Spanish Version of the Time Management Behavior Questionnaire for University Students

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The main objective of the study is to analyze the psychometric properties and predictive capacity on academic performance in university contexts of a Spanish adaptation of the Time Management Behavior Questionnaire. The scale was applied to 462 students newly admitted at the Universitat de València in the 2006-2007 school year. The analyses performed made it possible to reproduce the factorial structure of the original version of the questionnaire with slight modifications in the ascription of various ítems. The underlying factorial structure includes four interrelated dimensions (Establishing objectives and priorities, Time management tools, Perception of time control and Preference for disorganization), which present satisfactory levels of reliability and an adequate convergent validity with the Time management subscale of the Motivated Strategies for Learning Questionnaire. The scores on the dimensions of time management show significant levels of association with academic performance in the first year of university studies, especially highlighting the predictive capacity of the subscale dealing with the Establishment of objectives and priorities. These results show the reliability and validity of this adaptation of the scale for evaluating how the students manage their academic time, and predicting their performance in the year they initiate the degree program, thus aiding in the development of intervention proposals directed towards improving these skills.
Keywords: time management, self-regulated learning, first year university students, psycho-educational evaluation, student support services.

El objetivo del estudio es analizar las características psicométricas y la capacidad predictiva sobre el rendimiento académico en contextos universitarios de una adaptación española del Time Management Behavior Questionnaire. La escala fue aplicada a 462 estudiantes de nuevo acceso a la Universitat de València en el curso 2006-2007. Los análisis permiten reproducir la estructura factorial de la versión original del cuestionario con ajustes en la adscripción de diversos ítems, integrando cuatro dimensiones interrelacionadas (Establecimiento de objetivos y prioridades, Herramientas para la gestión del tiempo, Percepción del control del tiempo y Preferencias por la desorganización), que presentan niveles satisfactorios de fiabilidad y validez convergente. Las dimensiones de gestión del tiempo muestran niveles de asociación significativos con el rendimiento en el año de acceso a los estudios universitarios, destacando especialmente la capacidad predictiva de Establecimiento de objetivos y prioridades. Estos resultados constatan la fiabilidad y validez de la adaptación efectuada, así como su capacidad de pronóstico sobre el rendimiento en el año de incorporación a la universidad, facilitando el desarrollo de propuestas de intervención dirigidas a la mejora de las habilidades de gestión del tiempo.
Palabras clave: gestión del tiempo, aprendizaje autorregulado, estudiantes de nuevo acceso a la universidad, evaluación psicoeducativa, servicios de apoyo al estudiante.

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Transition to the university is a life event that involves numerous changes in students' usual patterns of behavior as learners, in their relationships with their new classmates, and in the academic demands to which they must respond. Therefore, students must make a great effort to adapt, and they need to develop adequate strategies to deal with the new situations and academic criteria they face. The importance of facilitating this transition becomes evident when reviewing recent studies on university drop-out rates in our context. These studies show that approximately half of those who drop out do so in their first year of university (e.g., Bethencourt, Cabrera, Hernández, Alvarez, & González, 2008; Lassibille & Navarro, 2008). This situation also exists in Anglo-Saxon contexts, as only 73.6% of students stay for their second year of university studies (Kitsantas, Winsler, & Huie, 2008).

Research focused on analyzing the factors involved in university success and dropout, especially during the first year, has tried to perform a diagnosis based on students' socio-personal variables, as well as the contextual and situational variables linked to failure in the first year of the degree program. The purpose of these studies is to identify those subjects who are at "academic risk", and propose curricular, methodological, instructional and organizational measures that can facilitate the transition process (García-Ros & Pérez-González, 2009). Among the student variables that have received the most attention, time management skills stand out, showing their relationship with adjustment to the university and academic results (e.g., Britton & Tesser 1991; García-Ros & Pérez-González, 2004, 2011; Gortner & Zulauf 2000; Macan 1994, 1996), as well as the level of academic stress (e.g., Claessen, Eerde, Rutte, & Roe, 2007).

Thus, the main objective of the present study is clearly interesting and important, as it consists of further examining how newly-admitted university students manage their academic time, by providing tools with contrasted reliability, validity and predictive capacity of academic performance that can be used to evaluate time management skills in the first year of university.

Academic time management

Academic time management is usually considered "a process directed toward the establishment and achievement of clear academic goals, taking into account the available time and the verification of its use" (Macan, 1994, 1996; Pérez-González, García-Ros, & Talaya, 2003). Thus, effectively managing academic time involves (1) determining the academic *needs and objectives* to be achieved, (2) *evaluating the available time* and our perception of its use, which contributes to proposing tasks and responsibilities that fit our capacities and available time, (3) *planning,* which consists of establishing specific goals, planning and prioritizing the tasks to be done, and (4) *monitoring* our own performance, observing our use of time while doing

the different activities, obtaining information that allows us to persist in the established plan or modify it when faced with diverse circumstances. Decidedly, time management can be considered as an anticipatory variable that favors the activation of other self-regulatory processes involved in academic learning and contributes to an improvement in the academic results variable (Zimmerman, Greenberg, & Weinstein, 1994).

Many studies have analyzed the relationship between time management and relevant variables in educational and organizational contexts (e.g., work and academic stress), but there has been much less research on designing intervention programs in this area (Claessen et al., 2007). Hence, different studies show the relationship between time management and the perception of its control, job satisfaction and work and academic stress (e.g., Gillespie, Walsh, Winefield, Dua, & Stough, 2001; Kearns & Gardiner, 2007; Macan, Shahani, Dipboye, & Phillips, 1990). In the university setting, findings have also shown that inadequate time management is perceived as a reason for low achievement (Ling, Heffernan, & Muncer, 2003), and that its effective control is related to better outcomes (Britton & Tesser, 1991; García-Ros & Pérez-González, 2011).

Evaluation instruments of academic time management

The number of instruments that evaluate time management skills is a clear indicator of the importance and interest aroused by this psychological construct. Numerous inventories on learning and study strategies have incorporated subscales for its evaluation that usually have a one-dimensional perspective and have been shown to be good predictors of achievement. Several stand out, such as the *Learning and Study Strategies Inventory* (Weinstein, 1987), the *Approaches to Studying Inventory* (Entwistle & Tait, 1995) or the *Motivated Strategies for Learning Questionnaire* (Pintrich, Smith, García, & McKeachie, 1991; García & Pintrich, 1995). There are also many specific questionnaires on time management, some of which are noteworthy due to the number of scientific references to them and their extensive use in university contexts, as in the case of the *Time Structure Questionnaire* –TSQ- (Bond & Feather, 1988), the *Time Management Behavior Questionnaire* –TMBQ- (Macan et al., 1990) and the *Time Management Questionnaire* – TMQ- (Britton & Tesser, 1991). Their basic characteristics are presented in table 1.

The TSQ evaluates the degree to which subjects perceive that they use their time in a structured way and according to some pre-established objectives or goals. In university contexts, a relationship has been found between the perception of personal goals and time structuring and greater psychological well-being, optimism about the future, and more efficient study habits (Bond & Feather, 1988). The

Table 1

Instruments for the evaluation of time management in university contexts

Instrument	Time Structure Questionnaire (TSQ)	Time Management Questionnaire (TMQ)	Time Management Behavior Questionnaire (TMBQ)
Authors	Bond & Feather (1988)	Britton & Tesser (1991)	Macan et al. (1990)
Validation population	– University students – Workers	– University students	– University students – Workers – Salespersons
Analysis Structure	Principal components factorial analysis with varimax rotation	Principal components factorial analysis with varimax rotation	Principal components factorial analysis with varimax rotation
Factors	Five Factors 42.8% of explained variance I.– Perception of personal goals II.– Time Structuring III.– Current Orientation IV.– Effective Organization V.– Persistence	Three Factors 36% of explained variance I.– Short-term planning. II.– Attitudes toward time III.– Long-term planning.	Four Factors 72% of explained variance I.– Establishment of goals and priorities. II.– Time management tools III.– Perception of control over time IV.– Preferences for disorganization

TMQ evaluates long- and short-term planning skills, as well as the degree to which students are aware of the way they use their time. Its factorial validity and predictive capacity of academic performance have been demonstrated in various studies (e.g., García-Ros & Pérez-González, 2004; Mpofu, D'Amico, & Cleghorn, 1996).

The TMBQ is also one of the time management instruments with the most prestige, amount of use and validity (Misra & McKean, 2000; Shahani, Weiner, & Streit, 1993). Various studies have shown its factorial validity, reproducing its original structure, with some adjustments, and showing its convergent validity with the TSQ (e.g., Adams & Jex, 1997; Mudrack, 1997; Shahani et al., 1993). However, given that its items present a greater degree of specificity and concreteness of the behaviors linked to time management, the TMBQ offers an added value compared to the TSQ and TMQ. The TMBQ (a) provides the student with much more specific information and more specific referents about their own performance and (b) facilitates the connection between evaluation and intervention, making it possible to design intervention programs directed toward improving these skills.

In addition, the theoretical model on which the TMBQ is based is considered one of the most complete and fully developed time management models (Claessens et al., 2007). It integrates three behavioral dimensions (establishment of objectives and priorities, management tools, and preferences for disorganization), whose effects on performance, satisfaction and stress are mediated by the cognitive dimension of perceived control over time (Macan, 1994, 1996). Various studies have evaluated this model in different contexts and types of populations, showing the mediator role of perceived control over time -especially regarding the establishment of objectives and the preference for disorganization- in academic performance, satisfaction and stress (Adams & Jex, 1999; Claessen, Eerde, Rutte, & Roe, 2004). However, in addition to the indirect relationship between establishing objectives and academic achievement mediated by the perception of control over time, these studies found a direct relation between the two variables, a result that needs to be further analyzed.

The present study

From the perspective of providing services to first year university students, and in order to have tools with contrasted validity and efficacy that can evaluate time management skills in university contexts and facilitate the development of corresponding intervention programs, we propose the adaptation and validation of the TMBQ in a Spanish university population. More specifically, we intend to analyze its factorial structure, psychometric characteristics, convergent validity and capacity to predict academic performance in first-year university students.

Method

Participants

The participants in this study were 462 newly-admitted students to the Psychology degree program (270 students) and the Teacher education program (192 students) of the

Universitat de València (Spain) in the 2006-07 school year. The distribution by sex was 393 females (85.1%) and 69 males (14.9%), with an average age of 19.9 years (range 18-30 years) and a standard deviation of 1.3. Both the sex and age distributions of the sample reflect what is generally found in these particular degree programs.

Instruments and Variables

The original scale of the TMBQ (Macan, 1994, 1996), which underwent adaptation and validation in this study, is a self-administered instrument that integrates 34 items related to the way students manage their learning and study time. The subjects' responses indicate the degree to which the items describe their usual way of managing their time, using a 5-point Likert-type response scale, where 1 corresponds to *"never"* and 5 to *"always"*. The scale evaluates four complementary dimensions:

– *Establishing objectives and priorities*. This scale evaluates the student's willingness to select and prioritize academic tasks in order to achieve his or her objectives. It is made up of 10 items -1, 5, 7, 9, 13, 17, 21, 24, 27 and 31- (e.g., "Divide complex and difficult projects into smaller more manageable tasks"), its response range lies between 10-50, and its internal consistency is .90.

– *Time management tools.* This instrument evaluates the use of techniques associated with effective time management, such as the use of the agenda, making lists of activities to do, or checking the tasks already done. It consists of 11 items -3, 6, 11, 14, 18, 22, 25, 28, 32, 33 and 34- (e.g., "I make a list of the things I have to do every day and put a mark next to each task when I have finished it"), with a response range between 11-55 and an internal consistency of .88.

– *Preferences for disorganization*. This scale evaluates the way subjects organize their tasks and the degree to which they maintain a structured study environment. High scores on the factor indicate the development of activities without prior planning and structuring, as well as the maintenance of a disorganized study setting. It is made up of 8 items -2, 8, 12, 16, 20, 23, 26 and 30- (e.g., "My work days are too unpredictable to plan and manage my time"), with a response range between 8-40 and an internal consistency of .70.

– *Perception of control over time*. This scale evaluates the degree to which the subject perceives that he or she effectively controls and manages his or her time. Given the inverse nature of the factor, high scores indicate the sensation of lack of control over time, feeling overwhelmed by trivial tasks and details, dedicating a lot of time to secondary tasks, or taking on too many tasks and responsibilities. It is made up of 5 items – 4, 10, 15, 19 and 29- (e.g., "I have to spend a lot of time on unimportant tasks"), with a response range between 5-25 and an internal consistency of .68

To analyze the convergent validity of the adaptation of the TMBQ, the *Time management and study environment* subscale of the MSLQ was used (García-Ros & Pérez-González, 2009), as it evaluates the establishment of adequate time periods for studying (daily, weekly, monthly), the effective use of time, setting realistic objectives, and the characteristics of the setting in which the subject usually studies and does his or her academic activities. It consists of 8 items (e.g., "I make sure I am caught up on the material and projects"), with a response range between 8-56 and an internal consistency of .79.

Given that one of the objectives of this study is to analyze the TMBQ's predictive capacity of academic results, the study also considers the variable *Academic Performance,* defined as the mean of the grades obtained in the different subjects in the first year of university. In addition, and in order to determine the incremental validity of the time management dimensions over the students' university entrance variables to predict academic achievement, the variables considered were *Sex, Age of Entrance* and university *Entrance Grade. Age of entrance* was based on the age of admission to the university, with *Normal Age* being 20 or younger, and *Late Age* 21 or older. The variable *Entrance Grade* is the grade with which the student entered the university.

Procedure

The original version of the TMBQ was translated into Spanish by two translators who compared their respective versions until agreeing on the translation considered most appropriate. The preliminary version was presented for analysis and discussion to a group of five university professors and two school psychologists. After careful consideration, they unanimously pointed out the need to introduce some minimal changes, obtaining the version of the scale that has been used in this study (Appendix).

The data was collected at the beginning of the second trimester of the 2006-2007 school year, by applying the adaptation of the TMBQ during the school day in the participants' classrooms. At the same time, the *Time management and study environment* subscale of the MSLQ was applied. Participation was voluntary, and information about the study objectives was provided.

After the recording and codification of the data, the next step was to determine the factorial structure of the adaptation of the TMBQ, analyze its psychometric properties and the reliability of the corresponding subscales, and examine its convergent validity with the MSLQ subscale selected.

Finally, in order to determine the TMBQ's capacity to predict academic performance in the first year of university, the boards of governors of the Psychology and Teaching degrees were asked to provide the academic results of the participants in the study. After obtaining their agreement

in the case of the Psychology degree, the Information Services of the Universitat de València provided the students' grades in the different subjects they had been enrolled in, after the second official exam period of the school year had ended, as well as their university entrance grades.

Analysis

All the analyses were performed using the SPSS 15.0. First, a Principal Components Exploratory Factorial Analysis with varimax rotation was carried out to investigate the dimensionality of the responses given by the subjects. Second, an analysis was performed of the descriptive statistics and psychometric characteristics of the adaptation of the TMBQ, as well as the analysis of its convergent validity with the Time Management subscale of the MSLQ. Finally, to test the TMBQ's predictive capacity of academic achievement, a hierarchical regression analysis was performed, using as predictors the socio-demographic and educational variables previously considered, together with the scores on the dimensions of the TMBQ and, as the criterion, the academic performance in the first year of university studies. The categorical explanatory variable *Sex* was introduced in the correlational analyses and in the regression model using *dummy* type codification.

Results

Exploratory Factorial Analysis

The initial results of the EFA highlight the adequacy of the data for the application of this type of analysis, given that both the Kaiser-Meyer-Olkin (.88) measure of sample fit and the Bartlett ($\chi^2(561) = 5241.1$ $p < .001$) sphericity test presented adequate values. The consideration of the Kaiser test together with the scree test indicated the presence of four main factors that jointly explain 42.93% of the data variance.

Table 2 presents the basic descriptors of the items and the main results of the factorial analysis. The first factor (with a eigenvalue of 8.2 and explaining 24.08% of the data variance) incorporates all the items on the original *Establishment of objectives and priorities* scale – except item 24, which was integrated into the second factor obtained- together with three items from the original *Time management tools* scale (items 6, 32 and 34). The second factor (eigenvalue of 2.82 and explaining 8.29% of the variance) includes all the items from the original *Time management tools* scale –except the three items mentioned above- together with item 24, already mentioned. The third factor (eigenvalue of 2.16 and explaining 6.35% of the variance) includes all the items from the original scale *Perception of control over time,* together with three elements

Table 2

Basic descriptors and factorial solution (saturations above .35 are incorporated)

Item	Mean	SD	Factorial saturation				Communality
			1	2	3	4	
1	3.84	0.82	.60				.41
2	2.61	0.90		−.38	.56		.50
3	3.30	1.41		.62			.44
4	2.93	1.05			.49		.30
5	3.46	0.97	.52				.43
6	3.21	1.10	.45				.41
7	3.33	1.05	.57				.41
8	3.43	1.27				−.36	.39
9	3.73	0.92	.63				.49
10	3.07	1.13			−.61		.57
11	2.93	1.34		.47			.29
12	1.79	1.14				.64	.50
13	3.98	0.90	.58				.49
14	4.09	1.03	.38	.52			.55
15	2.62	0.94			.58		.35
16	1.90	1.03			.52		.37
17	3.57	0.93	.62				.44
18	3.53	1.31		.56			.55
19	2.47	1.03			.64		.47
20	2.32	1.04			.43		.32
21	3.69	0.96	.63				.42
22	3.90	1.30		.58			.55
23	2.32	1.17				.71	.53
24	2.27	1.04		.56			.47
25	2.53	1.38		.73			.55
26	2.31	1.10				.76	.60
27	3.20	1.13	.49	.44			.46
28	3.43	1.33		.39			.27
29	3.35	1.03			.57		.42
30	2.33	0.97				.49	.32
31	3.64	1.01	.52				.40
32	3.21	1.12	.45				.31
33	3.00	1.29		.45			.39
34	3.82	1.05	.48				.40

from the original *Preferences for disorganization* subscale (items 2, 16 and 20). Finally, the fourth factor (eigenvalue of 1.44 and explaining 4.22% of the variance) consists of five items from the original *Preferences for disorganization* scale.

Considering that the rating of the items can range between 1 (*not at all*) and 5 (*always*), the average score on the items in the first two factors is situated at higher levels than the theoretical mean of the response scale. More specifically, the average of the scores from factor 1 is 3.56, with a standard deviation of .61. Meanwhile, the average of the scores on the items in factor 2 is 3.26, and the

Table 3

Basic descriptors, level of association and internal consistency (Cronbach's alphas) of the subscales

Subscale	Mean	SD	Pearson Correlation			
			1	2	3	4
1.-Establishing objectives	42.68	7.21	(.84)			
2.-Time management tools	26.04	6.52	.51***	(.79)		
3.-Perception of control	18.20	3.46	−.41***	−.26***	(.71)	
4.-Preferences for disorganization	8.98	3.46	−.27***	−.32***	.34***	(.72)

*** $p < .001$

Table 4

Correlations among the explanatory variables and academic performance

Variable	1	2	3	4	5	6	7	8
1. Sex	1.00							
2. Age of entrance	−.08	1.00						
3. Entrance grade	.12*	−.18***	1.00					
4. Establishing objectives	.11*	−.12*	.12*	1.00				
5. Time management tools	.12*	−.02	.09	.52***	1.00			
6. Perception of control	.01	.04	−.01	−.33***	−.22***	1.00		
7. Prefer. disorganization	−.13*	.01	−.01	−.27***	−.32***	.28***	1.00	
8. Academic Performance	.01	−.07	.32***	.40***	.30***	−.13*	−.05	1.00

$p < .05$, ** $p < .01$, *** $p < .001$

standard deviation is .82. However, the scores on the items in factor 3 –average of 2.60 and standard deviation of .63- and those of factor 4 -average 2.25 and standard deviation of .86- show a profusion of values below the theoretical mean of the response scale.

Finally, almost all the items presented adequate communality indexes (except items 11 and 28, which presented values near .30); in addition, three items presented significant saturations in more than one factor (items 2, 14 and 27) –although with higher values in the factor from the original scale of reference-, so that the decision was made to provisionally maintain them in later analyses.

Analysis of items, internal consistency and levels of association among subscales

After the analysis of the factorial structure of the adaptation of the TMBQ and the basic descriptors for each of the elements, the corrected item-total correlation was calculated for each of the items. All of the values obtained showed an adequate discriminant capacity of the items (Wilmut, 1975), with the exception of items 4 (value of .22), 11 (value of .29) and 30 (value of .28), which were eliminated from the corresponding subscales. Thus, the average of the discrimination indexes for all the items in the different subscales is .50 for *Establishment of objectives and priorities* (range .37 to .61), .50 for *Time management*

tools (range .37 to .58), .42 for *Perception of control over time* (range .35 to .55), and .51 for *Preferences for disorganization* (range .35 to .60).

Table 3 presents the basic descriptors for each of the subscales and the level of association among them, revealing that in all cases significant values were obtained, with the highest values reached by the correlations between *Establishment of objectives* and *Time management tools* (r = .51, p < .001***), and between *Establishment of objectives* and *Perception of control over time* (r = -.41, p < .001***). Furthermore, the values of the Cronbach's alpha coefficients for each of the subscales are located on the diagonal.

Regarding the convergent validity of the adaptation of the TMBQ, all the dimensions show significant levels of association –and in the expected direction- with the *Time management and study environment* subscale of the MSLQ. More specifically, *Establishment of objectives and priorities* presented the highest correlation (r = .54, p < .001***), followed by *Time management tools* (r = .38, p < .001***), *Perception of control over time* (r = -.35, p < .001***), and *Preferences for disorganization* (r = -.33, p < .001***).

Time management and academic performance

In order to determine the predictive capacity of the time management dimensions on academic performance in the

Table 5
Hierarchical regression analysis of Academic Performance

Variables	R^2	Change R^2	F	Sig. Change F	Beta	t
Academic Performance						
Model 1	.10	.10	10.0	.001		
Sex					.03	.52
Age					−.01	−.24
Entrance Grade					.32	5.34***
Modelo 2	.26	.16	13.2	.001		
Sex					.06	1.12
Age					.03	.29
Entrance grade					.28	5.08***
Establishing objectives					.33	5.03***
Time management tools					.14	2.19*
Perception of control					−.02	−0.28
Preferences disorganization					.11	1.90

* $p < .05$, ** $p < .01$, *** $p < .001$

first year of university studies, as well as their incremental validity with regard to the students' socio-personal and prior academic variables (*Sex, Age* and *University entrance grade*), a multiple hierarchical lineal regression analysis was carried out. Model 1 considers *Sex, Age, and Entrance grade* as explanatory variables, while Model 2 also considers the time management dimensions.

A prior analysis was performed of the relation between the explanatory variables and *Academic performance* (Table 4). *Entrance grade* ($r = .32$, $p < .001***$) and three dimensions of time management presented significant levels of association with *Academic performance* in the first year of university, especially highlighting, in the latter case, the relationship with *Establishment of objectives and priorities* ($r = .40$, $p < .001***$).

Table 5 presents the results of the hierarchical regression analysis, showing that both Model 1 (socio-demographic and prior educational variables) and Model 2 (considering, in addition, the dimensions of the TMBQ) significantly predict *Academic performance* (Model 1, $F(3, 264) = 10.0$, $p < .001***$; Model 2, $F(7, 260) = 13.2$, $p < .001***$). Furthermore, Model 2 significantly increases the percentage of variance in academic performance explained by Model 1 ($\Delta R^2 = .16$, $F(4, 260) = 14.0$, $p < .001***$).

More specifically, Model 1 explains 10.2% of the criterion variance, with *Entrance grade* ($\beta = .32$, $p < .001***$) being introduced in the regression equation. Meanwhile, Model 2 manages to explain 26.2% of the criterion, with *Entrance grade* ($\beta = .28$; $p < .001***$), *Establishment of objectives and priorities* ($\beta = .33$; $p < .001***$) and *Time management tools* ($\beta = .14$; $p < .05*$) being introduced in the equation.

Conclusions and Discussion

In agreement with the conclusions from previous research, the results of this study show the multi-dimensional nature of academic time management, obtaining four interrelated underlying factors that explain 42.93% of the variance in the responses provided by the participants in the study. The factorial structure of the adaptation of the TMBQ is quite similar to that of the original instrument (Macan, 1994, 1996), maintaining the psychological sense of its dimensions. However, it should be pointed out that seven items became incorporated in different dimensions from those initially expected (items 2, 6, 16, 20, 24, 32 and 34), and various items revealed an unclear situation in relation to their factorial weights (items 8 and 28 present values below .40, while items 2, 14 and 27 show saturations above .35 in more than one dimension). This question, on the other hand, was also seen in the original version of the instrument.

Along the same lines, previous studies designed to evaluate the factorial validity of the TMBQ with different types of populations –workers, salespersons, students, and university professors- and in different contexts (e.g., Adams & Jex, 1997; Barling, Keloway, & Cheung, 1996; Claessen et al., 2004; Peeters & Rutte, 2005), present similar discrepancies with the structure of the original instrument. However, although it can be stated that the results are congruent with those obtained in previous studies dealing with this same question (Macan, 1994), the variations among the items that make up the different scales may affect the ability to compare results from different studies.

More specifically, the first factor obtained in this study basically coincides with the original subscale of

Establishment of objectives and priorities, incorporating all of its items (except "I review my daily activities to see where I waste time" -item 24-), together with three additional items that in the original test belonged to *Time management tools* ("I organize my activities at least one week in advance" –item 6-, "if I know I am going to have to wait for a while, I prepare something to do meanwhile" –item 32- and "I find places to work where I can avoid interruptions and distractions" –item 34-). The second factor obtained basically coincides with the original *Time management tools* scale, incorporating the aforementioned item 24 and seeing the displacement of three of the items on the original scale to the preceding dimension.

The third dimension obtained integrates all the items on the original *Perception of control* subscale, together with three additional items from the *Preferences for Disorganization* subscale obtained by Macan ("when I make a list of things to do, at the end of the day I have forgotten it or put it aside" –item 2-, "the time I spend managing my time and organizing my day is time wasted" –item 16- and "my work days are too unpredictable to plan and manage my time" –item 20-). Finally, all the items incorporated in the fourth dimension correspond to the original *Preferences for disorganization* subscale, which also included items 2, 16 and 20, although in this study they were moved to the preceding dimension.

The results also show the psychometric goodness of the Spanish adaptation of the TMBQ, as well as a high degree of fit with the psychometric indicators highlighted by the authors of the original instrument (Macan, 1994) and by authors who have adapted this instrument in other contexts (e.g., Jex, 1999). More specifically, the internal consistency indices obtained in the present study present lower values than those from previous research on *Establishment of objectives and priorities* (.84) and *Time management tools* (.79), and slightly higher ones on *Perception of control over time* (.71) and *Preferences for Disorganization* (.72). Moreover, the analysis of the convergent validity of the TMBQ adaptation with the *Time management and study environment* subscale of the MSLQ also presents satisfactory results, showing significant mean levels of association between the subscales of the two instruments.

On the other hand, consistent with the conclusions from previous research, three of the TMBQ scales (but not on *Preferences for Disorganization*) show significant relationships with *Academic Performance*, especially the *Establishment of objectives and priorities* dimension. On the whole, the hierarchical regression analysis performed shows that the dimensions of the TMBQ are good predictors of academic performance in the first year of university, significantly increasing the percentage of explained variance over the criterion based on the socio-demographic and educational variables considered. More specifically, in the resulting regression equation, *Entrance grade, Establishment of objectives and priorities* and *Time management tools*

were introduced. These results are coherent with available evidence on university contexts that links time management with academic success (e.g., Britton & Teser, 1991; Claessens et al., 2007; Gortner & Zulauf, 2000; Macan et al., 1990).

Decidedly, the results obtained in this study show that the TMBQ adaptation is a reliable and valid instrument to evaluate the way students manage their academic time, predict their performance in the first year of university, and develop intervention proposals designed to improve these skills. Providing evidence of a significant relationship with academic performance in the first year of university opens up new possibilities for assessment and intervention in the complex process of adaptation to the university context. Nevertheless, we are aware that, in addition to studies that use self-report instruments to evaluate academic time management, it would be advisable to carry out studies that can supply more precise information about time management behaviors of university students in real situations, through analyses of how they plan and prioritize everyday tasks, how they distribute their work and play time, how they effectively use their time, and how they manage unexpected situations and problems that arise throughout the day. Finally, to aid in generalizing the results to the entire university population, future studies should evaluate the TMBQ's psychometric characteristics and predictive capacity of the academic results of students in a wide range of university degree programs –given that the participants in this study come exclusively from Psychology and Teaching credential programs. They should also use more balanced samples in terms of the sex of the participants –given that in both degrees women predominate to a great extent- and students from different academic levels.

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APPENDIX

Spanish adaptation of the TMBQ applied in the study

¿Hasta qué punto describen las afirmaciones siguientes tu forma habitual de afrontar las situaciones y experiencias de estudio? Indica el grado en que cada frase te describe, sabiendo que no hay respuestas correctas ni erróneas.

　　　　(1) nunca　　　　　*(2) pocas veces*　　　　*(3) algunas veces*　　　　*(4) habitualmente*　　　　*(5) siempre*

1. Cuando decido qué es lo que voy a intentar conseguir a corto plazo, tengo en cuenta también mis objetivos a largo plazo	1	2	3	4	5
2. Cuando hago una lista de cosas a realizar, al final del día se me ha olvidado o la he dejado de lado	1	2	3	4	5
3. Llevo una libreta para apuntar notas e ideas	1	2	3	4	5
4. Subestimo el tiempo necesario para cumplimentar tareas	1	2	3	4	5
5. Repaso mis objetivos para determinar si debo hacer cambios	1	2	3	4	5
6. Organizo mis actividades con al menos una semana de antelación	1	2	3	4	5
7. Divido proyectos complejos y difíciles en pequeñas tareas más manejables	1	2	3	4	5
8. Al final de cada día, dejo mi lugar de trabajo ordenado y bien organizado	1	2	3	4	5
9. Establezco objetivos a corto plazo para lo que quiero conseguir en pocos días o semanas	1	2	3	4	5
10. Tengo la sensación de controlar mi tiempo	1	2	3	4	5
11. Cuando observo que contacto frecuentemente con alguien, apunto su nombre, dirección y número de teléfono en un lugar especial	1	2	3	4	5
12. Puedo encontrar las cosas que necesito más fácilmente cuando mi lugar de trabajo está "patas arriba" y desordenado que cuando está ordenado y organizado	1	2	3	4	5
13. Me marco fechas límite cuando me propongo realizar una tarea	1	2	3	4	5
14. Escribo notas para recordar lo que necesito hacer	1	2	3	4	5
15. Tengo que emplear mucho tiempo en tareas sin importancia	1	2	3	4	5
16. El tiempo que empleo en gestionar el tiempo y organizar mi jornada de trabajo es tiempo perdido	1	2	3	4	5
17. Busco maneras de incrementar la eficacia con que realizo las actividades en mi trabajo	1	2	3	4	5
18. Hago una lista de cosas que hacer cada día y pongo una señal al lado cuando la he cumplido	1	2	3	4	5
19. Encuentro difícil mantener un horario porque los demás me apartan de mi trabajo	1	2	3	4	5
20. Mis jornadas de trabajo son demasiado impredecibles para planificar y gestionar mi tiempo	1	2	3	4	5
21. Termino tareas de *alta prioridad* antes de realizar las menos importantes	1	2	3	4	5
22. Llevo una agenda conmigo	1	2	3	4	5
23. Cuando estoy desorganizado soy más capaz de adaptarme a acontecimientos inesperados	1	2	3	4	5
24. Repaso mis actividades diarias para ver donde pierdo el tiempo	1	2	3	4	5
25. Mantengo un diario de las actividades realizadas	1	2	3	4	5
26. Tengo algunas de mis ideas más creativas cuando estoy desorganizado	1	2	3	4	5
27. Durante un día de trabajo evalúo si estoy cumpliendo con el horario que he pre-establecido	1	2	3	4	5
28. Utilizo un sistema de bandejas para organizar la información	1	2	3	4	5
29. Me doy cuenta de que estoy aplazando las tareas que no me gustan pero que son necesarias	1	2	3	4	5
30. Noto que puedo hacer un mejor trabajo si aplazo las tareas que no me gustan en lugar de intentar hacerlas por orden de importancia	1	2	3	4	5
31. Establezco prioridades para determinar en qué orden haré las tareas cada día	1	2	3	4	5
32. Si sé que voy a tener que esperar un tiempo, preparo alguna tarea para realizar mientras tanto	1	2	3	4	5
33. Establezco bloques de tiempo en mis horarios para actividades que hago habitualmente (compras, ocio, navegar por la web, …)	1	2	3	4	5
34. Encuentro lugares para trabajar donde puedo evitar interrupciones y distracciones	1	2	3	4	5