and few; so we expect this study will shed light over an emerging area within educational psychology.

The aim of this work is to validate the BCS-AR to be used among university students in Argentina. Studies on internal consistency, internal structure and criterion validity will be carried out.

#### **METHOD**

# **Participants**

The sample consisted of 250 Argentinian undergraduate students belonging to fifteen careers at National Technological University (33.6%) and National University of Córdoba (66.4%). Participants' ages oscillated between 17 and 39 years (M = 19.86, DS = 2.19). The questionnaires were administered in Mathematical Analysis I and II courses, which were functioning in two modalities: theoretical and practical classes.

#### Measures

Boredom Coping Scales-Argentine (BCS-AR). The Goetz and Nett's (2008) questionnaire comprises four scales measuring coping categories (cognitive approach, behavioral approach, cognitive avoidance, behavioral avoidance). Each scale features five items to be answered in Likert format ranging from (1) *strongly disagree* to (5) *strongly agree*. The items begin with a common statement (*when I am bored in class...*) followed by a coping strategy (e.g., *I try to think in the significance of this class*). In the original study (Nett et al., 2010), the Cronbach's alphas proved to be satisfactory: cognitive approach = .91, behavioral approach = .83, cognitive avoidance = .83, and behavioral avoidance = .92. While this questionnaire is useful to assess boredom coping strategies in math class, it is not specific of this domain, being able to be applied in other subjects by changing the main consign.

Boredom and Enjoyment in Class. Two scales from the Achievement Emotions Questionnaire-Argentine were used (Sánchez Rosas, 2015a). The boredom in class scale comprises eleven items (the class is so boring that I feel like leaving,  $\alpha = .90$ ) and the

enjoyment in class scale, ten items (*I enjoy attending this class*,  $\alpha$  =.87). This instrument measures the frequency of this kind of emotions in a Likert scale which ranges from (1) *never* to (5) *always*.

Task Value. The Task Value Scale designed by Pintrich et al. (1993) was administered, which evaluates perceived interest, importance and utility of the learning materials and contents. It comprises six items (*I think that what I learn in this subject will be useful in others*) and showed an internal consistency of .79. Answers are collected in the Likert scale ranging from (1) *totally disagree* to (5) *fully agree*. This scale showed criterion validity with respect to emotions in university students from Córdoba, Argentine (Sánchez Rosas, Piotti, Sánchez, Pereira, & Debat, 2011).

Attention in class. A one-dimensional scale composed ad hoc was used. It addresses three aspects comprised in this construct: concentration capacity, irrelevant thoughts, and attention. The scale comprises six items, three of those items are reverse-coded (e.g., *I become unfocused*) and the remaining three are directly formulated (e.g., *I follow with attention what is being explained*). The answers are provided on a Likert scale ranging from "never" (1) to "always" (5). In the process of analysis the first three items were recodified. The scale's unidimensionality was evaluated through exploratory factor analysis and internal consistency obtaining adequate results (KMO = .83; 55% of explained variance and factor loading > .68;  $\alpha$  = .83).

#### Procedure

Initially, the scales were directly translated from English into Spanish with assistance of an official translator. English and Spanish versions were administered to a sample of bilingual students (N = 27) in two separate sessions with an interval of one week. The questionnaires were administered personally, after explaining the participants the aims of the study and the fact that their answers would be anonymous and used only for research purposes.

Both sessions' scores were correlated, producing moderate and high Spearman coefficients. Additionally, a Student's test for related samples showed that there were no significant differences between both sample means. As a result, the Spanish version proved to be equivalent to the original English scale. Subsequently, the scale's psychometric properties were analyzed.

#### **Data analysis**

Data were analyzed to ensure compliance with statistical assumptions of (univariate and multivariate) normal distribution, correlations linearity, multicollinearity and absence of outliers, obtaining suitable results (George & Mallery, 2007).

Internal consistency was assessed through Cronbach's alpha. For item-total correlation .5 is set as the minimum acceptable (Hair, Anderson, Tatham, & Black, 1999). As for Cronbach's alpha, it will be categorized in accordance with the following scale: > .9 excellent, > .8 good, > .7 acceptable, > .6 questionable, > .5 poor and < .5 unacceptable (George & Mallery, 2007).

In order to assess the questionnaire's internal structure, three boredom-coping models were evaluated and compared through confirmatory factor analyses (CFA) (See Figure 1). In addition, the following indexes were used to assess the model's goodness of fit to the data: chi-squared distribution with degrees of freedom ( $\chi$ 2/df), comparative fit index (CFI), root mean square error of approximation (RMSEA) and global fit index (GFI). The following criteria were implemented to assess the model's goodness of fit:  $\chi$ 2/df  $\leq$  2.0 (Hair et al., 1999), CFI  $\geq$  .90, GFI  $\geq$  .90, (Hu & Bentler, 1998), RMSEA  $\leq$  0.06 (Arias, 2008).

Modification indexes were analyzed and the implementation of re-specifications was contemplated, as long as they had theoretical founding and would improve fit indexes.

The evaluated models were the following (See Figure 1): One first model in which all indicators score under a single boredom-coping factor (unidimensional model); a second model consisting of four first order factors matching each questionnaire scale, and one second order factor with the purpose of accounting for variance in all four dimensions. The third model comprises these four correlated first order factors, in which indicators score each in its corresponding factor (oblique model). The best fit indexes are expected for this third model, since it has been previously supported by empirical evidence (Eren, 2013; Nett et al., 2010; Tze, 2011).

Finally, criterion validity evidence was obtained from bivariate correlations among boredom-coping strategies and achievement emotions (enjoyment and boredom), task value and attention. Pearson coefficients of correlation (r) were considered: from .10 to .29, weak; from .30 to .49 moderate; and from .50 onwards, robust (Aron & Aron, 2001).

Data were analyzed through the software IBM SPSS Amos 19 (Arbuckle, 2010).

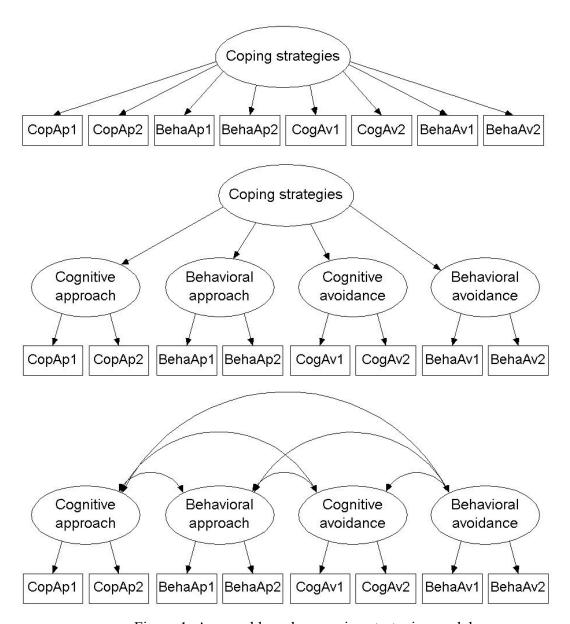


Figure 1. Assessed boredom-coping strategies models.

#### **RESULTS**

# Descriptive Statistics, Correlations and Scales' Reliability

After assessing data adequacy, a descriptive analysis was carried out, by calculating means, standard deviation, asymmetry and kurtosis indexes for each item.

The sum of all items within each scale was used to obtain "CogAp", "BehaAp", "CogAv" and "BehaAv" variables; these variables were also correlated so as to observe the

degree of interrelation among the scales (Table 1). Some similarities were found between these results and Nett and colleagues' (2010) study results, which are discussed below.

Cronbach's alpha was acceptable for the cognitive-approach scale, and excellent for the behavioral-approach scale. The cognitive-avoidance scale produced a marginally acceptable alpha (Table 1). According to Hair and colleagues' (1999) recommendations, item-total correlations were generally acceptable, with the exception of some items within the cognitive-approach and cognitive-avoidance scales. Nevertheless, two facts should be taken into account: On one hand, there are studies (De Castro Marzo, 2011) which prove the usefulness of maintaining these items, whenever their potential elision reduces the total scale index. On the other hand, some authors (Frías Jiménez, González Arias, & González Laucirica, 2013) consider that, in a scale's validation context, an item-total correlation coefficient of .4 is acceptable.

2 3 4 -.21\*\* 1. Cognitive Approach 19.20 (3.24) / .73 .05\* -.39\*\* 8.31 (3.16)/.78 .31\*\* .21\*\* .10 2. Behavioural Approach -13\* .31\*\* 14.50 (4.08)/.69 .47\*\* 3. Cognitive Avoidance -.26\* .13\* .13\* 14.26 (5.61)/.92 4. Behavioural Avoidance

Table 1. Correlations among BCS-AR and comparison with Nett et al. (2010)

Note:\* p < .01; \*\* p < .001. Values over the diagonal pertain to Nett et al. (2010); below it, values pertaining to this study. The diagonal displays the values for mean, standard deviation and Cronbach's alpha.

#### Validity Analysis: Internal Structure

According to Hu and Bentler (1998), and Arias' (2008) guidelines, factor analysis results for all three models were not satisfactory (Figure 1). Consequently, some respecifications were implemented after reviewing modification indexes. The suggestion to correlate the same errors in both, hierarchical and oblique models was observed. At the moment of reviewing these items' content, a significant overlapping was observed. In the unidimensional model, modification indexes suggested to correlate all measuring errors inside each scale. It is important to note that correlated errors corresponded to items within the same scales, and there were no instances of correlation among items from different scales. With the aim of achieving an accurate comparison, these errors were correlated in the three models.

Owing to this, fit indexes significantly improved in the three models. Even so, the oblique model (see Figure 2) obtained the best fit indexes (Arias, 2008; Hu & Bentler, 1998), which are:  $X^2$  (157, N = 250) = 259.101, p = .000;  $X^2/df = 1.65$ , CFI = .95, GFI = .91, RMSEA = 0.051.

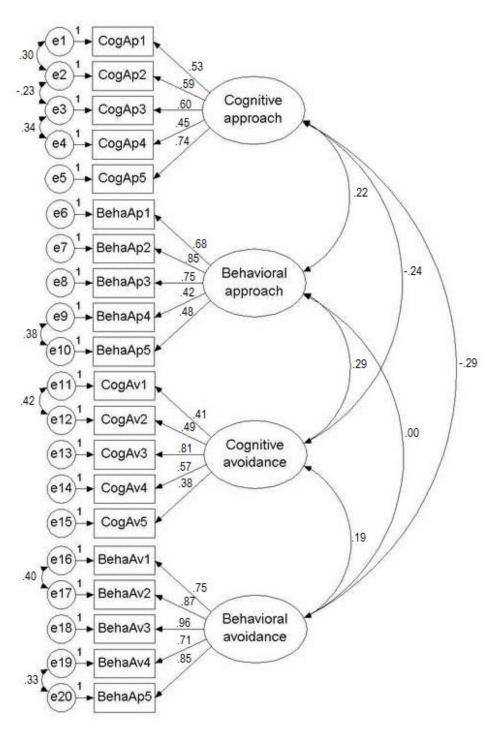


Figure 2. BCS-AR: Re-specified oblique model.

In table 2, results obtained by all three models, original and re-specified, are compared.

Table 2. Models' fit indexes comparison, with and without re-specifications

	X2/df	CFI	GFI	RMSEA
Unidimensional Model	6.89	.51	.62	.154
Re-specified Unidimensional Model	4.98	.68	.72	.126
Hierarchical Model	2.86	.85	.84	.086
Respecified Hierarchical Model	1.75	.94	.90	.055
Four Correlated Factors Model	2.74	.86	.84	.084
Four Correlated Factors Respecified Model	1.65	.95	.91	.051

In table 3, fit indexes for the oblique model in all existing studies are summarized.

Table 3. Fit indexes for the oblique model in the original and adapted versions

		X2	X2/df	RMSEA	CFI
Original	Nett et al. (2010)	514.71	3.13	0.047	.96
	Tze (2011) Canada	244.60	1.51	0.065	.95
Adapted	Tze (2011) China	300.86	1.86	0.062	.93
Versions	Eren (2013) Turkey	420.93	2.59	-	.97
	Bedis (2015) Argentina	259.101	1.65	0.051	.95

# Validity Analysis: Criterion Validity

Criterion validity was assessed through bivariate correlations among the diverse boredom-coping strategies and achievement emotions (boredom and enjoyment), task value and attention (see table 4).

Table 4. Bivariate correlations among BCS-AR and criterion variables

	1	2	3	4	5	6	7	8
1. Cognitive Approach	-							
2. Behavioral Approach	.10	-						
3. Cognitive Avoidance	13*	.31**	-					
4. Behavioral Avoidance	26*	.13*	.13*	-				
5. Task Value	.31**	02	11	17**				
6. Attention	.27**	.05	06	28**	.29**	-		
7. Enjoyment	.37**	.13*	05	24**	.55**	.53**	-	
8. Boredom	30**	00	.10	.39**	39**	62**	59**	-

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

#### **DISCUSSION**

The research objectives consisted in assessing the psychometric properties of the BCS-AR. More specifically, internal consistency was evaluated through Cronbach's alpha; the scale's internal structure was assessed by confirmatory factor analysis; and evidence regarding criterion validity was provided by bivariate correlations. The study results are discussed below.

#### **Scales Correlations and Reliability**

Cognitive approach yielded a negative correlation with cognitive avoidance as well as behavioral avoidance; though it did not yield correlations with behavioral approach. On that regard, behavioral approach yielded a positive and significant correlation with both avoidance scales (Table 1). In Nett et al. study (2010), a similar correlation pattern was found. According to the authors, these relations could be explained by the boredom locus concept. The boredom source's perception could determine the implementation of certain strategies. In this line of thought, students who use cognitive approach strategies perceive boredom as an outcome of internal processes, which explains why they tend to make a positive reappraisal of the activity. On the contrary, students who use behavioral approach, cognitive avoidance and behavioral avoidance strategies, perceive it as an outcome which arises from an external factor (inadequate teaching method or task's features), which explains their efforts to change the external situation by proposing alternatives to the task or

by placing their attention focus on something else.

Internal consistency analyses yielded acceptable results for cognitive approach, behavioral approach and cognitive avoidance scales, and excellent results for behavioral avoidance scale (George & Mallery, 2003). As in Tze's study (2011), cognitive avoidance scale presented the lowest internal consistency value.

In order to improve consistency for the cognitive-avoidance scale, items were analyzed about their adequacy for university students. In Nett et al. study (2010), which was carried out with primary students, cognitive avoidance is measured using items such as "I do my homework" or "I study for next class". It is possible that these items do not reflect the university students' tendency to cognitively avoid a boring situation. This topic will be addressed in more detail during the discussion of the validity analysis results.

### Validity Analysis: Internal Structure

The goodness of fit for the three models of boredom-coping strategies was assessed through confirmatory factor analysis. These were the before mentioned unidimensional, hierarchical an oblique models (Figure 1). The aim was to replicate the model of analysis implemented by Nett et al. (2010) so as to provide an accurate comparison. Nevertheless, analysis for goodness-of-fit turned out unsatisfactory for all three models. Modification indexes suggested a correlation between the same item's measuring errors in both, hierarchical and oblique models. As item's measuring errors account for the combined effect of any source of influence besides the specified factors (Arias, 2008), some elements not specified in the model could be affecting the participants' answers. When reviewing those items, significant content overlap was found in their wording. This redundancy could allow unspecified factors (e.g., age, cultural context) to bring about item variations for which coping strategies are not accountable.

Research by Tze and colleagues (Tze, 2011; Tze et al., 2013) reveals that cultural factors (e.g. cultural values) could determine the choice for a certain type of boredom coping strategy.

It is also possible that participants' attitudes towards learning, ways of approaching boredom or class characteristics influenced their answers. For example, questionnaires were administered in practical and theoretical classes, which differ in levels of difficulty, effort and participation required form students; therefore, this situation could indirectly affect

their scoring.

It is important to note that correlated errors were referred to items within the same scales, and there were no correlations between items in different scales. With some caution, we could assert that re-specifications point to item's wording, although other potential sources of influence are not discarded. Tze's study (2011) also supports this claim, as the author also applied re-specifications to the oblique model in both Chinese and Canadian samples; attributing this decision to item's content similarity.

In accordance with these thoughts, the pertinent re-specifications were made obtaining a significant improvement in goodness-of fit for all three proposed models. Even so, as it had been found in previous studies, the oblique model showed best goodness-of-fit indexes (see Table 2); the same as in other studies (Eren, 2013; Nett et al., 2010; Tze, 2011).

Finally, it is worth mentioning that the re-specified hierarchical model showed satisfactory goodness of fit indexes, as well. Consequently, it could also be used to assess boredom coping strategies, while supporting the existence of a general factor which accounts for all four strategies.

# Validity analysis: Criterion Validity

In general terms, it was found that cognitive approach, behavioral approach, and cognitive avoidance strategies were moderate predictors of attention, boredom, enjoyment and task value, with varying degrees of influence.

Cognitive approach presented a positive correlation with attention, enjoyment, and task value. These results coincide with those reported by Nett et al. (2010), which informed positive relations among this strategy and not only enjoyment but also effort and interest. On the other hand, in both, the present study and Nett's research, cognitive approach shows a negative correlation with boredom. Findings support the claim that this type of strategy proves to be the most adaptive, since it predicts positive academic results. Cognitive approach strategies' main characteristic is an emphasis in activity's positive reappraisal. The student carries out a cognitive effort to find positive value about the situation. A student aware of her own perception on task value finds the material useful and relevant and her attention is focused, as she attempts to understand (Sánchez Rosas et al., in press). Besides, these strategies play a key role in student's engagement in class, since they mediate between

perceived instrumentality (value) and diverse engagement aspects (agentic, behavioral, emotional and cognitive) (Eren, 2013).

As soon as the student becomes conscious of the fact that the material is useful to achieve his future goals; he will be able to deal with boredom by revaluating the situation (reminding him-self about the class' relevance) and compromising with activities in various ways. Finally, when people, and in particular students, are engaged in activities regarded as important, they tend to experience more joy and feel more proud and satisfied (Goetz, Frenzel, Stoeger, & Hall, 2010). This would reduce boredom and increase enjoyment and performance.

Cognitive avoidance yielded a positive correlation with boredom, as it did in Nett et al. study (2010), and a negative correlation with enjoyment, attention and task value. These strategies could be the less adaptive ones, since they predict negative academic results. Behavioral avoidance strategies are characterized by the student's efforts to evade a boring situation, paying attention to other more interesting stimuli.

Cognitive avoidance yielded a positive correlation with boredom, as it did in Nett et al. study (2010), and a negative correlation with enjoyment, attention and task value. These strategies could be the less adaptive ones, since they predict negative academic results. Behavioral avoidance strategies are characterized by the student's efforts to evade a boring situation, paying attention to other more interesting stimuli. When a student finds an activity of little use, not interesting or relevant (i.e. lack of value), they experience boredom, and, in their effort to mitigate this emotion, they could try looking for more rewarding stimuli. Then they could make use of behavioral avoidance strategies, for instance, talking to a classmate, diverting their attention from the subject or focusing it on an activity unrelated to the class. Attention is an important cognitive resource to successfully perform in achievement contexts, and if it is focused on something different to the material, it impairs learning, and consequently, jeopardizes the student's good performance.

Behavioral approach had no correlation with task value, boredom and attention, and showed a positive correlation with enjoyment. In Nett et al. study (2010), a reverse pattern is observed: this strategy held a positive correlation with boredom, and a zero correlation with enjoyment. As regards this matter, in Eren's study (2013) behavioral approach correlated with agentic engagement. Agentic engagement is understood as the active

contribution the students can make when going beyond the instruction they receive by personalizing it and by enhancing both the lesson and the conditions under which they learn (Reeve & Tseng, 2011). This might mean that students who modify their boring situation, for instance, by providing alternatives for a required task, are more engaged in it and, subsequently, they experience more enjoyment.

Cognitive avoidance strategies did not show any significant correlation with any criterion variable. No correlation with boredom was also reported in Tze (2011), in both, Canadian and Chinese samples. These results, in addition to Cronbach's alpha, point out difficulties with item's content for this subscale. More specifically, there might be possible that this subscale does not assess the construct it's aimed for. In Nett and colleagues' (2010) study, cognitive avoidance in a strategy used to escape from a boring situation by making use of cognitive resources. Attention is conceived as an attribute that, diverted from the present academic situation, (i.e. the boring class), is directed to a different situation, also characterized by being academic. Items such as I do my homework or I get ready for next class represent cognitive avoidance in the original study. It is justifiable to ask to what extent university students turn to this type of activities when bored in class. If these items were to be assessed in a sample of students different from the original population, contextual and developmental variables would play a key role; these factors would be decisive to the answers provided, but they were not taken into account in Nett et al. (2010). The original study's sample comprised primary school students, while the present study was focused on university students. The following question arises: if university students focused their attention on a topic unrelated to the class, wouldn't they be employing cognitive avoidance strategies? Do Argentinian university students react in a cognitive and avoiding way, different from the original population? There might be a set of items suitable to better assess cognitive avoidance strategies for university students within the Argentinean culture. Some examples are: I think about a film I've just watched, "I think I want to be in a different place or I plan what to do during my free time. This assumption should be tested, and so it remains for further studies to develop suitable items taking context and population characteristics into account, and evaluate if those items adequately address the chosen sample.

Finally, bivariate correlations among criterion variables support this study's assumptions. It was highly expected for boredom to show a negative correlation with task

value and enjoyment, while it was also expected for task value and enjoyment to present a strong positive correlation. Pekrun's theory (2006) supports this assertion, firstly because boredom and enjoyment are opposite emotions; and secondly because boredom arises from lack of value. As the results show, whenever students find personal value on an activity, boredom decreases and enjoyment grows. Besides this, provided that students find a subject interesting and useful, they will be willing to engage more in the activity, which would mean an increase in their attentional resources.

In summary, this research analyzed the bivariate relationship of coping with boredom to task value, attention, boredom, and enjoyment. However, further research could explore other self-regulated learning strategies (Furlan, Sánchez Rosas, Heredia, Piemontesi, & Illbele, 2009; Sánchez Rosas & Pérez, 2015; Wolters & Benzon, 2013) or coping strategies (Piemontesi, Heredia, Furlan, Sánchez, & Martínez, 2012), and different control-value appraisals such as achievement goals (Sánchez Rosas, 2015b) and self-efficacy Rey, Blasco, & Borrás, 2000). In addition, these results should be interpreted cautiously as the analysis showed up relations, but not their directions. Given this procedures it is not possible to discern what comes first (for example, the avoidance strategy and after this, the attention loss), thus results does not imply causality. More sophisticated statistic method, such as path analysis (Pérez, Medrano, & Sánchez Rosas, 2013), could be employed in analyzing relationships between coping with boredom and their antecedent and outcome variables.

#### **CONCLUSIONS**

The strategies implemented by students in order to cope with boredom have received little attention and they represent a field in research that has recently been addressed. Based on the psychometric studies carried out, and in light of the discussions arising from them and previous studies, it can be stated that the validation for the Boredom Coping Scales questionnaire was successfully accomplished. This instrument has proven to be effective in assessing in which manner students respond to boredom in class.

The aim of this study is to make a contribution to the boredom coping strategies research field, by providing a first validation of this questionnaire in Spanish, and making it possible to compare results with other studies, which adds to the theoretical, empirical and technical corpus in educational psychology.

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# APPENDIX The Boredom Coping Scales-Argentine (BCS-AR): Instructions and scales

El siguiente cuestionario mide las estrategias de afrontamiento del estudiante al experimentar aburrimiento en clase. Las estrategias de afrontamiento refieren a las acciones que lleva a cabo el alumno para mitigar esta emoción. Lee cuidadosamente y responde indicando el grado de acuerdo con aquello que describe cada ítem en una escala de 1 (nada de acuerdo) a 5 (totalmente de acuerdo).

"Cuando estoy aburrido en clases de esta materia..."

Item	APROXIMACIÓN COGNITIVA	M	SD	rit
ApCog1	Trato de prestar más atención a la clase.	3.84	0.92	.49
ApCog2	Me obligo a concentrarme nuevamente.	3.82	0.93	.44
ApCog3	Me concientizo de la importancia del tema.	3.76	0.95	.49
ApCog4	Trato de concientizarme de la importancia de esta materia.	4.00	0.96	.46
ApCog5	Me obligo a concentrarme nuevamente porque el tema es importante.	3.78	0.89	.59
	APROXIMACIÓN CONDUCTUAL			
ApCon1	Le pregunto al profesor si podemos hacer alguna otra cosa.	1.41	0.65	.54
ApCon2	Le pido al profesor que nos dé tareas más interesantes.	1.64	0.82	.64
ApCon3	Sugiero que el profesor prepare clases más variadas.	1.72	0.92	.64
ApCon4	Intento sacar del tema al profesor para que discutamos sobre un asunto que me interese.	1.70	0.93	.50
ApCon5	Saco a colación algún tema que creo les interesa más a mis compañeros.	1.83	0.95	.52
	EVITACIÓN COGNITIVA			
EvCog1	Me preparo para la próxima clase.	2.80	1.17	.44
EvCog2	Hago la tarea.	2.95	1.19	.50
EvCog3	Estudio para otra materia.	2.40	1.23	.55
EvCog4	Pienso en la tarea o en algo que tengo que estudiar.	3.24	1.17	.39
EvCog5	Copio la tarea para la próxima clase.	3.11	1.33	.36
	EVITACIÓN CONDUCTUAL			
EvCon1	Hablo con la persona que está sentada a mi lado.	3.29	1.25	.75
EvCon2	Empiezo a hablar con el compañero de clase que está sentado a mi lado.	3.03	1.35	.85
EvCon3	Me distraigo interactuando con mi compañero de clase.	2.85	1.27	.88
EvCon4	Intento contactarme con otros compañeros de clase que también se están aburriendo.	2.42	1.27	.70
EvCon5	Me entretengo con mi compañero/a de banco o con alguien que esté sentado/a cerca	2.68	1.27	.83