Students' satisfaction and teaching efficiency of university offer

Matilde Bini · Lucio Masserini

Abstract This study analyses the factors affecting students' satisfaction with university experience, focusing on the aspects characterising the teaching efficiency of educational offer. For this purpose, organisation of teaching activities, available information, teaching materials, and other facilities offered to students to make their learning experience more successful, are considered as indicators of teaching efficiency. Our interest in this topic is justified by the importance that students' satisfaction assumes, not only as indicator of the quality of educational services but also for its relationship with overall life satisfaction and subjective well-being. A structural equation model with latent variables is estimated by using survey and administrative data of the University of Pisa. Main findings seem to show that teaching efficiency has a positive effect on satisfaction and suggest that whenever it is inadequate, or at least, considered as such, students are less satisfied for their university experience. The effects of other factors on students' satisfaction such as studies organisation, social capital and internship experience are also discussed.

Keywords Students' satisfaction · University education · Educational offer · Structural equation models · Latent variables

1 Introduction

University education is considered an essential means for the social, economic and political development of a country (Hussein and Bahmani 2012). The right to access higher education is mentioned in a number of international human rights treaties; it should be the responsibility of governments and educational service providers to ensure broad access and high standards of quality of the training processes. More specifically, universities should achieve high standards of quality in teaching, research, administrative services and available facilities to pursue their mission better. In most cases, 'good quality' is synonymous with 'good performance' (Pounder 1999), even though, as it is well known, the definition of quality in the university context is quite complex (Harvey and Green 1993; Srikanthan and Dalrymple 2003). Good performance could make students more satisfied with their study experience, thus improving their acquired knowledge and university career. Consequently, more effective degree courses (at universities) may attract more motivated students and receive increased funding from the government and/or other institutional lenders, with the result of improving their competitive position. To satisfy this requirement, it is important to modify and make more effective the organisation and contents of teaching activities, as well as to offer adequate services to students.

The need to evaluate the performance of the university system is then a relevant issue in any educational institution around the world. The extensive international literature on this topic (see for example, Lockheed and Hanushek 1994; Hanushek 1997; Rodgers and Ghosh

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Matilde Bini, Department of Human Sciences, European University of Rome
Lucio Masserini, Statistical Observatory, University of Pisa, Lungarno Pacinotti 43 - 56126 Pisa, Italy
email: l.masserini@adm.unipi.it

2001; Welsh and Dey 2002; O'Neill and Palmer 2004) attests to the importance of carrying out evaluation activities by analysing the level of quality of the different aspects concerning the training process, such as performance, efficiency, effectiveness, productivity and so on.

The actors interested in the assessment of quality in higher education are primarily potential and enrolled students, together with their families, academic and administrative personnel, and also other stakeholders, such as employers, firms, institutions (government and public sector) and the wider community (Kristensen et al. 2000). Students are the direct recipients of the provided services and are considered the 'primary customers' of a university (Crawford 1991; Wallace 1999; Douglas, Douglas and Barnes 2006) since they are required to pay tuition fees. Particularly, students are interested in the assessment of effectiveness, while university personnel focus on both effectiveness and efficiency (De la Orden 1988).

According to Manoharan (2009), although quality and excellence (also discussed by Harvey and Green 1993) are increasingly popular in higher education, they cannot represent the only means for evaluating services provided by universities. As already mentioned, the quality of universities is characterised by the quality of teaching, faculty members, research, innovation and learning facilities and also by student relationships. Moreover, the quality pertaining to the faculty, learning environment, learning activities, tutorship and extracurricular activities influences individual student satisfaction with studies and opinions on the current university experience (Clark 2004; Jones 2009; Hussein and Bahmani 2012).

In fact, students' overall satisfaction is positively correlated with perceived quality. According to Ping (1993), the analysis of customer satisfaction is a possible way to assess how a university is being efficient and fulfilling its mission. Moreover, Browne et al. (1998) stressed that students' perception of an academic institution's quality is an antecedent of their overall satisfaction. In fact, to maintain students' overall satisfaction, universities should improve the perceived quality (Misanew and Tadesse 2014). Hence, the quality of educational services can be tested by assessing students' overall satisfaction, since students can be considered the most important stakeholder of a university. Evaluating the perceptions and expectations of students is then essential, particularly in a competitive context, as universities are becoming more student oriented and expected to be accountable for the public funds received. Some research studies on higher education dealing with expectations and perceptions of quality and satisfaction used the SERVQUAL (Parasuraman et al. 1988) (see for example, Galloway 1998; Banwet and Datta 2003) or the SERVPERF approach (e.g., Cronin and Taylor 1992) (see for example, Abdullah 2006).

Students' satisfaction has been defined and measured in different ways, which are not described here since these are beyond this paper's aim (see among others, Gregg 1972; Churchill and Surprenant 1982; Saunders and Walker 1991; Browne et al. 1998; Elliott and Healy 2001; Elliott and Shin 2002; DeShields et al. 2005; Marzo-Navarro et al. 2005). The literature introduced a variety of factors as determinants of students' satisfaction, some of which were related to students' characteristics and behaviour, while others were associated with educational experience or functioning of the universities. Among the students' characteristics and behaviour, Rienzi et al. (1993) and Bean and Vesper (1994) analysed gender differences, Moro-Egido and Panades (2010) focused on the effect of full-time or part-time status, whereas Bean and Bradley (1986) introduced both social life and academic integration – defined as being interested, motivated and confident as a student. On the other hand, among the factors regarding the educational experience, Aitken (1982) and Pike (1991) introduced academic performance, as measured by grade point average (GPA). Instead, among the functioning of the universities, Umbach and Porter (2002) analysed whether some characteristics of university departments, such as faculty contact with students, research, and proportion of female undergraduates, influenced satisfaction with education; Hartman and Schmidt (1995) analysed the effects of institutional performance and programme outcomes and found that assessments of satisfaction with higher education were affected by both the perceived quality and perceived outcomes of the service provider's performance; Grunwald and Peterson (2003) also dealt with institutional factors

such as students' evaluations of teaching activities and administrative support; Misanew and Tadesse (2014) studied determinants of student and staff satisfaction with services and showed that the important criteria that most strongly impacted students' satisfaction were academic, nonacademic and facility factors.

Some other studies showed a positive correlation between student retention and satisfaction (Graham and Gisi 2000; Cleary 2001; Kara and Kaynak 2005) whereas additional research indicated student satisfaction as a factor that affected student retention, attrition and graduation rates (Aitken 1982; Hatcher et al. 1992; Love 1993). Even more, Bowman and Smedley (2013) examined the relationship between religious affiliation and university satisfaction. For these reasons, educators and policymakers are considerably interested in the study on student satisfaction.

Studying university students' overall satisfaction is a relevant issue, not only because it may be considered an indicator of the quality of educational services, but above all, for its close relationship with satisfaction and subjective well-being. According to this point of view, university students' satisfaction has been analysed from different perspectives. Yu and Lee (2008) and Sirgy et al. (2010) argued that life satisfaction with the university may have an important role in overall life satisfaction. Sirgy et al. (2007) and Arslan and Akkas (2014) studied the satisfaction with college life and evaluated the overall impact of the quality of college life (social, academic and service satisfaction), life satisfaction and identification. In their opinion, satisfaction with university experience could be considered a subdomain of life satisfaction. More specifically, Sirgy et al. (2007, p.123) stated, 'That is why satisfaction with life is greater than satisfaction with academic aspects, satisfaction with social aspects, satisfaction with facilities and services, and satisfaction with overall college life'. Similarly, Arslan and Akkas (2014, p.871) maintained, 'Life satisfaction is at the top of the other life domains and sub domains (satisfaction with community, college, school, family, work, social life, and health)'.

As stated by O'Neill (1981), strengthening students' life satisfaction is an important mission of education. Moreover, Diener (1984), Diener et al. (1985), Clifton et al. (1996), Pilcher (1998), Hermon and Hazler (1999), Cha (2003), Changa et al. (2003), Yetim (2003), Vaez et al. (2004), Van Petegem et al. (2008) and Bowman (2010) argued that life satisfaction is an essential component of subjective well-being and that students' subjective well-being may be considered an important output indicator of the quality of education. Yetim (1993), Farquhar (1995), Ring et al. (2007) and Martin (2012) suggested a relationship between a community's life satisfaction and the level of welfare, health services and educational opportunities available to it. Chow (2005) showed the relationship between satisfaction with life and satisfaction with academic experience, including self-esteem, living conditions and higher socioeconomic status.

This study aimed to analyse the factors affecting students' satisfaction with their university experience in degree programmes, taking into account some aspects characterising the educational offer. Specifically, it focused on the effects generated by the organisation of teaching activities, as well as the available information, teaching materials and other facilities offered to students of degree courses to make their learning experience more successful, all of them considered indicators of teaching efficiency. Therefore, this study intended to give a more in-depth analysis of students' satisfaction with their study experience by introducing teaching efficiency as an additional dimension to those already considered in the mentioned literature. Analysing this kind of satisfaction seems a vital topic and has received much attention. As shown in the considered literature, students' satisfaction with studies may be an indicator of the quality of educational services, which is revealed as particularly useful in an increasingly competitive environment. On the other hand, it may play a crucial role in overall life satisfaction, since it can be considered a sub domain of the latter and also serves a significant function in subjective well-being. This study proposed a structural equation model (SEM) to explain the relationship between students' satisfaction with their university experience and organisational aspects of teaching

activities. The analysis was performed using the administrative and survey data of the University of Pisa.

The paper is divided into five sections. Section 1 introduces the theoretical background underlying the analysis of student satisfaction. Section 2 presents the research methodology, first describing population, sample and questionnaire (subsection 2.1) and then data and variables (subsection 2.2). Sections 3 shows the proposed model, by exposing the system of hypothesised relationships (subsection 3.1) and the structural equation model approach (subsection 3.2). Section 4 describes the results of the model estimation, first illustrating model fit (subsections 4.1-4.4) and then the analysis of direct and indirect effects among the variables considered (subsections 4.5 and 4.6), Section 5 is devoted to final considerations and the results' implications for policymaking decisions to improve the performance of the educational process.

2 Research Methodology

2.1 Population, Sample and Questionnaire
The University of Pisa is a public institution established in 1343, boasting 20 departments, with high-level research centres in the sectors of agriculture, astrophysics, computer science, engineering, medicine and veterinary medicine. The university is one of the largest in Italy, with more than 50 thousand students enrolled in degree courses (8,253 freshmen) and a staff comprising 1,517 academic and 1,477 administrative personnel. It offers 57 undergraduate and 65 postgraduate programmes in all the main areas of knowledge and advanced professional education. Moreover, are active 21 doctoral programmes, 56 third-cycle specialisation programmes, and 55 short specialisation programmes of further education at the first- and second-cycle levels, including an MBA.

The data collection process was based on a stratified, simple random sample of 1,945 students selected from the target population (51,758 enrolled students in the 2010-2011 academic year). The stratification criteria were activity status (active, inactive); regularity of the enrolment condition (regular, not regular by 1–2 years, not regular by more than 2 years); subject area of the course of study (four areas under the current regulation – medicine and health, science and mathematics, social sciences, and humanities – and a miscellanea under the old regulation); and freshman status (yes, no). The allocation of students into the strata was proportional to the population size.

Data were collected by phone interviews through a well-structured questionnaire and carried out by a group of qualified, part-time students at the university's Computer Assisted Telephone Interviewing (CATI) Laboratory. The questionnaire was divided into five main sections (A-E), where students were asked to assess their undergraduate experience under several aspects: enrolment condition and short time perspectives (A); high school experience before enrolling in the university (B); motivations for enrolment and choice of actual degree course (C); satisfaction with the experience in the university system (attendance in classes, academic organisation, relationships with other students, Erasmus programme, internships and tutorship) (D); evaluation of personal dimensions (interest in subjects of study, skills and abilities in studying and so on) (E); and social and demographic data (F). All the questions included in the questionnaire were the result of several meetings and reflections made by representatives of the academic bodies of the University of Pisa, who were part of a specific committee composed of the pro-rectors for students and teaching activities, selected members of administrative and teaching staff, student representatives and some researchers in the social sciences. The survey was conducted from 20 March to 5 May 2012. The average time for each interview was about 14 minutes (standard deviation of 3 minutes), the average number of call attempts to complete an interview was 6.3 (the maximum number of call attempts was 15) and the refusal rate was 3.2%.

2.2 Data and Variables

The analysis was limited to the 1,371 sampled students enrolled in the first-cycle degree courses. The data used in this study were obtained from the students' responses to the interview questionnaire (described in subsection 2.1) and matched with the administrative archives of the University of Pisa, where the students' main characteristics and university careers are recorded. A relevant portion of the questions included in the questionnaire referred to the students' perceived level of satisfaction with different aspects of their university experience. The level of satisfaction was assessed with an anchored scale of four ordered categories (1 = 'none', 2 = 'a little', 3 = 'enough' and 4 = 'very much') for the following items: overall, compared to academic results, compared to expectations, organisation of the teaching activities, learning materials, receiving hours, information about courses, organise time for attending classes, prepare for exams, plan studies, combine studies with other personal activities, build relationships with students, study with other students and contacts (establish and maintain) with students outside the university. Each score is considered an indicator of an underlying latent variable, whose value is expressed on a continuous scale that is observable only with a categorical response variable through a set of threshold parameters.

The latent structure underlying the 14 measures or indicator variables of student satisfaction was preventively explored using an exploratory factor analysis (EFA). Four factors were extracted with eigenvalues greater than one, accounting for 66.7% of the total variance. The four-factor solution provided a good fit to the data (chi-square = 128.556; df = 34; p < 0.0001; RMSEA = 0.045). Geomin rotation was used to foster the interpretability of the factor loadings and to obtain a clearer definition of the factor structure. From the inspection of the pattern of indicator-factor relationships, the four identified constructs were labeled as *satisfaction*, *teaching efficiency*, *studies organisation* and *social capital*, respectively. Specifically, the manifest indicators associated with each latent construct were the following:

- *satisfaction* – overall, compared to academic results and compared to expectations;
- *teaching efficiency* – organisation of the teaching activities, learning materials, receiving hours and information about courses;
- *studies organisation* – organise time for attending classes, prepare for exams, plan studies and combine studies with other personal activities;
- *social capital* – build relationships with students, study with other students and contacts with students outside the university.

After the latent structure was established, based on prior empirical (EFA) and theoretical grounds, the four-construct representation of the data was assessed by a confirmatory factor analysis (CFA), which allowed examination of the hypothesised relationships between indicators and the latent variables that the indicators were intended to measure (Bollen 1989; Brown 2006). The CFA results revealed the following statistics: model chi-square = 328.214 (df = 43, p < 0.001); comparative fit index (CFI) = 0.958; Tucker-Lewis index (TLI) = 0.968; root mean square error of approximation (RMSEA) = 0.069; and weighted root mean square residual (WRMSR) = 1.614. Furthermore, the CFA results showed that the latent factors exhibited good construct validity. Indeed, the manifest indicators of selected constructs loaded onto separate factors in the expected manner, thus supporting convergent validity. It could also be observed that all four factors were moderately or poorly correlated with each other (0.093 ≤ r ≤ 0.552), indicating fairly good discriminant validity.

Some academic and extra-academic observed variables were also included in the model as explanatory of the latent variables, thus contributing to defining a more complex but complete system of relationships between student satisfaction and teaching efficiency. Among the academic variables, the following dichotomous covariates were considered:

- *enrolment motivated by interest in courses* – distinguished students enrolled for their cultural interest in the subject matters provided by degree courses from students enrolled for other reasons (job opportunities, family interests and so on);
- *inactivity status* – identified students with no credits during the last year (inactive students) from the others (active students), the latter was considered, regardless of the number of gained credits;
- *internships* – identified students who had an internship experience during their university career, regardless of duration, type of business and place, from others who had none;
- *years repeated during high school* – distinguished students who repeated one or more years during high school; and
- *long duration of studies* – identified students still enrolled more than two years after the end of the regular duration of the degree programme.

Among the variables describing the students' extra-academic characteristics, the following dichotomous variables were considered:

- *gender* – identified male students and
- *working while studying* – distinguished full-time students from those who had paid employment in addition to their studies, where the current job represented the main activity.

The model under study was based on the previously described, observed and latent variables.

3 Proposed Model

3.1 System of Hypothesised Relationships

This study analysed the factors affecting student satisfaction, focusing on the aspects characterising the educational offer, considered indicators of teaching efficiency of degree courses. Specifically, the research first hypothesised that *teaching efficiency* would have a direct and positive effect on *satisfaction* (H_1), intending to evaluate the hypothesis that good organisation of teaching activities could represent a basis for a satisfactory experience in the university system. Indeed, even though this will probably not be the most important aspect of the university experience, it may represent a factor that can facilitate the fruition of the service and contribute to a more profitable permanence in the university system, leading to a better learning experience and maybe an increase in the chances for university success.

Moreover, based on the findings of Gregg (1972), Pike (1991) and Blackburn and Lawrence (1995), among others, we considered that *satisfaction* would be influenced by *social capital* (H_2), meaning that a more intense student life in terms of social interactions with peers, as well as the opportunity of studying with other students, could have positive effects on satisfaction. For these reasons, the latent construct *social capital* was tested for its possible influence on *satisfaction*.

A further relationship considered referred to the effect of *studies organisation* on *satisfaction* (H_3), indicating that students with a good capability of managing daily activities related to studies (such as attending classes and preparing for exams, as well as the ability to combine these activities with the others concerning the personal sphere) would be more satisfied.

According to the research studies of Rienzi et al. (1993) and Moro-Egido and Panades (2010), gender differences in satisfaction were also considered (H_4). Furthermore, because academic performance is an important factor affecting student satisfaction, as suggested by Aitken (1982) and Pike (1991), the variables *inactivity status* and *long duration of studies* were introduced as possible indicators of performance in the university students' career (H_5). Specifically, it was assumed that a longer stay in the university system, due to a slower and probably more difficult career, as well as a period of at least one year with no exams,

would negatively influence student satisfaction. Therefore, because of the way the variables were formulated, negative values of the parameters were expected.

Following the findings of Moro-Egido and Panades (2010), the variable *having job* was also a possible determinant of student *satisfaction*, expecting for this a lower level of satisfaction for part-time than full-time students (H_6). Additionally, we supposed that enrolling in a degree course for the cultural interest in the subject matters rather than for other possible reasons (such as job opportunities, family interests and so on) would have positive effects on satisfaction, as suggested by the research studies of Bean and Bradley (1986). Hence, the variable *enrolment motivated by interest in courses* was introduced as an explicative of *satisfaction* (H_7). Finally, since we considered that students would positively view professionalising activities because these would put into practice the knowledge acquired during studies, a higher level of *satisfaction* would be expected for students with an *internship* experience (H_8).

Model specification continued by testing some auxiliary relationships, whose main purpose was to make the whole system of hypotheses pertaining to the effects on satisfaction more complete and reliable. Particularly, we considered that the variables • *working while studying* and *years repeated during high school* could negatively affect *studies organisation* (H_{10}). In fact, students for whom the current job represented the main activity might have problems organising their time, as well as combining the time spent on study and work. Similarly, students who had already experienced some difficulties during their previous years of study (as revealed by having repeated one or more years in high school) would likely have even more troubles once they entered the university system. Finally, we considered that the ability of organising their own time would be higher for students with an aptitude for building relations with other students or who had contacts with peers, not only for studying but also for leisure activities. Hence, this aptitude would be able to identify more active students – those with a good network of social relationships and also able to successfully perform their student duties or activities outside the university. Hence, we supposed that *social capital* would positively influence *studies organisation* (H_9).

All the previous considerations could be summarised and formulated by the following system of hypotheses. Specifically, hypotheses 1-8 referred to the direct effects on *satisfaction*, whereas hypotheses 9-10 involved the effects among the other variables:

H_1: *Satisfaction* increases when *teaching efficiency* increases.
H_2: *Satisfaction* is positively influenced by *social capital*.
H_3: *Satisfaction* is positively influenced by *studies organisation*.
H_4: Gender differences influence *Satisfaction*, that is, males are less satisfied than females.
H_5: Academic performance, as it can be represented by *inactivity status* and *long duration of studies*, influences *satisfaction*; that is, inactive students and students with a long stay in the university system are less satisfied.
H_6: *Satisfaction* is lower for students who work while studying.
H_7: *Satisfaction* is higher for students who *enrolled for their cultural interest in courses*.
H_8: *Satisfaction* is higher for students with an *internship* experience.
H_9: *Studies organisation* is positively influenced by *social capital*.
H_{10}: *Studies organisation* is lower for students with a *working while studying* and with *years repeated during high school* and for inactive students.

This study applied an SEM to explain this complex system of hypotheses, representing the relationships between student satisfaction and the other latent and observed variables. The path diagram in Fig. 1 gives a pictorial representation of the hypothesised relationships.
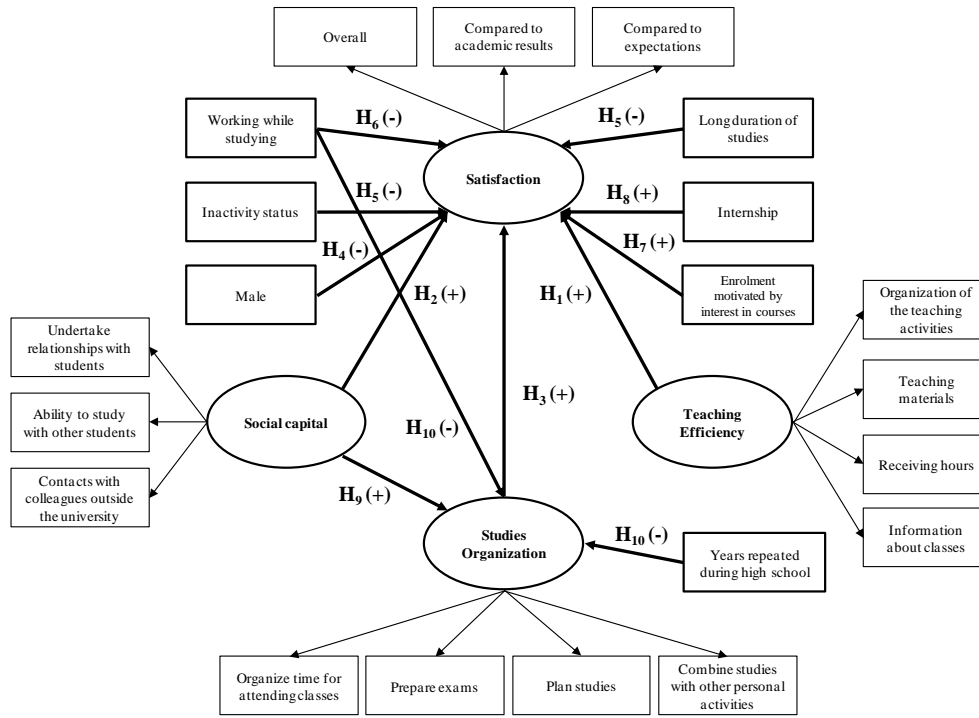
Fig. 1. Path diagram of the hypothesised model

Rectangular boxes represent observed variables (indicators and explanatory variables), whereas latent variables are enclosed in circles. One-headed arrows indicate directional relationships, such as regression coefficients and factor loadings.

3.2 Structural Equation Models

The SEM is a multivariate technique used to test complex relationships among observed (measured) and unobserved (latent) variables, as well as between two or more latent variables. An SEM model is characterised by two components: a *structural* model, designed to explain the relationships among latent variables and among latent and observed variables, and a *measurement* model, explaining the relationships among latent variables and observed indicators (Bollen 1989). The structural model can be expressed by the following equation (Muthén 1984):

$$\boldsymbol{\eta} = \boldsymbol{\beta}\boldsymbol{\eta} + \boldsymbol{\Gamma}\mathbf{x} + \boldsymbol{\zeta},$$

where $\boldsymbol{\eta}$ is an $m \times 1$ vector of endogenous latent variables; $\boldsymbol{\beta}$ is an $m \times m$ matrix for endogenous latent variables; $\boldsymbol{\Gamma}$ is an $m \times k$ matrix of regression coefficients among latent and observed variables; $\mathbf{x}$ is a $k \times 1$ vector of exogenous observed variables; and $\boldsymbol{\zeta}$ is an $m \times 1$ vector of errors. The measurement model is defined as:

$$\mathbf{y} = \boldsymbol{\Lambda}\boldsymbol{\eta} + \boldsymbol{\varepsilon},$$

where $\mathbf{y}$ is a $p \times 1$ vector of observed indicators; $\boldsymbol{\Lambda}$ is a $p \times m$ matrix of factor loadings; and $\boldsymbol{\varepsilon}$ is a $p \times 1$ vector of residuals. In the presence of observed binary or categorical indicators, the conventional measurement model for continuous indicators is constructed, as specified by Muthén (1984), by defining an underlying, normally distributed latent variable for the corresponding observed variable. Here, the latent responses are linked to observed categorical responses via threshold models, yielding probit measurement models. The

structural parameters are estimated with a three-stage, limited-information procedure, as described by Muthén (1984) and Muthén and Satorra (1996), using a weighted, least-squares fit function.

4 Results

The analysis was carried out by using the software M*plus* 5.21 (Muthén 1998-2004). The goodness-of-fit of the proposed model was evaluated on the basis of the criteria suggested by Bagozzi and Yi (1988), as follows: preliminary model fit criteria, overall model fit and fit of internal structure of model. The cutoff values for acceptable fit were assessed by referring to Hu and Bentler (1999). The following subsections give a more detailed discussion of the model fit (subsections 4.1-4.3) and results of the parameter estimation (subsections 4.4 and 4.5).

4.1 Preliminary Model Fit Criteria
The analysis of the parameter estimates shows that no evident anomalies exist. Particularly, there are no negative error variances, correlations greater than one, extremely large parameter estimates or non-significant error variances; moreover, standardised factor loadings for each observed variable are between 0.527 and 0.906 ($p < 0.001$). These preliminary results suggest that neither model specification errors nor identification problems apparently exist. Thus, the examination of the more formal criteria can proceed.

4.2 Overall Model Fit
The chi-square test statistic (N = 1371) yields a value of 412.558 (df = 69, $p < 0.001$), suggesting an inadequate fit between the hypothesised model and the sampled data. However, given that chi-square is sensitive to the sample size, such result was expected and other fit indices are considered. Particularly, as indicated by the values of the CFI (0.952) and TLI (0.951), the hypothesised model exhibits a good fit to the data. Moreover, with regard to residual analysis, the RMSEA (0.060) is also fairly good, with an acceptable WRMSR value (1.737). Hence, the overall model-fit measures suggest that the proposed model can be considered good.

4.3 Fit of Internal Structure of Model
Given that the global fit measures address the overall adequacy of a model but do not provide information on individual parameters, the following criteria are considered for the assessment of the internal structure of the model (Bagozzi and Yi 1988): analysis of the values and significance of all estimated factor loadings, individual item reliability, latent variable composite reliability, and average extracted variance of the latent variable. Nevertheless, it is useful to mention that since categorical variables are used, the reported values are expected to be smaller than if numeric ones are used, which explains the lower values in some of the cutoffs (Cronbach 1951).

The results reveal that most of the individual items' measures of reliability are greater than 0.40 (with values ranging from 0.412 to 0.825), even though six of the 14 observed indicators (organisation of the teaching activities, learning materials, receiving hours, organise time for attending classes, combine studies with other personal activities and contacts with colleagues outside the university) show an individual reliability just lower than 0.40. The composite measures of reliability of latent variables range from 0.747 to 0.883 and meet the 0.60 criteria (Fornell 1982). Finally, the extracted average variances range from 0.430 to 0.689, with two out of the four below 0.50 (Fornell and Larcker 1981) but one of these at 0.493. In conclusion, despite a few minor exceptions, these findings indicate that the model exhibits a good fit of internal structure and meets the criteria proposed by Bagozzi and Yi (1988).

4.4 Analysis of Direct and Indirect Effects on Satisfaction.

The main results after the model estimation are shown in Fig. 2. The estimated, standardised regression coefficients are shown next to the arrows corresponding to each relation; asterisks indicate parameters significantly different from zero at level $p < 0.05$ (*), $p < 0.01$ (**) and $p < 0.001$ (***), respectively.

The direct effects exerted on *satisfaction* by the considered latent variables are all significant and follow the expected direction, thus supporting our initial hypotheses. Specifically, *teaching efficiency* has a positive and direct effect ($+0.306$; $p < 0.001$) and suggests that whenever the organisation of educational activities is inadequate, or at least, considered such, students are less satisfied (H_1). Nevertheless, *teaching efficiency* does not seem to be the most important factor affecting overall *satisfaction*, since *studies organisation* also has a direct and positive effect (H_3) but with a parameter value indicating a greater influence ($+0.474$; $p < 0.001$). On the other hand, the variable *social capital*, while having a significant and positive effect (H_2), has the lowest value of all ($+0.110$; $p < 0.001$). Also, *social capital* has an indirect effect on *satisfaction* through *studies organisation*.
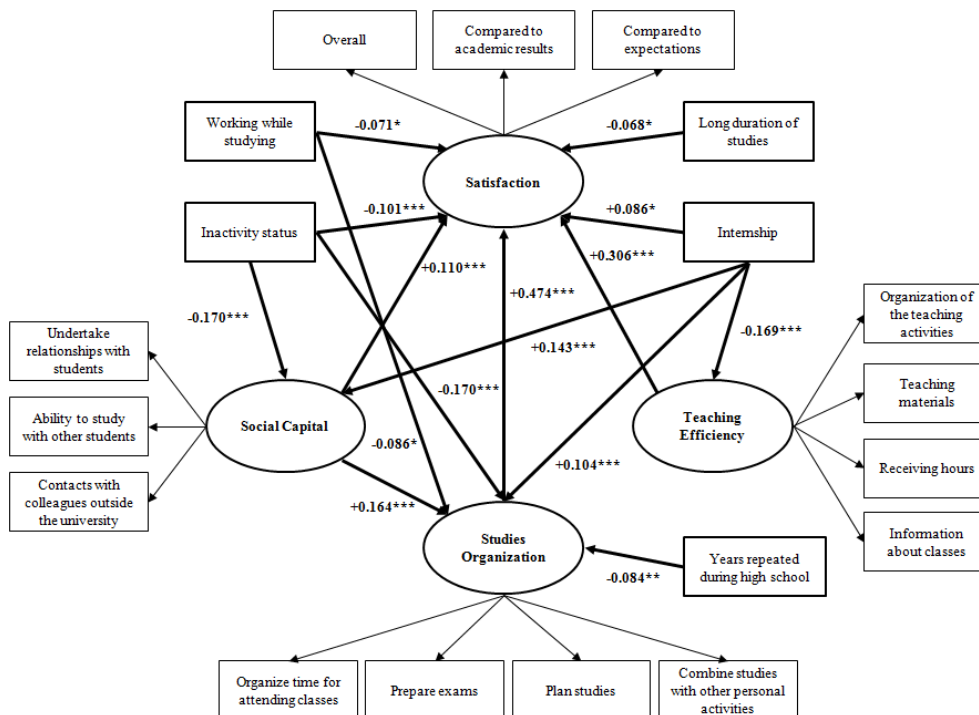

Fig. 2. Path diagram of the estimated model

Gender differences are found to be not significant (H_4), whereas academic performance (H_5), as represented by *inactivity status* (-0.101; $p = 0.001$) and *long duration of studies* (-0.068; $p = 0.029$), has a negative influence on *satisfaction*, as expected, although rather weak. *Working while studying* also has a negative effect on *satisfaction* (H_6), showing a parameter value in line with the previous ones (-0.071; $p = 0.018$). Surprisingly, no significant effect on *satisfaction* is observed for students who *enrolled for their cultural interest in courses*, thus disproving our initial hypothesis (H_7). A possible interpretation is that once the students are enrolled, their interest in the subject matters of the degree programmes becomes less important, while the other factors that characterise the study or the personal experience increase in importance. Finally, students who had an *internship* experience ($+0.086$; $p = 0.029$) during their studies are more satisfied (H_8), confirming that professionalising activities are viewed positively.

As a result of the system of relationships described, the residual variance of *satisfaction* is 0.566, indicating that *teaching efficiency*, *social capital*, *studies organisation*, *inactivity status*, *long duration of studies*, *working while studying*, and *internship* experience all explain 43.4% of the variance in the latent, dependent variable *satisfaction*.

4.5 Analysis of Other Effects

Regarding the other variables, we first highlight the weak effect of *social capital* on *studies organisation* (H_9), which follows the expected direction (+0.164; $p < 0.001$) and supports our hypothesis. Moreover, *years repeated during high school* (-0.084; $p = 0.005$), *having job* (-0.086; $p = 0.014$) and *inactivity status* (-0.170; $p < 0.001$) all adversely have small effect on *studies organisation* (H_{10}), with *inactivity status* seemingly the most important factor of the three.

From the analysis of the modification indices obtained after estimating the hypothesised model, some relationships emerge, in addition to those tested in the first formulation (as described in subsection 3.1 and represented in Fig. 1). Among these, it is worth noting the central role of *internship,* with a positive effect on *studies organisation* (+0.104; $p = 0.001$) and *social capital* (+0.143; $p < 0.001$) and a negative influence on *teaching efficiency* (-0.169; $p < 0.001$). Consequently, *internship* seems to be a factor that can characterise the students' experience in a broad way. Specifically, students who decide to have an *internship* experience during their studies would be the more dynamic ones, those really integrated in the university system, with more social relationships and better time management, explaining the positive effects on *studies organisation* and *social capital*. On the other hand, the negative influence on *teaching efficiency* could probably mean that these activities are perceived as inadequate or poorly organised.

5   Discussion

This study intends to contribute to the analysis of the factors affecting student satisfaction, since students can be viewed as primary consumers in universities and particular attention is given to the possible relation with the aspects characterising the educational offer.

The interest in this topic is justified by the importance that student satisfaction assumes because of its close relationship with overall life satisfaction and subjective well-being, in addition to being considered as an indicator of the quality of educational services. Taking student opinions into account can also influence student retention, attrition and graduation rates, as well as help universities make their degree programmes more consistent with students' expectations. This study's results can be considered reliable, given its large sample size and the model's goodness-of-fit indices, despite a few limitations, mainly the lack of information about the quality of teaching and the impossibility to replicate this analysis in other universities.

This study's main finding is that the organisation of the educational offer plays an important role in determining student satisfaction, as expected. This means that when universities are able to provide well-planned educational and teaching activities, as well as make available helpful teaching materials, prepare appropriate class schedules and so on, then university life is facilitated and students are more satisfied with their experience. This result is already in itself quite significant for its possible implications because it informs political and university government bodies about the importance of providing degree courses with adequate administrative staff and instrumental means to improve the teaching organisation.

However, among the factors taken into account, organisation of daily life seems even more important. In fact, students with the time management capability for study-related activities (such as attending classes and preparing for exams, as well as combining these activities with the others concerning leisure time) are more satisfied. This result appears

reasonable and indicates that factors concerning the personal sphere of students are more significant in determining their level of satisfaction than institutional ones. Furthermore, some additional findings are consistent with those of previous studies; specifically, academic performance and having paid employment while enrolled in a degree programme affect student satisfaction. In fact, being enrolled for a long time (more than the regular duration of the course) and/or being inactive make students less satisfied. Moreover, working while studying reduces the level of satisfaction, due to the limited available time to organise study activities, compared to the case of full-time students. This outcome strengthens the idea that usually, it very difficult to combine work and study. On the other hand, no gender differences are observed, in contrast to other studies' findings.

Finally, it is worth noting the importance of internship experiences during studies. In fact, students who spend time in companies or institutions are more satisfied, highlighting their preference for degree programmes that enable practical experiences or facilitate the acquisition of professional skills. In terms of policy implications, this last result seems vital because it suggests that investing in professionalising activities can make a degree course favoured by students as well as foster their subsequent entry into the labour market. Therefore, make these internship activities more efficient, can also indirectly contribute to increase the overall level of satisfaction.

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