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### **Quality of College Life (QCL) of Students: Further Validation of a Measure of Wellbeing**

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## Quality of College Life (QCL) of Students: Further Validation of a Measure of Well-Being

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**Abstract** This paper reports a study designed to further validate a measure of quality of college life (QCL) of university students (Sirgy, Grzeskowiak, Rahtz, Soc Indic Res 80(2), 343–360, 2007). Two studies were conducted: a replication study and an extension study. The replication study involved surveys of 10 different college campuses in different

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countries. The results of the replication study provided additional nomological (predictive) validation support of the measure based on a theoretical model mapping out the antecedents and consequences of satisfaction with college life. With respect to the extension study, the focus was to further test the nomological validity of the QCL measure by arguing and empirically demonstrating that the consequence of QCL is life satisfaction. The extension study involved a survey of three college campuses in different countries. The results were also supportive of the nomological validity of the QCL measure.

**Keywords** Quality of college life · Life quality in college · University quality of life · Quality of life on a university campus · Life satisfaction · Satisfaction with college life · Satisfaction with the academic aspects of college life · Satisfaction with the social aspects of college life · Satisfaction with college facilities

## 1 Introduction

As indicated by Sirgy et al. (2007) there is a distinction among three types of studies involving college students and quality of life (QOL): (a) studies examining relationships between students' QOL and factors such as personality, health, and the environment (e.g., Cha 2003; Clifton et al. 1996; Makinen and Pychyl 2001; Ng 2005; Pilcher 1998; Smith et al. 2004; Vaez et al. 2004), (b) studies developing QOL measures specifically adapted to college students (e.g., Benjamin 1994; Cohen et al. 2001; Disch et al. 2000; Maggino and Shifini D'Andrea 2003; Roberts and Clifton 1992; Royal and Rossi 1993; Witmer and

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Sweeney 1982), and (c) studies developing measures of *quality of college life* (QCL) of students (e.g., Sirgy et al. 2007; Yu and Kim 2008; Yu and Lee 2008).

Our focus in this paper involves the third category of studies: concepts and measures related to QCL of students. In that vein, we further focus on the QCL measure developed by Sirgy et al. (2007). Our goal is to report studies that provide further validation support of this measure. This QCL measure is deemed significant from the vantage point of university administration because much of the focus of the measure involve programs and services that can be enhanced by university administration.

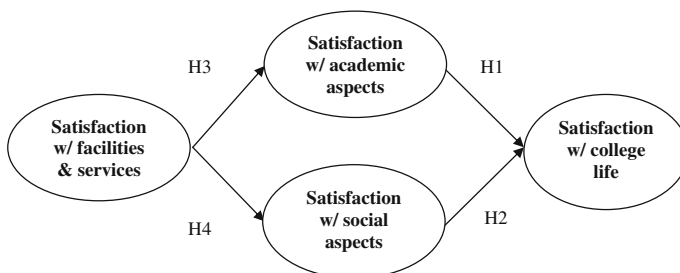
## 2 The Sirgy et al. (2007) QCL Measure

The Sirgy et al. QCL Measure is based on a conceptual model shown in Fig. 1. As such, QCL was conceptualized to be influenced significantly by positive and negative affect in two types of student experiences in college, namely satisfaction with the academic aspects of the college and the social aspects. Satisfaction with the academic aspects, in turn, was conceptualized to be influenced by satisfaction with university facilities and services. Satisfaction with the social aspects was conceptualized to be influenced by satisfaction with university facilities and services.

For a full breakdown of items employed by Sirgy et al., please refer to the Appendix of this paper. The authors conceptualized the *overall satisfaction with college life* in terms of overall feelings of satisfaction a student experiences with life at the college. Three items were used to capture overall satisfaction with college life (see the Appendix for the exact survey items).

*Satisfaction with the academic aspects of college life* involved a formative measure involving the following dimensions: satisfaction with faculty, satisfaction with the teaching method, satisfaction with the classroom environment, satisfaction with the student workload, satisfaction with the academic reputation, and satisfaction with academic diversity. See the Appendix for the exact survey items capturing these dimensions of satisfaction with the academic aspects of college life.

*Satisfaction with the social aspects of college life* was also captured using a formative measure involving the following dimensions: satisfaction with on-campus housing, satisfaction with international programs and services, satisfaction with spiritual programs and services, satisfaction with clubs and college social organizations, satisfaction with collegiate athletics, and satisfaction with recreational activities. See the Appendix for the exact survey items capturing these dimensions of satisfaction with the social aspects of college life.



**Fig. 1** The Sirgy et al. (2007) QCL Model

Based on their conceptualization, Sirgy et al. tested the following hypotheses: (1) the greater the student's satisfaction with the academic aspects of college life the greater the overall satisfaction with college life, and (2) the greater the student's satisfaction with the social aspects of college life the greater the overall satisfaction with college life. The authors explained the theoretical rationale underlying the two hypotheses using *bottom-up spillover theory* (Andrews and Withey 1976; Campbell et al. 1976; Diener 1984; Diener et al. 1999; Sirgy 2001, 2002). This theory posits that life satisfaction is functionally related to satisfaction with all of life's domains and sub-domains. Life satisfaction is on top of an attitude (or satisfaction) hierarchy. Life satisfaction is influenced by satisfaction with life domains (e.g., satisfaction with community, family, work, social life, health, and so on). Satisfaction with a particular life domain (e.g., satisfaction with college life), in turn, is influenced by lower levels of life concerns within that domain (e.g., satisfaction with the academic aspects of college life). In other words, the authors argued that the greater the satisfaction with the academic aspects of college life (e.g., faculty, teaching methods, classroom environment, student workload, academic reputation, and academic diversity), as well as satisfaction with the social aspects of the college (e.g., on-campus housing, international programs and services, clubs and parties, collegiate athletics, and recreational activities), the greater the satisfaction with college life overall. The results of their study provided nomological (predictive) validity of the measures capturing the related constructs.

The QCL model also involved another construct, namely satisfaction with college facilities (e.g., book store, telecommunications, and recreation center) and basic services (e.g., library services, transportation and parking services, healthcare services). The authors hypothesized that satisfaction with facilities and basic services is likely to affect satisfaction with both academic and social aspects of college life, which, in turn, play a major role in determining QCL. *Satisfaction with college facilities and services* was captured as a formative measure involving the following dimensions: satisfaction with library services, satisfaction with transportation and parking services, satisfaction with healthcare services, satisfaction with the bookstore, satisfaction with telecommunications, and satisfaction with the recreation center. See the Appendix for the exact survey items capturing these dimensions of satisfaction with college facilities. The results of the authors' study provided support for the hypotheses.

Our goal in this paper is to report the results of two studies: a replication study (Study 1) and an extension study (Study 2). The goal of the replication study is to provide additional nomological (predictive) validation support of the QCL measure based on a theoretical model mapping out the antecedents and consequences of satisfaction with college life. The goal of the extension study is to further test the nomological validity of the QCL measure by arguing and empirically demonstrating that the consequence of QCL is life satisfaction.

### 3 Study 1 (The Replication Study)

Study 1 tested the four hypotheses (replication of the Sirgy et al. study) in the context of 10 major universities across the globe. These were: (1) Virginia Tech, USA; (2) College of William and Mary, USA; (3) California State University-San Bernardino, USA; (4) Texas Southern University, USA; (5) University of Nevada-Las Vegas, USA; (6) Yonsei University, South Korea; (7) University of Western Australia, Australia; (8) Bilkent University, Turkey; (9) American University of Beirut, Lebanon; and (10) University of Trier, Germany. We focused on students' experiences with the university that they attend to obtain their degree. We used exactly the same collection method (survey administered in a

variety of classes) at the 10 institutions. We also used exactly the same survey questionnaire with minor variations to identify the specific university services and facilities by name.

### 3.1 Data Collection and Sample Characteristics

The survey administration was mostly web-based. Students enrolled in undergraduate classes were asked to participate in this study. They were told that the results may be used to help university administration assess student satisfaction with academic programs and other university programs and services. This convenience sampling method provided a total sample of 2,812 respondents.

Why 10 universities and why the selected universities? Our goal is to replicate the original study and provide further nomological validity to the QCL. To do so we sought to select varied universities from across the globe to ensure wider variability in the data capturing the model's constructs. To reiterate, the reader should not assume that an implicit goal for collecting data from different universities across the globe is to do cross-cultural comparisons. Our goal is certainly not that. The idea here is to generate greater variability in the data by capturing student responses from varied institutions. Thus, pooling the data across these surveys would ensure high degree of variability. We will return to this point in a later section to demonstrate the variability notion.

Respondents varied in age ( $M = 22.40$ ,  $SD = 0.11$ ), gender (50.8% male, 49.2% female), and grade point average ( $M = 2.84$ ,  $SD = 0.20$ ) representing a wide range of undergraduate college students. Respondents were varied some across the 10 universities (see Table 1), prompting us to treat age, gender, and grade point average as control variables in the data analysis to rule out potential respondent bias.

### 3.2 The Survey Questionnaire

The same survey questionnaire used by Sirgy et al. was used to collect survey data from the 10 selected universities. As described in Sirgy et al., the core of the survey instrument involved 70 items measuring satisfaction with college life overall, satisfaction with the academic aspects of college life, satisfaction with the social aspects of college life, and satisfaction with the college facilities and services (see Appendix for items and their scaling properties).

Responses to all satisfaction measures were captured on 5-point rating scales with anchor points ranging from "very dissatisfied" to "very satisfied." Other, single-item scales measured the respondent age, gender, and grade point average. These demographic items were placed at the end of the questionnaire.

### 3.3 Measurement Validation Procedure

We used the same analytic methods (applied by Sirgy et al.) to test the overall model and its hypotheses (see Fig. 1). Specifically, each set of items were treated as formative of its first order factor (e.g., satisfaction with faculty of the academic institution was measured by asking respondents about their satisfaction with the quality of teaching, accessibility of faculty, and professor's knowledge of the subject; the mean score of the items was then computed and used as measure of the respondent's satisfaction with the faculty of the academic institution).

**Table 1** Sample demographics

Variable	University 1	University 2	University 3
Age	$M = 21.32$ (SD = 1.84)	$M = 20.89$ (SD = 3.14)	$M = 24.82$ (SD = 6.92)
Gender	60.2% male	52.2% male	44.3% male
GPA	$M = 3.28$ (SD = 4.24)	$M = 3.32$ (SD = 0.30)	$M = 3.02$ (SD = 0.44)
<i>N</i>	217	159	371
Variable	University 4	University 5	University 6
Age	$M = 24.34$ (SD = 5.15)	$M = 22.92$ (SD = 2.86)	$M = 22.56$ (SD = 2.07)
Gender	45.7% male	52.7% male	60.0% male
GPA	N/A	$M = 3.20$ (SD = 0.31)	N/A
<i>N</i>	144	91	188
Variable	University 7	University 8	University 9
Age	$M = 22.75$ (SD = 5.08)	$M = 21.59$ (SD = 1.43)	N/A
Gender	61.0% male	42.9% male	N/A
GPA	N/A	$M = 2.84$ (SD = 0.55)	N/A
<i>N</i>	125	203	1,078
Variable	University 10	University 11	University 12
Age	$M = 21.58$ (SD = 3.16)	$M = 20.50$ (SD = 2.93)	$M = 20.90$ (SD = 1.67)
Gender	48.5% male	65.8% male	60.0% male
GPA	$M = 2.02$ (SD = 0.67)	N/A	$M = 2.64$ (SD = 2.01)
<i>N</i>	239	120	1,304
Variable	University 13		
Age	$M = 27.73$ (SD = 8.71)		
Gender	19.6% male		
GPA	N/A		
<i>N</i>	56		

Notes: GPA = Grade Point Average

University 1, Virginia Tech, USA; University 2, College of William and Marry, USA; University 3, California State University-San Bernardino, USA; University 4, Texas Southern University, USA; University 5, University of Nevada-Las Vegas, USA; University 6, Yonsei University, South Korea; University 7, University of Western Australia, Australia; University 8, Bilkent University, Turkey; University 9, American University of Beirut, Lebanon; University 10, University of Trier, Germany; University 11, University of Monterey, Mexico; University 12, Akdeniz University, Turkey; University 13, University of Florence, Italy

The independent variables involved two sets of hierarchical dimensions. Sirgy et al. provided the following example: Satisfaction with faculty, the teaching method, classroom environment, student workload, academic reputation, and academic diversity are viewed as comprising a higher-order factor (satisfaction with the academic aspects of college life). This corresponds to a second-order confirmatory model, in which the observed items are hypothesized to form the six-first-order factors. The first-order factors, in turn, originate from a second-order factor. Similarly, satisfaction with on-campus housing, international programs and services, spiritual programs and services, clubs and parties, collegiate

**Table 2** Confirmatory factor analysis

Construct	Indicators	Coefficient	<i>t</i> -value	Alpha	Average variance extracted	Composite reliability
Satisfaction w/college life overall	SCL 1	0.908	61.385	0.876	0.889	0.919
	SCL 2	0.901	60.632			
	SCL 3	0.857	55.856			
Satisfaction w/academic aspects	Faculty	0.862	55.266	0.688	0.743	0.812
	Teaching method	0.746	44.717			
	Class environment	0.597	33.422			
	Student workload	0.447	23.822			
	Academic reputation	0.717	42.358			
Satisfaction w/social aspects	On-campus housing	0.818	51.169	0.816	0.734	0.860
	International programs	0.741	44.367			
	Spiritual programs	0.631	35.843			
	Clubs and parties	0.746	44.748			
	Recreational activities	0.770	46.788			
Satisfaction w/facilities and services	Library services	0.778	48.036	0.704	0.760	0.844
	Healthcare services	0.684	40.223			
	Telecommunications	0.689	40.552			
	Recreation facilities	0.872	57.105			

*Fit indices:*  $\chi^2$  (*p*-value) = 1,919,300 (0.00), *df* = 113, RMSEA = 0.075, SRMR = 0.038, CFI = 0.942, GFI = 0.925, AGFI = 0.900, NFI = 0.938, NNFI = 0.930

*Notes:* SCL 1, In general how satisfied are you with the overall QCL at College/University?; SCL 2, How satisfied are you with the overall QCL for you personally at College/University?; SCL 3, How satisfied, would you say, most of your friends and other classmates are with the overall QOL at College/University?

athletics, and recreational activities comprise a student's satisfaction with the social aspects of college life. Satisfaction with library services, transportation and parking services, healthcare services, the college book store, telecommunication systems, and recreation facilities reflect satisfaction with facilities and services.<sup>1</sup>

To test this higher-order factor structure we used a two-step approach as applied by Sirgy et al. First, we conducted a confirmatory factor analysis on all items for each second-order factor to confirm the hypothesized first-order factor structure. Second, the second-order factor model was estimated using structural equations. The fit indices for this model are shown in Table 2. The results indicate that each model individually, as well as the structural model as a whole, had a satisfactory fit with the data, and the relevant second-order factor loadings were large and significant. It should be noted that the formative constructs were not identical in their composition of the subconstructs and their indicators. This is due to the fact that different universities have different academic and social aspects of academic life. Therefore, our measurement goal was to capture the true meaning of the constructs *in their natural setting*.

<sup>1</sup> As treated in the Sirgy et al. (2007) study, not all possible basic services or facilities were included in the satisfaction composite score. This is due to the fact that these basic services and facilities varied across all 10 universities.



**Table 3** Correlations, means and standard deviations (Study 1)

Variables	SCL	SAA	SSA	SF&S
SCL	1.00			
SAA	0.59	1.00		
SSA	0.44	0.44	1.00	
SF&S	0.45	0.50	0.53	1.00
University 1 mean (SD)	3.92 (0.69)	3.73 (0.50)	3.16 (0.56)	3.66 (0.57)
University 2 mean (SD)	3.89 (0.65)	4.02 (0.41)	3.28 (0.58)	3.70 (0.58)
University 3 mean (SD)	2.16 (0.61)	2.91 (0.46)	1.98 (0.82)	2.33 (0.62)
University 4 mean (SD)	3.39 (0.73)	3.68 (0.48)	2.84 (0.63)	3.08 (0.61)
University 5 mean (SD)	3.21 (0.72)	3.44 (0.57)	2.80 (0.50)	3.49 (0.62)
University 6 mean (SD)	3.42 (0.72)	3.18 (0.51)	3.03 (0.48)	3.09 (0.51)
University 7 mean (SD)	3.79 (0.53)	3.79 (0.43)	2.91 (0.50)	3.13 (0.43)
University 8 mean (SD)	3.71 (0.82)	3.71 (0.47)	2.80 (0.51)	3.67 (0.57)
University 9 mean (SD)	3.73 (0.63)	3.50 (0.46)	2.73 (0.34)	3.04 (0.58)
University 10 mean (SD)	3.38 (0.78)	3.09 (0.56)	2.11 (1.05)	3.32 (0.73)
Pooled sample mean (SD)	3.46 (0.86)	3.44 (0.56)	2.68 (0.69)	3.12 (0.70)

Notes: All correlations are significant at the 0.01 level; SCL, Satisfaction with college life overall; SAA, Satisfaction with the academic aspects of college life; SSA, Satisfaction with the social aspects of college life; SF&S, Satisfaction with facilities and services on campus

In sum, the findings of confirmatory factor analysis reflect support for the Sirgy et al. conceptualization of the second-order constructs. Hence, this factor structure was used to generate scores for the variables involved in the hypothesis-testing.

### 3.4 Results of Hypothesis Testing

Table 3 shows the descriptive statistics and the correlation matrix for the four research variables. The variable means ranged from 2.68 to 3.46 ( $M = 3.07$ ). The standard deviations for these variables range from 0.56 to 0.86 ( $M = 0.71$ ), indicating a substantial amount of variance and normally distributed responses. In describing the sampling method in a preceding section we mentioned the fact that we selected 10 universities across the globe, not because we were interested in cross-cultural comparisons, but to ensure a high degree of data variability. The means of the study constructs shown in Table 3 demonstrates a wide degree of variability. Thus our sampling goal seems to be met.

The correlations in Table 3 provide an initial test of the four hypotheses. All hypotheses are supported at the  $p < 0.01$  level.

Similar to Sirgy et al., we tested the model using structural equation modeling. Table 4 shows the estimated parameters and t-statistics. The results provide support for the overall model and the four hypotheses. All of the hypothesized paths are significant ( $p < 0.01$ ) (see Table 4). The goodness-of-fit statistics were also supportive:  $\chi^2$  ( $p$ -value) = 2,234.098 (0.00),  $df = 160$ , RMSEA = 0.067, SRMR = 0.036, CFI = 0.934, GFI = 0.927, AGFI = 0.904, NFI = 0.929, NNFI = 0.922. The squared multiple correlations (SMCs) for the endogenous variables are all high:  $SMC_{QCL} = 0.752$ ,  $SMC_{SAA} = 0.756$ , and  $SMC_{SSA} = 0.817$ . Overall, the structural model performed well. All four hypotheses were empirically supported. Satisfaction with the academic aspects of college life had a significant positive effect ( $\beta = 0.679$ ,  $p < 0.01$ ) on satisfaction with college life overall [ $H_1$ ]. Similarly,

**Table 4** Structural relationships (Study 1)

Relationship	Path coefficient	( <i>t</i> -value)
H1: SAA → SCL	0.679**	(24.259)
H2: SSA → SCL	0.212**	(8.080)
H3: SF&S → SAA	0.869**	(45.821)
H4: SF&S → SSA	0.904**	(45.412)
Control variables		
Age	-0.045**	(-3.671)
Gender	-0.008	(-0.664)
GPA	0.033**	(2.763)

*Fit indices:*  $\chi^2$  (*p*-value) = 2,234.098 (0.00), *df* = 160, RMSEA = 0.067, SRMR = 0.036, CFI = 0.934, GFI = 0.927, AGFI = 0.904, NFI = 0.929, NNFI = 0.922

*Notes:* \*\**p* < 0.01; SCL, Satisfaction with college life overall; SAA, Satisfaction with the academic aspects of college life; SSA, Satisfaction with the social aspects of college life; SFA, Satisfaction with facilities & services

satisfaction with the social aspects of college life had a significant positive effect ( $\beta = 0.212$ ,  $p < 0.01$ ) on satisfaction with college life overall [ $H_2$ ]. These two factors explained 17% of the variance in satisfaction with college life overall. Furthermore satisfaction with the academic aspects of college life ( $\gamma = 0.869$ ,  $p < 0.01$ ) and satisfaction with the social aspects of college life ( $\gamma = 0.904$ ,  $p < 0.01$ ) were positively predicted by satisfaction with facilities and services [ $H_3$ ,  $H_4$ ]. Satisfaction with facilities and services explained 29% of the variance in satisfaction with academic aspects and 33% of the variance in satisfaction with social aspects. Finally, the data showed that the student age and GPA had predictive effects on satisfaction with college life overall. That is the younger the students, and the higher their GPAs, the higher their satisfaction with college life (see Table 4).

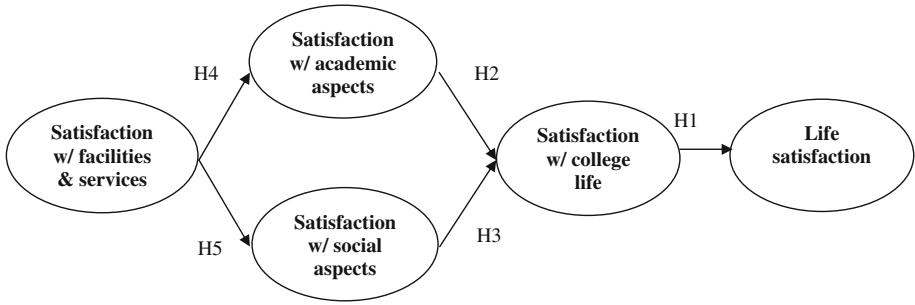
### 3.5 Discussion

The results of Study 1 replicated the results of Sirgy et al. Satisfaction with college life overall was construed to be determined by satisfaction with academic and satisfaction with social aspects of college life, which in turn are influenced by satisfaction with college facilities and services. The results of our replication study involving surveys in 10 universities provided additional nomological (predictive) validity of the QCL measure.

## 4 Study 2 (The Extension Study)

Study 1 focused on replicating the Sirgy et al. study. The results were supportive. Study 2 involves an extension study. The goal here is to test new hypotheses from which data support would lend additional nomological (predictive) validation of the QCL measure. Study 2 modified the original model by linking satisfaction with college life overall with satisfaction with life overall (see Fig. 2).

The original model was explained using *bottom-up spillover theory* (Andrews and Withey 1976; Campbell et al. 1976; Diener 1984; Sirgy 2001, 2002). As described in the context of Study 1, this theory posits that life satisfaction is functionally related to satisfaction with all of life's domains and sub-domains. Life satisfaction is on top of an attitude (or satisfaction) hierarchy. Life satisfaction is influenced by satisfaction with life domains



**Fig. 2** The extended model

(e.g., satisfaction with community, family, work, social life, health, and so on). In other words, satisfaction with college life should play a significant role in influencing life satisfaction (Yu and Lee 2008). This relationship is essentially the “extension” to the original model as shown in Fig. 2 (reflected in H1). The remaining relationships (H2–H5) reflect the same relationships of the original model (see Fig. 1). Therefore, Study 2 is designed to test the modified model in the form of the following hypotheses:

**H<sub>1</sub>** The greater the satisfaction with college life overall, the greater the satisfaction with life overall (or overall sense of well-being).

**H<sub>2</sub>** The greater the satisfaction with the academic aspects of college life, the greater the satisfaction with college life overall.

**H<sub>3</sub>** The greater the satisfaction with the social aspects of college life, the greater the satisfaction with college life overall.

**H<sub>4</sub>** The greater the satisfaction with facilities and services, the greater the satisfaction with the academic aspects of college life.

**H<sub>5</sub>** The greater the satisfaction with facilities and services, the greater the satisfaction with the social aspects of college life.

#### 4.1 Method

We tested the five hypotheses in the context of three major universities across the globe. These were: (1) University of Monterey, Mexico; (2) Akdeniz University, Turkey; and (3) University of Florence, Italy. Total sample of 1,480 was used in this analysis. Respondents varied in age ( $M = 20.92$ ,  $SD = 0.04$ ), gender (58.9% male, 41.1% female), and grade point average ( $M = 2.64$ ,  $SD = 0.05$ ) representing a wide range of undergraduate college students (see demographics of universities 11, 12, and 13 in Table 1). The added construct of life satisfaction was measured with a single item: “How satisfied are you with your life in general?” Responses to this question was captured on 5-point rating scale with anchor points ranging from “very dissatisfied” to “very satisfied.” All the other constructs and measures were identical to the Study 1.

#### 4.2 Results of Hypotheses Testing

Table 5 shows the descriptive statistics and the correlation matrix for the five research variables. The variable means ranged from 2.56 to 3.09 ( $M = 2.84$ ). The standard

deviations for these variables range from 0.52 to 1.13 ( $M = 0.82$ ), indicating a substantial amount of variance and normally distributed responses. The correlations in Table 5 provide an initial test of the five hypotheses. All hypotheses are supported at the  $p < 0.01$  level.

We tested the model using structural equation modeling. Table 6 shows the estimated parameters and t-statistics. The results provide support for the overall model and the five hypotheses. All of the hypothesized paths are significant ( $p < 0.01$ ) (see Table 5). The goodness-of-fit statistics were also supportive:  $\chi^2$  ( $p$ -value) = 601.729 (0.00),  $df = 125$ ; RMSEA = 0.051; SRMR = 0.040; CFI = 0.928; GFI = 0.956; AGFI = 0.940; NFI = 0.911; NNFI = 0.912. The squared multiple correlations (SMCs) for the endogenous variables are all high:  $SMC_{QOL} = 0.525$ ,  $SMC_{QCL} = 0.577$ ,  $SMC_{SAA} = 0.466$ , and  $SMC_{SSA} = 0.898$ . Overall, the structural model performed well.

All five hypotheses were empirically supported. Satisfaction with college life overall had a significant positive effect ( $\beta = 0.725$ ,  $p < 0.01$ ) on life satisfaction [ $H_1$ ]. Satisfaction with college life overall explained 43% of the variance in life satisfaction. Satisfaction with the academic aspects of college life had a significant positive effect ( $\beta = 0.178$ ,  $p < 0.01$ ) on satisfaction with college life overall [ $H_2$ ]. Similarly, satisfaction with the social aspects of college life had a significant positive effect ( $\beta = 0.632$ ,  $p < 0.01$ ) on satisfaction with college life overall [ $H_3$ ]. These two factors explained 31% of the variance in satisfaction with college life overall. Furthermore satisfaction with the academic aspects of college life ( $\gamma = 0.682$ ,  $p < 0.01$ ) and satisfaction with the social aspects of college life ( $\gamma = 0.947$ ,  $p < 0.01$ ) were positively predicted by satisfaction with facilities and services [ $H_4$ ,  $H_5$ ]. Satisfaction with facilities and services explained 25% of the variance in satisfaction with academic aspects and 33% of the variance in satisfaction with social aspects. Finally, the data showed that none of the controls variables had any predictive effect, as expected (see Table 6).

**Table 5** Correlations, means and standard deviations (Study 2)

Variables	LS	SCL	SAA	SSA	SF&S
LS	1.00				
SCL	0.65	1.00			
SAA	0.48	0.48	1.00		
SSA	0.48	0.49	0.50	1.00	
SF&S	0.42	0.43	0.52	0.54	1.00
University 11 mean (SD)	4.30 (0.69)	3.90 (0.85)	3.94 (0.53)	3.18 (0.64)	3.51 (0.58)
University 12 mean (SD)	2.90 (1.10)	2.88 (0.94)	3.02 (0.64)	2.52 (0.48)	2.62 (0.56)
University 13 mean (SD)	3.66 (0.78)	3.65 (0.83)	3.07 (0.48)	2.32 (0.29)	2.61 (0.50)
Pooled sample mean (SD)	3.03 (1.13)	2.99 (0.97)	3.09 (0.67)	2.56 (0.52)	2.70 (0.60)

*Notes:* All correlations are significant at the 0.01 level; LS, Life satisfaction; SCL, Satisfaction with college life overall; SAA, Satisfaction with the academic aspects of college life; SSA, Satisfaction with the social aspects of college life; SF&S, Satisfaction with facilities and services

**Table 6** Structural relationships (Study 2)

Relationship	Path coefficient	( <i>t</i> -value)
H1: SCL → LS	0.725**	(23.546)
H2: SAA → SCL	0.178**	(4.104)
H3: SSA → SCL	0.632**	(10.367)
H4: SF&S → SAA	0.682**	(19.024)
H5: SF&S → SSA	0.947**	(15.240)
Control variables		
Age	-0.026	(-1.098)
Gender	-0.043	(-1.838)
GPA	0.008	(0.352)

*Fit indices:*  $\chi^2$  (*p*-value) = 601.729 (0.00), *df* = 125, RMSEA = 0.051, SRMR = 0.040, CFI = 0.928, GFI = 0.956, AGFI = 0.940, NFI = 0.911, NNFI = 0.912

*Notes:* \*\**p* < 0.01; LS, Life satisfaction; SCL, Satisfaction with college life overall; SAA, Satisfaction with the academic aspects of college life; SSA, Satisfaction with the social aspects of college life; SF&A, Satisfaction with facilities and services

### 4.3 Discussion

The results of Study 2 provided additional nomological (predictive) validity for the QCL measure. As expected, satisfaction with college life overall did prove to be a significant predictor of satisfaction with life at large, providing support for the key relationship of the extended model (i.e., H1). The remaining hypotheses (H2–H5) were equally supported too, lending additional support to the QCL model and measures.

The Sirgy et al. QCL is not only valid psychometrically speaking (in the sense that it has reasonable nomological [predictive] validity) but is also diagnostically and administratively useful. College administrators should be able to use this measure to survey the QCL of the student populations. The survey findings should assist college administrators in identifying problems areas as well as strengths. Problems are signaled by dissatisfaction ratings related to the college facilities and services as well as the academic and social aspects of the college. The same measure can be used to monitor the level of QCL of their student population.

With respect to future research, we suggest that several avenues exist. First, the internal validity of the research can be further enhanced by employing measures of life satisfaction with multiple indicators and introducing more control variables. With respect to the latter, future research should partial out the effect of satisfaction with other life domains such as family life, financial life, spiritual life, material life, and love life. Second, the external validity of this research can be further enhanced by employing probability samples within a university and across several universities within a given country. Data from future studies using probability sampling techniques should allow cross-cultural comparisons. Third, data should be collected from universities of varying sizes, public versus privately-owned, developed versus developing countries, etc. Establishing norms for various types of universities should be very helpful to university administrators who wish to compare the performance of their institution with “peer schools” (i.e., other universities that are similar in terms of some demographic criteria).

We hope that our research can stimulate further research in this area. Such research is likely to be very beneficial to researchers that conduct institutional research and the administrators who develop policy based on this type research. The end result of applying this research is the enhancement of QCL.

## Appendix: Measures of the Model's Constructs

### Life Satisfaction

1. How satisfied are you with your life in general?

### Satisfaction with College Life Overall

1. In general, how satisfied are you with the overall quality of student life at (University name)?
2. How satisfied are you with the overall quality of life for you personally at (University name)?
3. How satisfied, would you say, most of your friends and other classmates are with the overall quality of life at (University name)?

### Satisfaction with the Academic Aspects of College Life

1. Faculty
  - a. Satisfaction with quality of teaching
  - b. Satisfaction with accessibility of faculty
  - c. Satisfaction with professors' knowledge of subject
2. Teaching method
  - a. Satisfaction with the use of technology in the classroom
  - b. Satisfaction with the interaction in class
3. Classroom environment
  - a. Satisfaction with classroom locations
  - b. Satisfaction with classroom seating
  - c. Satisfaction with classroom lighting and acoustics
  - d. Satisfaction with average class size
  - e. Satisfaction with classrooms' climate control
4. Student workload
  - a. Satisfaction with overall student workload
  - b. Satisfaction with level of difficulty of learning material
5. Academic reputation
  - a. Satisfaction with the reputation of the university
  - b. Satisfaction with the reputation of the professors
6. Academic diversity
  - a. Satisfaction with multicultural diversity in faculty
  - b. Satisfaction with ethnic diversity among students
  - c. Satisfaction with gender diversity among students
  - d. Satisfaction with multicultural diversity at the university at large

## Satisfaction with the Social Aspects of College Life

### 1. On-campus housing

- a. Satisfaction with the quality of on-campus housing
- b. Satisfaction with the maintenance of on-campus housing
- c. Satisfaction with security of on-campus housing
- d. Satisfaction with the location and convenience of on-campus housing

### 2. International programs and services

- a. Satisfaction with the international programs offered
- b. Satisfaction with the information provided by the international center
- c. Satisfaction with the approach that each department has taken towards encouraging study abroad

### 3. Spiritual programs and services

- a. Satisfaction with university support for spiritual life
- b. Satisfaction with spiritual life organizations
- c. Satisfaction with on-campus worship services

### 4. Clubs and parties

- a. Satisfaction with selection of clubs
- b. Satisfaction with club experience

### 5. Collegiate athletics

- a. Satisfaction with intercollegiate athletics overall
- b. Satisfaction with men's intercollegiate athletics
- c. Satisfaction with women's intercollegiate athletics
- d. Satisfaction with the athletic fields

### 6. Recreational activities

- a. Satisfaction with the arcade
- b. Satisfaction with recreation sponsored activities
- c. Satisfaction with intramural sports
- d. Satisfaction with concerts on campus

## Satisfaction with Facilities and Services

### 1. Library services

- a. Satisfaction with the library overall
- b. Satisfaction with the library staff
- c. Satisfaction with how the library is organized
- d. Satisfaction with the library reference section
- e. Satisfaction with the reserve desk in the library
- f. Satisfaction with availability of learning materials in the library

2. Transportation and parking services
  - a. Satisfaction with the parking situation on campus
  - b. Satisfaction with the transportation situation on campus
3. Healthcare services
  - a. Satisfaction with overall healthcare services offered at the university
  - b. Satisfaction with the healthcare staff
  - c. Satisfaction with the atmosphere of the healthcare center
  - d. Satisfaction with the prices charged by the healthcare center
4. Bookstore
  - a. Overall satisfaction with the campus bookstore
  - b. Satisfaction with the stocking of books in the bookstore
5. Telecommunications
  - a. Satisfaction with the availability of the technological systems (i.e. computer labs, systems, television, etc.)
  - b. Satisfaction with the quality of the technological systems (i.e. computer systems, cable, etc.)
  - c. Satisfaction with the quality of telecommunications (i.e. voice mail, long distance, etc.)
6. Recreation center
  - a. Overall satisfaction with the recreation center
  - b. Satisfaction with the hours of operation
  - c. Satisfaction with the recreation center facilities
  - d. Satisfaction with the staff at the recreation center

*Notes:* The scales accompanying these items were 5-point rating scales varying from “very dissatisfied” to “very satisfied.”

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