

# MEASURING LEARNING ENVIRONMENT PERCEPTIONS: VALIDATION OF THE ITALIAN VERSION OF THE APPROACHES TO STUDYING INVENTORY AND THE STUDENT COURSE EXPERIENCE QUESTIONNAIRE

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The aim of this study was to adapt to the Italian context and validate two instruments used to investigate learning environment perceptions and approaches to study: the Student Course Experience Questionnaire (SCEQ), and the Approaches to Studying Inventory (ASI). A confirmatory factor analysis (CFA) and a cross-validation for both instruments were conducted over a sample of 622 students belonging to different faculties of an Italian university. In the original version (30 items), the SCEQ did not provide satisfactory results. The CFA of the 23 items of the SCEQ version and the 12 items of the ASI showed that they are reliable measures of the respective constructs. CFA of the SCEQ and of the ASI showed acceptable fit indices. Although in need of further improvement, these instruments can be useful in the Italian academic context.

**Key words:** Learning environment; Students' perceptions; Approach to study; Validation of instruments; Academic evaluation.

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## INTRODUCTION

The practice of monitoring the quality of teaching and university organization represents the efforts of academic institutions to ensure increasing learning standards, induced by the globality of the system and the sum of services offered to students. Academic institutions have gradually structured and reworked their policies on the bases of perceptions, satisfaction, needs, and requirements of their primary clients, namely the students (Stefani, 2006; UNI, 2006; Zuffo & Barattucci, 2008). The relationship between academic environment and learning quality has become central and led to a broad range of studies focused on the analysis of academic-related variables. In the British, American, Canadian, and Australian contexts, this field of research has employed two main theoretical approaches: a systemic one, whose main theorist is Biggs (1978, 1999), and a phenomenographic approach, called Student Learning Perspective, referring to several authors (e.g., Entwistle & McCune, 2004; Marton & Säljö, 1976a, 1976b, 1997; Prosser & Trigwell, 1999; Ramsden, 1979, 2003; Trigwell, 2006).

The interest in the measurement of students' perceptions and study strategies is the result

of the needs for academic institutions to demonstrate their effectiveness in teaching, in order to obtain fundings from socio-political systems (Entwistle & McCune, 2004); moreover academic institutions have to be competitive in order to attract excellent students from different countries (Zuffo & Barattucci, 2010). Evaluation has, therefore, become a systematic and central activity within university systems, which have to contend for students in an internationally competitive market. Research efforts, addressing the impact of students' perceptions, have been framed within Biggs's (1989) model, which conceptualizes the learning process as an interactive system of three sets of variables: the learning environment and student characteristics (presage), students' approach to learning (process), and learning outcomes (product). Several indications in the literature underline that situations of excellence, effectiveness of learning, and academic success are determined by the interplay of individual, interpersonal, and contextual factors (Biggs, 1999; Tinto, 1993). In particular, some variables, related to the academic experience of students, considering the perceptions of learning environment and support services, have a great influence on the academic performance, motivation, and approach to study (Entwistle & McCune, 2004; Lizzio, Wilson, & Simons, 2002; Prosser & Trigwell, 1999; Ramsden, 1992, 2003; Vermetten, Vermunt, & Lodewijks, 1999). In the present study, we aimed to validate two instruments used for investigating the perceptions of the learning environment and the approaches to study, in order to launch future studies in the Italian academic context.

#### THE INSTRUMENTS USED TO MEASURE CONTEXT VARIABLES AND APPROACHES TO LEARNING

As early as the late 60's, questionnaires to measure learning methods and students' perceptions of academic environment were developed at the University of Lancaster. These questionnaires can be viewed as prototypes of the Approaches to Studying Inventory and the Student Course Experience Questionnaire, whose development was heavily influenced by convergent studies on learning approaches by Marton and Säljö (1976a), Pask (1976), and Biggs (1978; see also Entwistle, Thompson, & Wilson, 1974). In 1975 Entwistle started to create a questionnaire to measure learning methods, based on six scales: study methods, fear of failure, achievement motivation, agreement with curriculum, socialization, and attitude of disillusionment. As a consequence of the studies by Marton and Säljö (1976a), Biggs (1978), and Ramsden (1979), other scales were added to the questionnaire, leading to the development of the Approaches to Studying Inventory (ASI; Entwistle & Ramsden, 1983). Nowadays, the most frequently used version in the literature (Entwistle & Ramsden, 1983) consists of 64 items divided into 16 scales, rated on a 5-point Likert scale. In its first revision (Revised Approaches to Studying Inventory — RASI; Entwistle & Tait, 1995), the questionnaire was modified and reduced to 60 items. Subsequently, there were further revisions and adaptations, and two short versions of 18 and 12 items (Richardson, 1994; Trigwell & Prosser, 1991).

The literature has described two main approaches to study, the deep approach and the surface approach (Clark, 1986; Entwistle & Waterson, 1988; Harper & Kember, 1989); other studies found that some constructs measured by the ASI may be culturally or contextually defined (for instance, the strategic approach; Lizzio et al., 2002). In order to facilitate the use of instruments in class contexts, Richardson (1990, 1994) pointed out the need for developing shorter

versions of the ASI. To this aim, attempts to develop and empirically test two short scales (deep approach and surface approach) of six items each were done, removing items and subscales that appeared critical in the literature (Lizzio et al., 2002; Trigwell & Ashwin, 2003; Trigwell & Prosser, 1991). Such 12 items are included in the two main instruments used to measure approaches to studying: ASI (Ramsden, 2003) and the Study Process Questionnaire (SPQ; Biggs, Kember, & Leung, 2001). The two subscales showed moderate levels of consistency (Lizzio et al., 2002; Trigwell & Ashwin, 2003). A confirmatory factor analysis (CFA) of the 12-item short form of ASI gave satisfactory results (Lizzio et al., 2002; Trigwell & Prosser, 1991); in fact, using principal component analysis (PCA) with varimax rotation, two factors were distinguishable, accounting for more than 40% of variance, with factor loadings higher than .30.

With regard to instruments for measuring the relationship between students and the academic environment, one of the most common and widely used is the Student Course Experience Questionnaire (SCEQ). The SCEQ is based on the Course Experience Questionnaire (CEQ), developed in the United Kingdom by Ramsden and Entwistle (1981), and used by the Graduate Careers Council of Australia (GCCA) as a measure of perceived quality in all Australian universities receiving funds and public financing (as well as the University of Oxford). Various studies have investigated the validity and reliability of different forms of the CEQ/SCEQ in several academic environments (Byrne & Flood, 2003; Eley, 1992; Espeland & Indrehus, 2003; Lizzio et al., 2002; Matthews, Brown, & Jackson, 1990; Ramsden, 1991; Richardson, 1994, 2005b; Trigwell & Prosser, 1991; Wilson, Lizzio, & Ramsden, 1997). In 1999, the 23 original items of the CEQ/SCEQ, intended for graduates, were adapted to survey undergraduate students' perceptions (SCEQ), and an additional scale regarding aspects related to learning community and campus experience was developed.

The SCEQ is a scale for measuring the quality of students' experience of degree programs. The instrument consists of 29 items rated on a 5-point Likert scale (from *strongly disagree* to *strongly agree*). The SCEQ measures six dimensions of students' perception of their learning environment: good teaching (six items), clear goals and standards (four items), appropriate workload (four items), appropriate assessment (three items), key skills (six items), learning community (six items). Studies investigating the factor structure of the SCEQ (Ginns, Prosser, & Barrie, 2007; Ramsden, 1991; Wilson et al., 1997) showed a good discriminant validity and acceptable values of internal consistency (good teaching scale, alpha = .83; clear goals and standards, alpha = .80; appropriate assessment scale, alpha = .72; appropriate workload, alpha = .76; key skills scale, alpha = .77; learning community, alpha = .69). Moreover, the hypothesized 6-factor measurement model showed good fit indices (Spector, 2001): CFI = 0.97, RFI = 0.96, RMSEA = .049 (90% confidence interval: .048-.051), SRMR = .049. Using elements of the Australian version of the SCEQ and the SCEQ used at the University of Oxford, Trigwell and Ashwin (2003) modified the learning community scale, creating a seven-item scale called collegiality that evaluated students' sense of belonging and allegiance to their college and fellow students. The scale showed an acceptable internal consistency (alpha = .67, Trigwell & Ashwin, 2003; alpha = .76, Ginns, 2003). Richardson (2005a) stated that the internal consistency of the different scales of the SCEQ was generally satisfactory, although there was no evidence of their test-retest reliability. Studies identified some criticality in terms of the factor structure of the good teaching scale (Broomfield & Bligh, 1998; Kreber, 2003). The construct validity of the SCEQ was considered broadly satisfactory (Richardson, 2005a).

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## AIMS

The main aim of this study was to adapt to the Italian context and validate the Student Course Experience Questionnaire (SCEQ; 29-item form by Trigwell & Ashwin, 2003) and the Approaches to Studying Inventory (ASI; 12-item, short version; Prosser & Trigwell, 1999; Trigwell & Prosser, 1991). These two instruments are always used jointly and, together with other scales, serve as one instrument in evaluating the students' whole academic experience (Lizzio et al., 2002; Trigwell & Ashwin, 2003; Zuffo & Barattucci, 2010). A second goal of the study was to assess the correspondence between the constructs under consideration and the questionnaire used.

## METHOD

### Measures

For the SCEQ used in this study, an agreement/disagreement 5-point scale from 0 (*strongly disagree*) to 4 (*strongly agree*) was used. The good teaching scale measures the perceptions of teachers' ability to contribute positively to student learning. It includes six items, that investigate the ability of teachers to provide feedbacks, explain subjects, make the course interesting, motivate students, and understand their difficulties (e.g., "My teachers normally give me helpful feedback on my progress"; see Appendix 1). Three items measure appropriate assessment, namely students' perceptions of the adequacy of assessment methods, particularly, whether they consider more the understanding of issues than the retaining of information (e.g., "To do well in this degree all you really need is a good memory"; see Appendix 1). Appropriate workload includes four items investigating the perceptions of sustainability of the overall academic workload (e.g., "There is a lot of unnecessary academic pressure on me as a student at this university"; see Appendix 1). The collegiality-learning community scale includes seven items assessing the sense of belonging to the academic community and relative benefits, and students' participation in social life and university relations (three items, e.g., "I feel part of a community of students and tutors committed to learning," are reported in Appendix 1). Key skills include seven items measuring the perceptions of ability of university courses to develop general skills, useful for work and life (e.g., "My degree course has developed my problem-solving skills"; see Appendix 1). The clear goals and standards scale consists of four items measuring the degree of clarity students perceive in relation to what is required to graduate (e.g., "It is always easy to know the expected standard of work").

In the Italian version of the ASI a 5-point agreement/disagreement scale was used as well, with 0 indicating *strongly disagree* and 4 *strongly agree*. The component deep approach measures a study strategy focusing on understanding the meaning of concepts and subjects; the goal is to abstract the contents, as a process of active construction of knowledge. The six items measure interest in personal growth-through studying, and the intrinsic motivation to learn, analyze, and give a personal sense to concepts (e.g., "Often I find myself questioning things I hear in lectures or read in books"; see Appendix 2). The surface approach component refers to a study strategy

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interested in storing as much information as possible; with no personal re-elaboration and critical revision of the contents. The six items measure the attitude of experiencing study as a task to accomplish in order to continue the academic program, and the use of functional strategies to achieve the minimum result (e.g., "I concentrate on learning just those bits of information I have to know to pass"; Biggs, 1999; Marton & Säljö, 1997).

The process of translation and adaptation of the Oxford Learning Context (Trigwell & Ashwin, 2003), including the SCEQ (Trigwell & Ashwin, 2003; see also Ramsden, 1991) and the ASI (12 items, short version; Ramsden, 2003; Trigwell & Ashwin, 2003), was divided into four phases. (1) A first phase involved three Italian psychologists with a good knowledge of English who translated the items individually. Subsequently, the three translations were compared, and a draft of the first agreed version was produced. (2) This version was administered to a small control group ( $N = 21$ ) to test whether items were understandable. The next stage (3) involved the back-translation of the Italian version performed by a native English speaker for comparison with the original English version. The fourth phase (4) consisted of a new administration to a sample of 41 university students, and interviews conducted with small groups of students ( $N = 6$ ) to test the semantic congruence between the interpretation given by participants and the meaning of items in their original English version. Some items of the SCEQ, investigating students' perceptions of the teaching system, had notable cultural, institutional, and organizational specificity related to the British and Australian university system, and not matching the Italian system. Preliminary results (questionnaire and focus groups) showed that item 14 of the collegiality scale was difficult to understand exactly; therefore, it was excluded from the questionnaire.

## Participants

Students from different departments and years of study (University of Chieti-Pescara) voluntarily participated in the study; they filled in the questionnaires individually and anonymously. The sample consisted of 598 students aged between 19 and 26 years (mean age = 22.8 years,  $SD = 3.71$ ). A higher percentage (85.9%) of students was enrolled in a first level degree course, while 14.1% were attending a second level degree course. Among students, 40.5% were residents in the university area, 14.9% were commuters (living more than 50 km away), while 44.5% lived away from home. Participants were recruited on campus or classes, and were asked to complete a questionnaire regarding college experience. Before submission of the questionnaire, students were given general instructions and then completed a personal data form. The administration of questionnaires was conducted in the 2007-2008 academic year. Thus, we used a convenience sampling. The complete Italian adaptation of the Oxford English Learning Context Questionnaire (Trigwell & Ashwin, 2003) was administered; however, scales of specific interest were selected in the process of data analysis. Students who completed the questionnaire were 622. Twenty-four participants did not complete the test fully; therefore, they were excluded from analyses. A sub-sample of 79 chosen among the 598 participants completed the questionnaire two months later.

For data analyses, we used SPSS 13.0 and LISREL 8.7 (Jöreskog & Sörbom, 2001).

## RESULTS

### Item Analysis and Factor Structure

First of all, item analysis was performed. In the Italian version of the SCEQ, some items of the appropriate assessment scale (AA11), appropriate workload (AW36), and collegiality (C6, C38) had critical, though acceptable, kurtosis values (Barbaranelli, 2003; Lei & Lomax, 2005). In the ASI, short version, as well, some items had critical skewness and kurtosis (DA13, DA21, DA48); values were, however, acceptable. Reliability of all the scales was, generally, satisfactory (Tables 1, 2, and 3). This was not the case of the clear goals and standards scale, that presented an unsatisfactory reliability, and there was no opportunity to improve it. This scale was, therefore, excluded from analyses.

TABLE 1  
Item analysis of the Italian Student Course Experience Questionnaire (SCEQ)

	Skewness	Kurtosis
AA2	0.46	-1.09*
AA11	-0.03	-0.45
AA54	-0.83	-0.95
AW35	0.10	-1.13*
AW36	0.05	-1.08*
AW62	0.05	-0.92
AW70	0.24	-1.07*
C5	-0.13	-1.15*
C6	-0.14	-0.26
C14	-0.60	0.17
C20	-0.89	-1.14*
C38	-0.10	-1.08*
C33	0.04	-0.82
C69	-0.34	-0.87
CGS18	-0.07	0.01
CGS30	-0.81	-0.76
CGS42	0.19	-0.54
CGS47	-0.31	-0.07
KS3	-0.56	-0.62
KS22	-0.51	0.06
KS26	-0.73	-0.73
KS31	-0.29	0.65
KS34	-0.83	0.15
KS59	-0.85	-0.55
KS65	-0.45	-0.88
GT4	-0.05	-0.87
GT15	0.07	-0.21
GT28	-0.72	-0.62
GT50	-0.20	-0.80
GT63	0.40	-0.66
GT68	0.49	-0.93

Note. AA = Appropriate assessment; AW = Appropriate workload;  
C = Collegiality; CGS = Clear goals and standards; KS = Key  
skills; GT = Good teaching. The numbers following the scale  
abbreviation (e.g., AA2) represent the position of the item in the  
complete Oxford English Learning Context Questionnaire.

\*kurtosis significant values.

TABLE 2  
 Item analysis of the Italian Approaches to Studying Inventory (ASI)

	Skewness	Kurtosis
DA13	-1.16*	1.16*
DA21	-1.11*	1.13*
DA48	-1.19*	1.14*
DA49	-0.77	0.05
DA57	-0.97	0.79
DA72	-0.69	0.18
SA9	0.13	-1.13*
SA17	0.39	-0.90
SA27	0.81	-0.10
SA37	-0.35	-0.81
SA60	-0.41	-0.81
SA64	-0.39	-1.00

Note. DA = Deep approach; SA = Surface approach. The numbers following the scale abbreviation (e.g., DA13) represent the position of the item in the complete Oxford English Learning Context Questionnaire.

\*kurtosis significant values.

TABLE 3  
 Internal consistency of the different scales, SCEQ, and ASI

	Scale	N. of items	alpha	Test-retest
SCEQ	Appropriate workload	4	.73	.75
SCEQ	Good teaching	6	.74	.78
SCEQ	Collegiality	7	.69	.79
SCEQ	Clear goals and standards	4	.51	.76
SCEQ	Appropriate assessment	3	.72	.74
SCEQ	Key skills	7	.75	.77
ASI	Deep approach	6	.75	.79
ASI	Surface approach	6	.72	.78

Note. SCEQ = Student Course Experience Questionnaire; ASI = Approaches to Studying Inventory.

The collegiality scale consisted of two dimensions (Trigwell & Ashwin, 2003), one rating the sense of belonging, participation, and allegiance to the academic community (items 5, 33, 69), and the other representing the perceptions of the type of social relations (formal and informal) within the student community. Internal consistency for academic belonging was acceptable ( $\alpha = .71$ ), that for academic relations was not ( $\alpha = .57$ ). A sub-sample of 79 students completed the questionnaire two months later.

The test-retest reliability was always high, and correlations were always significant,  $p < .001$ .

A preliminary analysis on a development sample was conducted to explore the factor structure. The development sample ( $N = 246$ : women,  $N = 181$ ; men,  $N = 65$ ; mean age = 22.2 years,  $SD = 3.08$ ) was composed of students belonging to three departments (Psychology,  $N = 81$ ;

Economics,  $N = 99$ ; Nursing,  $N = 66$ ), enrolled in different years of study. Questionnaires were administered in the 2005-2006 academic year (Zuffo & Barattucci, 2006).

Values of sampling appropriateness ( $KMO = .842$ ) and Bartlett test of sphericity ( $\chi^2 = 6358.97$ ,  $p < .001$ ) showed the adequacy of the sample. Exploratory factor analysis was applied to the 26 items of the Italian Student Course Experience Questionnaire; principal axis method and a direct oblimin rotation were used.

Seven factors were extracted, accounting for 55.1% of the variance. Table 4 shows factor loadings, with those lower than .21 not reported. Items from the good teaching scale were loaded on the first factor (explained variance = 18.48%); items of the appropriate workload scale were loaded on the second factor (explained variance = 9.03%); regarding the appropriateness assessment scale, the factor involved was the third (explained variance = 7.32%), and in the key skills scale it was the fourth (explained variance = 6.28%). All items of the academic belonging subscale (collegiality) were loaded on the fifth factor (explained variance = 5.76%), but two items (both belonging to the academic relations sub-scale) were loaded on the sixth factor (explained variance = 4.29%). An item of the academic relations sub-scale and an item of the key skills scale were loaded on the seventh factor (explained variance = 3.9%).<sup>1</sup>

TABLE 4  
 Exploratory factor analysis — Factor matrix of SCEQ 26 items

	Factors						
	1	2	3	4	5	6	7
GT63	.60			-.25			
GT50	.55			.28			
GT68	.54						
GT15	.53						
GT28	.52				-.26		
GT4	.49					.25	
AW70		.86					
AW35		.70					
AW62		.67					
AW36		.34				.23	
AA2			.85	-.21			
AA54			.70				
AA11			.35				
KS34				.61			
KS65				.57			
KS59				.55			
KS26				.54			
KS3	.25			.47			
KS31	.29			.36			
C69	.29				.82		
C33					.50		
C5					.35		
C6						.73	-.23
C38						.70	
KS22				.50			.55
C20							.46

Note. GT = Good teaching; AW = Appropriate workload; AA = Appropriate assessment; KS = Key skills; C = Collegiality. The numbers following the scale abbreviation (e.g., GT63) represent the position of the item in the complete Oxford English Learning Context Questionnaire.

Due to the issues highlighted by item analysis, reliability analysis ( $\alpha = .57$ ), and exploratory factor analysis, items of the academic relations subscale were excluded from analyses (this subscale is therefore not reported in Appendix 1).

A new exploratory factor analysis of the 23 items and the five scales of the Italian SCEQ was carried out, using principal axis method and direct oblimin rotation. Once again, we chose to test the factor structure and number of factors using eigenvalue higher than 1 and screeplots (Kline, 1997). Table 5 shows factor loadings of the SCEQ items. Five factors were obtained accounting for 52.23% of the variance. Factor loadings lower than .35 are not reported. Factor analysis showed that the 23 SCEQ items represented the expected five-factor structure. The extracted factors were named, respectively: Factor 1, good teaching (explained variance = 20.11%; six items); Factor 2, appropriate workload (explained variance = 10.89%; four items); Factor 3, appropriate assessment (explained variance = 8.61%; three items); Factor 4, key skills (explained variance = 7.67%; seven items); Factor 5, collegiality (explained variance = 5.97%; three items).

TABLE 5  
Exploratory factor analysis — Factor matrix of SCEQ 23 items

	Factors				
	1	2	3	4	5
GT50	.59				
GT63	.56				
GT68	.55				
GT28	.55				
GT15	.52				
GT4	.51				
AW70		.84			
AW35		.70			
AW62		.68			
AW36		.37			
AA2			.89		
AA54			.66		
AA11			.36		
KS59				.60	
KS26				.58	
KS65				.57	
KS34				.52	
KS3				.47	
KS22				.37	
KS31				.35	
C69					.97
C33					.45
C5					.40

Note. GT = Good teaching; AW = Appropriate workload; AA = Appropriate assessment; KS = Key skills; C = Collegiality. The numbers following the scale abbreviation (e.g., GT50) represent the position of the item in the complete Oxford English Learning Context Questionnaire.

With regard to the Italian version of the ASI, an exploratory factor analysis was performed, using the same procedures applied to the SCEQ. Table 6 shows the factor loadings of items on the extracted factors. Two factors were obtained accounting for 49.8% of the variance. In the table, we did not report factor loadings lower than .36.

TABLE 6  
Exploratory factor analysis — Factor matrix of ASI 12 items

	Factors	
	1	2
DA49	.65	
DA48	.63	
DA13	.55	
DA72	.51	
DA57	.51	
DA21	.42	
SA60		.55
SA64		.53
SA17		.51
SA37		.50
SA27		.37
SA9		.36

*Note.* DA = Deep approach; SA = Surface approach. The numbers following the scale abbreviation (e.g., DA49) represent the position of the item in the complete Oxford English Learning Context Questionnaire.

The extracted factors were named, respectively: Factor 1, deep approach to study (explained variance = 27.18%; six items); Factor 2, surface approach (explained variance = 22.62%; six items). Also in the Italian version of ASI, we obtained the expected factor structure.

Mean scores of the different SCEQ scales showed sensitivity to the year of study, underlining that perceptions of the learning environment can change during the course of time and career advancement; these changes, however, were not linked to age (see Table 7). These results are in line with those by Trigwell and Ashwin's (2003). Table 8 shows differences between departments (with sub-samples composed of at least 45 respondents) in the different SCEQ scales; considering all of the 12 departments, significant differences were revealed in the good teaching scale,  $F(11, 586) = 2.39, p < .01$ , appropriate assessment,  $F(11, 586) = 7.84, p < .001$ , and appropriate workload,  $F(11, 586) = 1.97, p < .05$ . Examining Table 7 again, it appears that age is correlated with the adoption of a deep approach. No significant differences were found between departments regarding the adoption of different approaches to study.

TABLE 7  
 Correlations between SCEQ and ASI scales and demographic variables

	Age	Gender	Year of study
Good teaching	.01	-.08	-.15**
Collegiality	-.10*	-.01	-.13**
Appropriate workload	.05	.11	.09
Appropriate assessment	.04	.10	.15**
Key skills	.02	-.08	.05
Deep approach	.11**	-.101	.04
Surface approach	-.15**	-.134	.02

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .011$ .

TABLE 8  
 Differences between departments regarding SCEQ scales

	N	GT	C	AW	AA	KS
Literature and Philosophy	101	2.56 (0.71)	3.08 (0.91)	2.63 (0.93)	3.36 (0.89)	3.46 (0.66)
Economics	90	2.78 (0.64)	3.12 (0.98)	2.90 (0.86)	2.88 (0.83)	3.57 (0.63)
Pharmacy	82	2.99 (0.63)	3.04 (0.95)	3.10 (1.04)	2.89 (0.91)	3.50 (0.61)
Psychology	76	2.76 (0.71)	3.02 (0.87)	2.85 (0.74)	3.09 (0.97)	3.47 (0.65)
Medicine	55	2.71 (0.64)	2.97 (0.81)	2.76 (0.84)	2.53 (0.93)	3.40 (0.55)
Languages	54	2.56 (0.82)	2.82 (1.05)	2.94 (0.81)	2.93 (0.77)	3.50 (0.68)
Geology	46	2.88 (0.65)	2.94 (0.99)	2.80 (0.86)	2.94 (0.95)	3.45 (0.80)

Note. Standard deviations are reported in brackets. GT = Good teaching; C = Collegiality; AW = Appropriate workload; AA = Appropriate assessment; KS = Key skills.

### Confirmatory Factor Analysis

Confirmatory factor analysis (CFA;  $N = 598$ ) was applied to the Italian questionnaires (SCEQ and ASI); Lisrel 8.71 (Jöreskog & Sörbom, 2001) was used and missing data were processed by using the leastwise method. The overall fit was assessed through four indices: the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Non-normed Fit Index (NNFI), and the Normed Fit Index (NFI) (Byrne, 1998). The Chi-Square ratio was also used. In the SCEQ, RMSEA (.047) showed a good fit (Browne & Cudeck, 1989), just like the Chi-Square ratio, equal to 2.29. CFI (.906), NFI (.899), and NNFI (.904) were likewise not far from the given criterion, which is, respectively:  $CFI \geq .95$ ;  $NFI > .900$ ;  $NNFI \geq .95$  (Bentler, 1990; Bentler & Bonett, 1980; Hair, Anderson, Tatham, & Black, 1998; Hu & Bentler, 1999).

Results of CFA, regarding the 23 Italian SCEQ items, showed some problems: in fact, factor loadings of items AA11 (appropriate assessment) and AW36 (appropriate workload), though acceptable, were not excellent compared to other items of the scale (Table 9). Table 10 reports the correlations (phi coefficients) between the extracted factors. Correlations provide

indication of good discriminant validity; in fact, the different factors were never too highly correlated. Figure 1 shows the measurement model for the SCEQ.

With regard to CFA applied to ASI, findings are reported in Table 11.

TABLE 9  
 Confirmatory factor analysis — Factor loadings for the 23 SCEQ items

Item	Factors				
	AA	GT	C	AW	KS
AA2	.89				
AA11	.35				
AA54	.65				
GT4		.63			
GT15		.54			
GT28		.57			
GT50		.62			
GT63		.53			
GT68		.52			
C5			.47		
C33			.69		
C69			.72		
AW35				.68	
AW36				.39	
AW62				.70	
AW70				.81	
KS3					.51
KS22					.50
KS26					.53
KS31					.49
KS34					.58
KS59					.52
KS65					.54

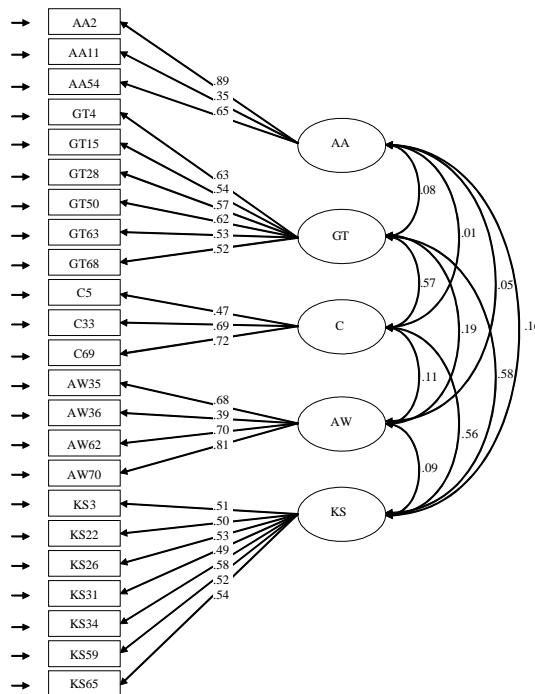
Note. AA = Appropriate assessment; GT = Good teaching; C = Collegiality; AW = Appropriate workload; KS = Key skills. The numbers following the scale abbreviation (e.g., AA2) represent the position of the item in the complete Oxford English Learning Context Questionnaire.

TABLE 10  
 Correlations (phi coefficients) between the SCEQ scales

	AA	GT	C	AW	KS
Appropriate assessment	—				
Good teaching	.10*	—			
Collegiality	.01	.39**	—		
Appropriate workload	.20**	.20**	.09*	—	
Key skills	.12**	.43**	.40**	.10*	—

Note. AA = Appropriate assessment; GT = Good teaching; C = Collegiality; AW = Appropriate workload; KS = Key skills.

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



Note. AA = Appropriate assessment; GT = Good teaching; C = Collegiality; AW = Appropriate workload; KS = Key skills. The numbers following the scale abbreviation (e.g., AA2) represent the position of the item in the complete Oxford English Learning Context Questionnaire.

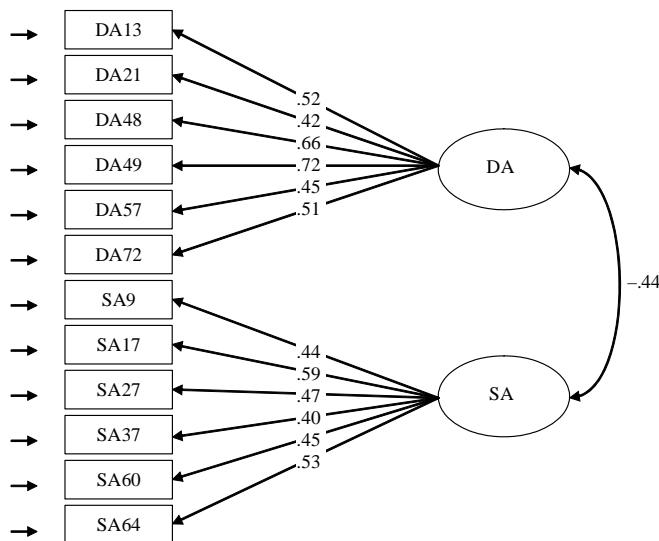
FIGURE 1  
 Confirmatory factor analysis diagram for the Italian version of the SCEQ.

TABLE 11  
 Confirmatory factor analysis — Factor loadings for the 12 ASI items

Item	Factors	
	DA	SA
DA13	.52	
DA21	.42	
DA48	.66	
DA49	.72	
DA57	.45	
DA72	.51	
SA9		.44
SA17		.59
SA27		.47
SA37		.40
SA60		.45
SA64		.53

Note. DA = Deep approach; SA = Surface approach. The numbers following the scale abbreviation (e.g., DA13) represent the position of the item in the complete Oxford English Learning Context Questionnaire.

All factor loadings were equal to or higher than .40, confirming the two-factor structure of the instrument; the correlation between the two factors was  $-.44$ . Figure 2 shows the measurement model for ASI, developed from exploratory factor analysis and supported by CFA.



*Note.* DA = Deep approach; SA = Surface approach. The numbers following the scale abbreviation (e.g., DA13) represent the position of the item in the complete Oxford English Learning Context Questionnaire.

FIGURE 2  
Confirmatory factor analysis diagram of the Italian version of ASI.

## CONCLUSIONS

Analyses of the psychometric properties of the Italian version of the SCEQ did not provide satisfactory results, due to the problems linked to the internal consistency of a scale (clear goals and standards, four items), and the factor structure of a sub-scale (academic relations: collegiality). Consequently, for the validation of the Italian version of the SCEQ, we removed the items relating to the afore-mentioned scales.

The CFA of the 23-item SCEQ version and the 12 items of measuring approach to study, showed they were reliable measures of the relevant constructs. CFA of SCEQ and ASI highlighted acceptable fit indices. The SCEQ also showed good discriminant validity, considering students of different departments.

Although the instruments translated and adapted for Italian universities need to be further improved, they can be profitably used in the Italian academic context. This questionnaire was devised for academic institutions focusing the learning process mainly on campus life and tutorial system; the implicit assumption of our study is that it is possible to apply these models and questionnaires to measure learning environment variables in the Italian university context. This academic environment, although clearly different from the British and Australian contexts, can favor perceptions of belonging to the college, and positive academic social relationships, even in the absence of a physically-defined campus.

It is through the understanding of perceptions students have of themselves and the learning context that it becomes possible to interpret the variations in study results and act on learning environment, in order to obtain the best approach to study and the best academic results. However, an effective and widespread use of these methodologies in Italian universities still seems improbable. The evaluation of teaching in Italy does not appear to involve the teaching staff, though attention to this topic is currently increasing (Kaneklin, Scaratti, & Bruno, 2006; Semeraro, 2006; Stefani, 2006).

#### NOTE

1. Item C14 was not considered in this analysis because preliminary results showed that it was difficult to understand exactly.

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## APPENDIX 1

### Items of the Italian Student Course Experience Questionnaire (SCEQ; Trigwell & Ashwin, 2003)

Scale	Items
Good teaching	4. Il corpo docente (docenti, ricercatori, tutor) mi stimola a dare il meglio [My teachers motivate me to do my best work] 15. Il corpo docente (docenti, ricercatori, tutor) dedica molto tempo a fornirmi feedback sul mio lavoro [My teachers put a lot of time into commenting providing feedback (orally and/or in writing) on my work] 28. Il corpo docente (docenti, ricercatori, tutor) si sforza di rendere la propria materia interessante [My teachers work hard to make their subjects interesting] 50. Il corpo docente (docenti, ricercatori, tutor) è molto abile a spiegare gli argomenti [My teachers are extremely good at explaining things concepts/subjects/topics] 63. Di solito il corpo docente (docenti, ricercatori, tutor) fornisce informazioni utili sui miei progressi nello studio [My teachers normally usually give me helpful feedback on my progress] 68. Il corpo docente (docenti, ricercatori, tutor) si impegna a comprendere le difficoltà che posso avere nello studio [My teachers make a real effort to understand difficulties I may be having with my work]
Appropriate assessment	2. Molti professori mi hanno interrogato soprattutto su nozioni [Too many teachers have asked me questions just about facts] 11. I docenti sembrano interessati a valutare soprattutto ciò che ho memorizzato, rispetto a ciò che ho compreso veramente [My tutors seem more interested in assessing what I have memorised than what I have understood] 54. Tutto ciò che serve per avere buoni risultati all'università è solo una buona memoria [To do well in this degree all you really need is a good memory]
Appropriate workload	35. Sento su di me come studente un eccessivo carico di lavoro [There is a lot of unnecessary academic pressure on me as a student at this university] 36. Normalmente mi viene concesso tempo sufficiente per comprendere ciò che sto studiando [I am generally given enough time to understand the things I have to learn] 62. Il carico di lavoro di questo corso di laurea è tale da rendere impossibile la piena comprensione di tutti gli argomenti [The sheer volume of work to be got through in this degree means I can't comprehend it all thoroughly] 70. Il carico di lavoro del mio corso di laurea è troppo pesante [The workload given to me at Oxford is too heavy]
Collegiality	5. Ho partecipato attivamente alla vita universitaria della mia facoltà [I have made an active contribution to life generally at-contributed actively to my college life] 33. Mi sento parte di una comunità di studenti, ricercatori e professori impegnati nello studio e nella ricerca [I feel part of a community of students and tutors committed to learning] 69. Sento di appartenere alla comunità universitaria [I feel I belong to a the college community]
Key skills	3. L'università ha sviluppato le mie capacità di problem solving [My degree course has developed my problem-solving skills] 22. L'esperienza universitaria ha contribuito a sviluppare le mie abilità a lavorare in gruppo [Being at University has helped me develop my ability to work as part of a group] 26. L'esperienza universitaria mi ha aiutato a sviluppare l'abilità di pianificare il mio lavoro [Being at University has helped me to develop the ability to plan my own work] 31. L'università ha migliorato le mie abilità di comunicazione scritta [University has improved my skills in written communication] 34. L'università ha affinato le mie capacità di analisi [University has helped sharpen my analytic skills] 59. L'università ha migliorato le mie capacità di comunicazione orale [University has improved my oral communication skills] 65. Da quando sono all'università mi sento più sicuro/a nell'affrontare i problemi e le difficoltà [Since being at University, I feel more confident about tackling unfamiliar problems]

Note. The numbers preceding the item represent the position of the item in the complete Oxford English Learning Context Questionnaire.

APPENDIX 2  
Items of the Italian Approaches to Studying Inventory (ASI)

Scale	Items
Deep approach	13. Mi capita spesso di tornare a riflettere sugli argomenti ascoltati a lezione o letti sui libri [Often I find myself questioning things I hear in lectures or read in books] 21. Quando leggo un articolo o un libro, cerco di scoprire esattamente ciò che l'autore vuole comunicare [When I am reading an article or book, I try to find out for myself exactly what the author means] 48. Quando studio un nuovo argomento, cerco di comprendere in che modo i vari concetti si collegano tra di loro [When I am working on a new topic, I try to see how all the ideas fit together] 49. Quando leggo esame i dettagli con cura per cercare dei collegamenti con quanto appreso in precedenza [When I read, I examine the details carefully to see how they fit in with what's being said] 57. Spesso mi ritrovo a pensare ad argomenti di studio mentre faccio altre cose [I often find myself thinking about ideas from my course when I'm doing other things something else] 72. Gli argomenti dei libri di testo o degli articoli spesso stimolano in me lunghe associazioni di idee e riflessioni [Ideas in course books or articles often set me off on long chains of thought of my own]
Surface approach	9. Mi concentro ad apprendere solo le parti di programma necessarie per passare gli esami [I concentrate on learning just those bits of information I have to know to pass] 17. Spesso faccio fatica a dare un senso a ciò che devo ricordare [I often have trouble in making sense of the things I have to remember] 27. Molto di ciò che studio ha poco senso: si tratta di argomenti tra loro scollegati [Much of what I am studying makes little sense: it's like unrelated bits and pieces] 37. Mi sento spesso sommerso dalla quantità di materiale che devo affrontare nel mio corso di laurea [Often I feel I am drowning in the sheer amount of material I'm having I have to cope with] 60. Spesso temo di non essere capace di affrontare correttamente i miei impegni universitari [I often worry about whether I'll ever be able to cope with the University work properly] 64. Spesso mi domando se ciò che sto facendo all'università sia davvero utile [Often I find myself wondering whether the work I am doing here is really worthwhile]

Note. The numbers preceding the item represent the position of the item in the complete Oxford English Learning Context Questionnaire.