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CONCURRENT AND PREDICTIVE VALIDITY OF THE STUDENT ADAPTATION TO COLLEGE QUESTIONNAIRE IN A SAMPLE OF EUROPEAN FRESHMAN STUDENTS

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This study represents the first attempt to examine the validity of scores on the Student Adaptation to College Questionnaire (SACQ) in a sample of European university students. Concurrent validity was established through significant correlations in the expected direction with alternative measures of student adjustment (academic motivation, loneliness, depression, and general adjustment to university). Further concurrent validity evidence for selected subscales was provided through moderate associations with students' engagement in social activities and their self-reported use of psychological services provided on campus. Findings regarding predictive validity, as assessed through correlations with student attrition and academic results, went in the expected direction but were somewhat less convincing. The latter results are explained in terms of differences between European and North American systems of higher education. With some reservations regarding the Academic Adjustment subscale, then, the SACQ seems to be a useful tool for research on university life among college students in Europe.

The Student Adaptation to College Questionnaire (SACQ) is a self-report instrument designed by Baker and Siryk (1984, 1989) to assess students' adjustment to college. Baker and Siryk (1984) assumed that adjustment to university is multifaceted in that it requires adjustment to a variety of demands. Four aspects of adjustment to college or university are measured. Academic Adjustment measures how well the adolescent manages the educational de-

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mands of the university experience. Social Adjustment measures how well the adolescent deals with interpersonal experiences at the university (e.g., making friends, joining groups). Personal-Emotional Adjustment indicates whether the student experiences general psychological distress or shows somatic symptoms of distress. Finally, the Institutional Attachment subscale assesses the degree of commitment the adolescent feels toward the university as an institution. The SACQ also yields a full-scale score as an index of overall adjustment to university.

All four subscales of the instrument proved to be internally consistent in several independent studies (Cronbach's alpha > .80; see Baker & Siryk, 1989, for a review). Validity has been demonstrated through statistically significant correlations between the SACQ subscales and a variety of relevant measures, such as academic motivation, depression, loneliness, psychological separation from parents, grade point average, involvement in social activities, attrition, election to an academic honor society, belonging to a fraternity or sorority, and appeals for psychological services (Baker & Siryk, 1989; Chartrand, 1992; Montgomery & Haemmerlie, 1993; Napoli & Wortman, 1998). Based on these findings, the SACQ seems to have potential as a useful tool for research related to college life (Dahmus, Bernardin, & Bernardin, 1992).

However, virtually all published studies using the SACQ involved freshmen students from colleges and universities in North America. Validity evidence for the SACQ, therefore, may not generalize to other cultures that boast different educational traditions. The measure has been translated into Chinese and used with college students in the People's Republic of China (Tao, Dong, Pratt, Hunsberger, & Pancer, 2000) and with Chinese exchange students in Japan (Jou & Fukada, 1995). No studies have been conducted so far with students in Europe.

The purpose of this study was to examine the concurrent and predictive validity of the SACQ scores in a sample of European university students. Concurrent validity was assessed halfway through the first semester (in mid-November) through correlations with alternative measures of adjustment. In line with results from earlier work with the SACQ on North American samples (see Baker & Siryk, 1989, for a review), higher scores on the Academic Adjustment subscale were expected to be associated with higher levels of academic motivation. Higher scores on the Social Adjustment subscale were hypothesized to correlate with lower levels of loneliness, whereas higher scores on the Personal-Emotional Adjustment subscale were expected to be associated with lower levels of depression. Finally, the Institutional Attachment subscale was expected to correlate positively with a brief general measure of adjustment to university.

Additional concurrent validity evidence was expected to emerge from significant but somewhat lower correlations with a set of criterion-related measures. The Social Adjustment subscale was expected to be associated with

students' score on a social activities checklist. A modest negative correlation (average $r = -.24$ in Baker & Siryk's, 1989, review) was expected between students' scores on the Personal-Emotional Adjustment subscale and their use of psychological services provided on campus.

Predictive validity was assessed through associations with student attrition and academic results at three different points during the academic year (end of the first semester, end of the second semester, and repeat exams in the fall). Significant negative correlations were expected (Baker & Siryk, 1989, review) between students' scores on the Institutional Attachment subscale (average $r = -.38$) and the Social Adjustment subscale (average $r = -.21$), on one hand, and student attrition, on the other. Finally, moderate positive correlations (average $r = .34$) were expected between students' scores on the Academic Adjustment subscale and their grade point average.

Method

Participants

A total of 368 freshmen students in psychology from a large university (total enrollment 25,000) in the Dutch-speaking part of Belgium participated in this study. The university mainly attracts Caucasian students with a middle-class background. The participation rate in this study was high (94%). A breakdown by gender yielded 293 females and 75 males. The unbalanced gender distribution in the sample mirrored the distribution in the student population of the psychology department. Students' mean age was 18 years and 8 months ($SD = 9$ months). For the major part, students came from intact families (i.e., both parents present, $n = 314$, or 85%) and did not have a job (neither part-time nor full-time, 91%).

A large majority (81%) of the students rented a room in the city where the university is located during the week but returned home to their parents at least every weekend and for the holidays. The other 19% were commuters who lived with their parents full-time. Initial analyses failed to indicate any differences between these two groups of students in their average levels of adjustment or in the associations that SACQ scales evidenced with other variables in this study. Therefore, all analyses were performed on the total sample.

Measures

ADJUSTMENT TO UNIVERSITY

The SACQ (Baker & Siryk, 1989) provides subscale scores on four aspects of students' adjustment to university: Academic Adjustment (23 items; alpha = .84), Social Adjustment (18 items; alpha = .84), Personal-

Emotional Adjustment (15 items; alpha = .81), and Institutional Attachment (14 items; alpha = .80). The item "I have not been functioning well during examinations" was not included because students at the time of data gathering (first semester) had not yet had exams. The items "I enjoy living in a college dormitory" and "I am getting along very well with my roommate(s) at college" were also dropped because a substantial number of the students in this study were commuters living with their parents full-time. Following these modifications, the subscale Institutional Attachment has 8 items in common with the other subscales and with Social Adjustment in particular. The total number of items in the SACQ subscales, therefore, is 62 (rather than 70). In addition to these subscale scores, a full-scale score was calculated, including the 62 subscale items and 2 extra items, namely, "I feel I have good control over my life situation at college" and "I feel confident that I will be able to deal in a satisfactory manner with future challenges here at college." This full-scale score (64 items; alpha = .92) provided an index of overall adjustment.

The SACQ was initially developed in English and therefore was translated into Dutch, the native language of the participants. In a first step of the translation process, both authors made an independent translation of these scales and agreed on a common version, following discussion. This preliminary version was then double-checked by a third person with a Ph.D. in psychology. In a second step, the SACQ items were back translated into English by a Ph.D. student in psychology, who had not been involved in the original translation process. To check the accuracy of the translation, another Ph.D. student in psychology matched the original English items and the items back translated into English. Perfect matching was achieved, which seemed to support the adequacy of the SACQ translation used. In short, great care was taken to ensure that similar constructs were measured across the two versions (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999).

A 5-point Likert-type response scale, ranging from *not at all true of me* to *very much true of me*, was used in this study for reasons of compatibility with the other instruments included. The same response scale was already used successfully in earlier adaptations of the SACQ (Jou & Fukada, 1995; Tao et al., 2000). It is understood that this feature of the adapted measure limits comparability with North American studies with the SACQ in which a 9-point response scale was used.

CONCURRENT VALIDITY MEASURES

Academic motivation. This scale contains 19 items taken from a larger instrument that was originally developed in Dutch (Depreeuw & Lens, 1998) to assess students' capacities to organize and manage their coursework. The 19 items that were selected for use in this study refer to students' motivation

to succeed, their will power and perseverance, and their planning or organizational capacities. Sample items are the following: "I like to make an effort for my studies," "Organization, planning and management are the cornerstones of my study," and "When I don't manage to study efficiently anymore, I can adjust my study methods." The scale showed excellent internal consistency (alpha = .87). Students answered all items on a 5-point Likert-type scale ranging from *not at all true of me* to *very much true of me*. In earlier research, high levels of academic motivation, as assessed with this instrument, were associated with lower levels of procrastination and fear of failure (Coeck, 1998).

Loneliness. The UCLA Loneliness Scale Revised (Russell, Peplau, & Cutrona, 1980) measures loneliness conceptualized as a unidimensional emotional response to a discrepancy between desired and achieved levels of social contact. Scores on the UCLA showed very good reliability and both convergent and discriminant validity (Russell, 1982). Cronbach's alpha in this study reached a value of .92. Students answered all items on a 5-point Likert-type scale ranging from *not at all true of me* to *very much true of me*.

Depressive symptoms. The 20-item Center for Epidemiologic Studies Depression Scale (Radloff, 1977) was specifically designed for use with nonclinical samples and assesses the current frequency of depressive symptoms, with emphasis on depressed affect or mood. It is the most frequently used measure of depressive symptomatology in survey research and proved to be both reliable and valid in earlier work. The items refer to various depressive symptoms as identified by Radloff (1977), such as depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. Students were asked to indicate how frequently they experienced a specific symptom within the past week. Responses included *rarely or never* (less than 1 day), *some or a little of the time* (1 or 2 days), *occasionally* (3 or 4 days), and *most or all of the time* (5 up to 7 days). Cronbach's alpha for the 20 items was .89, supporting the idea of a unidimensional scale.

General adjustment. The Adjustment Questionnaire (AQ) (Crombag, 1968) was originally developed in Dutch and consists of 18 statements (alpha = .89) that assess how well the student has adjusted to the university environment in general. The statements refer to how much students feel at home at the university, how much they like being a student, and how pleased they feel with the course of their studies and their social contacts at the university. Sample items are the following: "I can't get used to the life here" (reverse scored) and "I'm very pleased with the way I live here." Students answered all items on a 5-point Likert-type scale ranging from *not at all true of me* to *very much true of me*. Vlaander and van Rooijen (1981) showed that

scores on the AQ were not influenced by social desirability and that high scores on the scale were associated with lower levels of depression.

Social activities. Students were asked how frequently they engaged in a broad range of social activities during the past 3 months. Response categories were *never*, *now and then*, *often*, and *very often*. Only those social activities that were engaged in with some frequency (*now and then* through *very often*) by at least 20% of the students were considered for further analyses. Students' responses to the seven social activities that met this criterion were summarized using exploratory factor analysis (principal components method using varimax rotation). Several criteria, including eigenvalues larger than one, percentage of variance explained, Cattell's scree plot, and parallel testing (Horn, 1965; Thompson & Daniel, 1996), indicated that three factors provided the best solution for these data. This three-factor solution explained 60.3% of the variance in the total sample. Students with high scores on the first factor (Going Out With Friends) often go to a pub for a drink, visit friends, or go to a party. The second factor (Social Bonding) was mainly indicated by dormitory activities and going for lunch or dinner with friends. The third factor (Activities) showed high pattern/structure coefficients for going to the movies, involvement in sports, and visiting friends.

Use of psychological services. Students were asked whether they received any kind of psychological or therapeutic counseling (e.g., from the psychotherapeutic center of the university) and whether they received any form of academic assistance or study counseling (e.g., from the counseling center of the university) since the beginning of the freshman year. Response categories were *never*, *once* (just for advice), or *several times*. A large majority of students never sought any kind of psychological help (93.5%) or study counseling (79.1%). Given the very low frequency of the two remaining response categories, these groups were lumped together to create binary (yes/no) measures of students' use of both types of psychological services.

PREDICTIVE VALIDITY MEASURES

Academic results. At the university involved, there were three exam sessions in the freshman year, that is, in January (end of first semester), June (end of second semester), and September (repeat exams). The results of the January session were indicative only. Students who failed at least one of the exams in the June session (i.e., the large majority of students, 72.5%) could participate in the final exam session in September. For all three exam sessions, students' scores on all exams were averaged and expressed as a percentage (grade point average).

Table 1
Cronbach's Alpha of and Pearson Correlations Between Student Adaptation to College Questionnaire Scale Scores

Adjustment Variable	2	3	4	5	α
Academic Adjustment (23 items)	.38***	.41***	.53***	.77***	.84
Social Adjustment (18 items)		.56***	.85***	.81***	.84
Personal-Emotional Adjustment (15 items)			.57***	.79***	.81
Institutional Attachment (14 items)				.86***	.80
Total Adjustment (64 items)					.92

***$p < .001$.

Attrition. Student dropout was measured three times during the academic year, at each exam session. The attrition rate was small in January (2.7%), somewhat larger in June (7.6%), and rather substantial in September (30.7%). The primary reasons for dropout in June and September were poor results in earlier exam sessions.

Procedure

Questionnaire data were gathered in November, that is, the second half of the first semester of the academic year. Students participated during large group sessions and received course credit for their participation. Filling out the questionnaire took no longer than 1 hour. Data concerning students' academic results and attrition for each exam session were obtained through inspection of academic transcripts at the registrar's office. Although surveys were not anonymous to link questionnaire data and academic results, students were assured that the data would be analyzed anonymously.

Results

Psychometric Properties of the SACQ

Pearson correlations among SACQ subscales and the full-scale score are shown in Table 1. All SACQ subscales were intercorrelated highly. As outlined in the Method section, the different subscales of the SACQ and the full-scale score indicated good internal consistency (Cronbach's alpha > .80). A one-factor maximum likelihood solution based on covariances between the SACQ subscales accounted for 58.7% of the variance in the total sample, supporting the use of a full-scale score. However, the confirmatory test of this model with a single factor was rejected—$\chi^2(2) = 35.03$, $p < .001$, root mean square error of approximation = .20, adjusted goodness-of-fit index = .80—suggesting that the subscales of the SACQ provide a desirable adjunct to the full-scale score.

Table 2
Concurrent Validity Evidence of the Student Adaptation to College Questionnaire (Pearson correlations)

Scale	AA	SA	PEA	IA	Total
Alternative measures of adjustment					
Academic motivation	.68***	.18***	.12*	.23***	.42***
Loneliness	–.27***	–.66***	–.42***	–.56***	–.55***
Depressive symptoms	–.34***	–.59***	–.73***	–.55***	–.68***
General adjustment	.51***	.83***	.67***	.85***	.86***
Social activities					
Going out with friends	–.12*	.22***	.09	.12*	.07
Social bonding	.06	.27***	.12*	.16**	.17**
Activities	.02	.17**	.13*	.12*	.13*
Use of psychological services[a]					
Psychological counseling	–.01	–.09	–.19***	–.05	–.11*
Study counseling	–.03	–.12*	–.13**	–.10	–.11*

Note. AA = Academic Adjustment; SA = Social Adjustment; PEA = Personal-Emotional Adjustment; IA = Institutional Attachment; Total = full-scale score.
a. Point-biserial correlations. 0 = never used any psychological services; 1 = at least once.
*$p < .05$. **$p < .01$. ***$p < .001$.

Concurrent Validity Evidence

Pearson correlations between different aspects of adjustment to university and measures of academic motivation, loneliness, depressive symptoms, and general adjustment are presented in Table 2 (upper part). The SACQ full-scale score correlated highly significantly with all measures of adjustment, sharing 18% to 74% of variance with these measures. High levels of adjustment to university were associated with higher levels of academic motivation, lower levels of loneliness, fewer depressive symptoms, and higher levels of general adjustment.

The correlations on the diagonal in the upper part of Table 2 revealed that the hypotheses regarding associations of SACQ subscales with alternative measures of adjustment were all confirmed. Higher scores on the Academic Adjustment subscale correlated with higher levels of academic motivation. The Social Adjustment subscale correlated negatively with loneliness, and the Personal-Emotional Adjustment subscale evidenced a negative association with depression. The Institutional Attachment subscale correlated positively with a measure of general adjustment to university. This differential pattern of associations was somewhat blurred by the fact that the general adjustment measure correlated highly with all SACQ scales and that the correlates of the loneliness and depression measures were highly similar.

The Social Adjustment subscale and, to a lesser extent, the Institutional Attachment subscale were the only ones to be consistently related to students' scores on the social activities checklist (Table 2, middle part). Finally,

Table 3
Predictive Validity Evidence of the Student Adaptation to College Questionnaire (Pearson correlations)

Exam Session	AA	SA	PEA	IA	Total
Attrition[a]					
January	–.07	–.12*	–.09	–.14**	–.13*
June	–.11*	–.20***	–.16**	–.18***	–.20***
September	–.14**	–.12*	–.16**	–.14**	–.18***
Grade point average					
January	.14**	.01	.10	.00	.09
June	.10	–.05	.08	–.03	.05
September	.02	–.11	–.01	–.14*	–.05

Note. AA = Academic Adjustment; SA = Social Adjustment; PEA = Personal-Emotional Adjustment; IA = Institutional Attachment; total = full-scale score.
a. Point-biserial correlations. 0 = participated in the exams; 1 = dropped out.
*$p < .05$. **$p < .01$. ***$p < .001$.

modest point-biserial correlations indicated that students seeking both psychological and study counseling had significantly lower scores on the Personal-Emotional Adjustment subscale and, to a lesser extent, on the SACQ total scale (Table 2, lower part).

Predictive Validity Evidence

Predictive validity evidence was represented in Table 3. In line with initial expectations, point-biserial correlations revealed that both institutional attachment and social adjustment were consistently associated with lower levels of attrition. Academic adjustment and personal-emotional adjustment only showed significant associations with lower levels of attrition at the June and September exam sessions. However, all correlations obtained were modest. Finally, academic adjustment evidenced a significant positive correlation with grade point average at the January exam session but, contrary to expectations, not at subsequent exam sessions.

Discussion

With few exceptions, scores on the SACQ were found to be reliable and valid in a sample of freshmen students in Belgium. Internal consistency of the total score and all four subscales was sufficiently high to be used for research purposes. Confirmatory factor analysis further confirmed earlier results obtained on North American college students, in that the four subscales make a distinctive contribution to the measurement of college adjustment, over and above the contribution made by the full-scale score.

Concurrent validity was firmly established. Correlations with well-established tests that provided alternative measures of student adjustment were all highly significant in the predicted direction. Taken together, these findings suggest that the four subscales of the SACQ each address a specific aspect of freshmen students' adaptation to the college environment. The Social Adjustment and Personal-Emotional Adjustment subscales also evidenced statistically significant associations with independent real-life criteria, such as students' engagement in social activities and their decisions to seek psychological or study counseling. The correlations obtained were modest, as was the case in the original work on North American students (Baker & Siryk, 1989), but the criteria selected seem especially relevant to the subscales at hand and represent important behaviors and decisions in the lives of students.

Findings regarding predictive validity were less convincing. The Institutional Attachment and Social Adjustment subscales evidenced modest negative correlations with student attrition, as expected. Rather unexpected, however, were the nonsignificant correlations between the Academic Adjustment subscale and students' GPA. It should be pointed out that this correlation was moderate at best in earlier research because the two measures represent different constructs. The SACQ Academic Adjustment subscale is a subjective measure of students' perception of their ability to cope with the academic demands in college, whereas GPA provides an objective measure of students' actual academic achievements (Wintre & Yaffe, 2000). Specific features of European university systems, which diverge from common practices in the North American college system, may also have contributed to our failure to find significant associations between subjective and objective estimates of students' academic abilities. At the Belgian university where this study took place, students never take intermediate tests or quizzes during the academic year. As a result, they have no objective indications as to their true academic abilities until the first exam session at the end of the first semester, that is, several months after the students in this study completed the SACQ. Additional research on the predictive validity of the Academic Adjustment subscale among European students, within the particular context of their college environment, is definitely needed.

This study has some important limitations. Because the SACQ and the concurrent validity scales were all self-report measures, the correlations obtained do partially reflect shared method variance. Use of objective indicators of concurrent validity would help solve this problem and is recommended for future validity studies. Second, concurrent correlations between measures do not give an indication of the direction of effects. So, for instance, students who were depressed also indicated lower levels of social and personal-emotional adjustment. Some would have expected this because the lack of adjustment could have caused the depression. However, it is equally

possible that students who are depressed encounter more problems in their adjustment to the new university environment than nondepressed students do. In spite of these limitations, the present study represents an important first step in the ongoing validation of the SACQ for use with European university students. With some reservations regarding the Academic Adjustment subscale, the SACQ seems to be a useful tool for research on university life among college students in that particular part of the world.

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