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The ECSI model in higher education in tourism: A segmentation analysis in the Portuguese case

Abstract

This research explores the European Consumer Satisfaction Index model applied to higher education in tourism by including the construct of employability and by accounting for unobserved heterogeneity. In particular, it intends to identify segments of higher education institutions' (HEI) consumers based on the structural model estimates of the European Consumer Satisfaction Index (ECSI), enlarged with the employability construct. A model-based segmentation approach using FIMIX in PLS path modeling is used. The ECSI is properly adjusted to the educational framework and shows its effectiveness when assessing students' satisfaction regarding the attended HEI. Two distinctive graduate segments are identified using a sample of 166 HEI consumers. The results confirm the assumption of heterogeneity as the relationships differ across segments and the need for HEIs to target those segments differently in such a competitive context.

Key words: higher education in tourism; ECSI; FIMIX; PLS; Portugal

Introduction

Higher education (HE) has faced different challenges as a reflection of socio-economic aspects that characterize societies in distinct times. Nowadays, higher education institutions (HEIs) are pressured to achieve increasing competitiveness, which demands high standards of knowledge and quality, internationalization and mobility programmes, strategies that distinguish them from others and a focus on attracting new students and offering post-graduation options for those who are already enrolled in the system. In recent years HEIs have also been constrained by some governments' agenda because of the issue of employability, and this dimension has increasingly dictated financial support according to the obtained results (HEFCE, 2001).

As the primary consumers of HEIs (Kanji & Tambi, 1999), students/graduates' satisfaction and loyalty regarding the HEI attended are undoubtedly a determinant of the planning of strategies that will satisfy the previously mentioned demands and simultaneously gain graduates' appraisal of the service provided. In the Portuguese case, the increasing unemployment rates for graduates may also affect their perception of and satisfaction with the service provided by HEIs, which can ultimately be reflected in a reduction of the number of potential students enrolling in HE. The issue of employability therefore gains visibility, and helping and teaching individuals to be employable is now on the national HEIs' agenda. Employability is enhanced in this study as a dimension that should be considered by those

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responsible for higher education, and it is added as a construct to the ECSI (European Consumer Satisfaction Index) model. Considering the lack of studies on employability and its role as a link between the academic context and the industry, this construct gains major importance for a better understanding of students' perception of its importance in their preparation to cope with the present tourism industry challenges.

The framework for this study is the ECSI model, which measures the importance of image, expectations, quality and value as antecedents of satisfaction and loyalty as its main consequence (ECSI Technical Committee, 1998). The ECSI model was previously used to assess customer satisfaction in the HEIs context (Alves & Raposo, 2007b; Brown & Mazzarol, 2009; Chiandotto, Bini & Bertaccini, 2007; Chitty & Soutar, 2004; Martensen, Grønholdt, Eskildsen & Kristensen, 2000). Moreover, previous research shows that this model can be successfully applied to HEIs by adding the construct employability as a predictor in the model (Eurico, Silva & Valle, 2015). Indeed, Eurico et al. (2015) show that the construct employability influences the key connections of the ECSI model applied to HEIs, allowing that these institutions may become acquainted with the role of this factor in these particular consumers' perceptions and, therefore, adjust their educational performance to graduates' best interest. The objective of this study is to deepen the understanding of the ECSI model, enlarged with the construct employability, by seeking heterogeneity among its hypothesized relationships. In particular, this study intends to assess to what extent the relationship between the antecedents of satisfaction and its impacts on loyalty, measured by the ECSI model, change for distinctive groups of HEIs' consumers. This analysis will allow identifying graduate segments with different patterns in the ECSI model applied to HEIs. Besides providing a better academic understanding of the ECSI model, this analysis can provide important practical insights for HEIs. In fact, by identifying the segments that account for this heterogeneity (Floh, Zauner, Koller & Rush, 2014), these institutions will have a better understanding of their consumers and, consequently, be more prepared to make the best decisions to target them in such a competitive context.

Tourism graduates were chosen for this research considering the considerable importance of the tourism industry to the economic development of Portugal and the attention that has been paid to the qualification of its human resources as a central aspect of its development (Dhiman, 2012; MEI, 2007). In this study the proposed model is estimated and validated using the partial least squares path modelling (PLS-PM) approach to structural equation modelling (SEM). Since the ECSI model has not yet been analysed regarding the existence of mutually exclusive homogeneous subgroups in terms of its relations, there is no previous information about the possible sources of heterogeneity (unobserved heterogeneity). Therefore, to identify the graduate segments, the FInite MIXture partial least squares (FIMIX-PLS) method is applied (Hahn, Johnson, Herrmann & Huber, 2002). This method is particularly appropriate for the analysis of unobserved heterogeneity in PLS-PM (Rigdon, Ringle & Sarstedt, 2010; Ringle, Wende & Will, 2010; Sarstedt, 2008), that is, to identify segments when there is no prior information about the relevant segmentation variables.

Integrating the construct "employability" into the ECSI model

Understanding the employability concept as a key strategy for the positioning of HEIs

The concept of employability is directly linked to "the possession of the understandings, skills and personal attributes necessary to perform adequately in a graduate-level job" (Knight & Yorke, 2010). Nowadays, HEIs struggle both to attract new students and to respond properly to government agendas, which tend to value this aspect as a response to economies' dynamics and, in the particular case of

Europe, considering the increasing numbers of unemployed graduates, including those in the tourism industry (Dhiman, 2012). Strategies such as the creation of careers' services, the development of workshops that aim to enhance employability skills and marketing strategies that are planned to uphold institutions in such a competitive market are just some of the approaches that HEIs are promoting in response to this issue.

The implementation of the Bologna Process in higher education equally emphasized the importance of developing the employability skills of individuals, who will have to struggle to enter the labour market and face the ceaseless technological advances of an increasingly competitive industry, such as tourism. Within a common set of procedures that have been implemented in European HEIs and that stress the importance of employability, mobility and internationalization, students will most certainly analyse the possibilities and added value that each institution presents and that will prepare them better to adjust to and succeed in a world of opportunities and challenges (Aggett & Busby, 2011; Forrier & Sels, 2003). Developing students' capacity to gain employment and be successful in their chosen occupation has become an important aspect for HEIs. However, there is still scant research crossing employability and tourism education. Some studies have discussed the tourism course units' curriculum and its implications for the labour market (Dhiman, 2012; Hsu, Cathy, 2018). Other studies analyse the companies' perception of the skills needed for the tourism profession (Cuffy, Tribe & Airey, 2012; Daniel, Costa, Pita & Costa, 2017), and others have explored the possible factors influencing employability in the tourism sector (Airey, 1997; Harvey, Locke & Morey, 2002; Lopez-Bonilla & Lopez-Bonilla, 2012). Only a few studies analysed how perceptions about employability influence students' satisfaction with their attended HEI (Eurico et al., 2015; Wakelin-Theron, 2014).

The ECSI model

Before becoming an important means of measuring and explaining customer satisfaction and loyalty, customer satisfaction indices had been used since the 1990s to evaluate business performance in different industries (Johnson, Gustafsson, Andreassen, Lervik & Cha, 2001). The basic structure of the ECSI model was developed in 1998 by the ECSI Technical Committee (1998) as a structural equation model, comprising links between consumer satisfaction and its determinants and consequences. In particular, the causes of customer satisfaction foreseen in the model are image, expectations, perceived quality and perceived value, loyalty being the presented consequence of satisfaction. A set of manifest measurable variables is associated with each latent variable and observed by posing survey questions to customers.

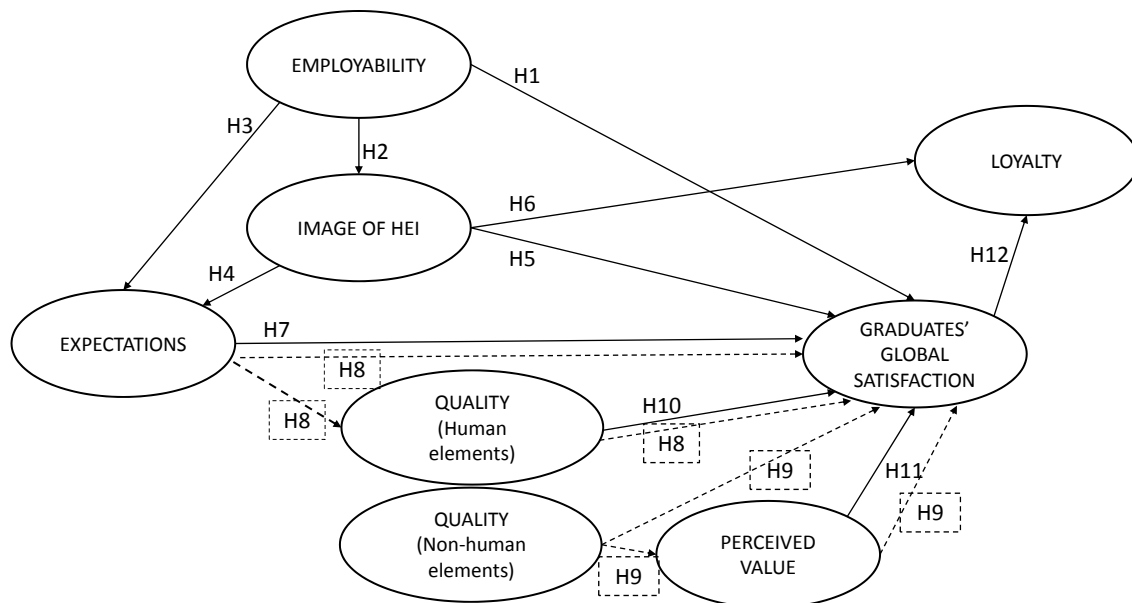
The ECSI approach uses structural equation modelling (SEM), and it was chosen for the current study because of its flexibility when applied to a wide variety of products and services at the industry level and in the public sector, mainly due to the use of generic questions. It is expected to provide a detailed description of the processes supporting customer satisfaction, which, when carefully studied, may contribute to organizations' efficient performance (Cassel & Eklof, 2001, Lewin, Biemans & Ulaga, 2010). Literature review reveals that there are some studies which focus on quality evaluation through customer satisfaction in the field of education which use the ECSI methodology (Martensen et al., 2000; Chitty & Soutar, 2004; Alves & Raposo, 2007; Chiandotto et al., 2007; Brown & Mazzarol, 2009). Martensen et al. (2000) presented the first study using the ECSI methodology to measure students' satisfaction with the HEI attended. Alves and Raposo (2007), Brown and Mazzarol (2009), Campostrini and Gerzeli (2007), Chiandotto et al. (2007), Chitty and Soutar (2004) and Eurico et al. (2015) followed this research line. Only in Eurico *et al.* (2015) employability was tested as a determinant of satisfaction regarding the HEI attended.

Conceptual model and research hypotheses

With the purpose of measuring graduates' satisfaction regarding the HEI attended and the role of employability in it, a research model was developed, taking into account the ECSI framework. Consistent with the objectives of this study, the model, shown in Figure 1, was developed and tested. The hypotheses tested are indicated in the figure and explained below.

Concerning the introduction of this construct to the ECSI model, our study proposes that it is an antecedent of satisfaction, image and expectations. The relation between employability and graduates' satisfaction with the HEI attended can be supported by the studies of Mason, Williams, Cranmer and Guile (2003), Mason, Williams and Cranmer (2009) and Yorke (2004). Regarding image, some studies have suggested its connection with employability, albeit without providing empirical evidence (Ancil, 2008; Belanger, Mount & Wilson, 2010; Pampaloni, 2010). Empirical analyses of the influence of employability on image can be found in the studies by Duarte, Alves and Raposo (2010), Landrum, Turrisi and Harless (2010) and Soutar and Turner (2002). As for the effect of employability on expectations, a few studies have suggested that, when entering an HEI, students expect to acquire knowledge and skills that will make them employable individuals and moreover that will repay their investment in a proper education (Kurtz, Clow, Ozment & Ong, 1997; Tomlinson, 2007). Furthermore, Tomlinson (2007), Wilton (2008) and Yorke (2004) reinforced the expectations that higher education students have about easily obtaining a job that suits their graduation financially and in the area of study. Therefore, the first research hypotheses can be formulated:

Figure 1
Research model and hypotheses*



*Dot lines indicate relationships related to the hypotheses of mediation.

- H₁: Employability has a direct positive effect on satisfaction concerning the HEI attended;
- H₂: Employability has a direct positive effect on the image of the HEI attended;
- H₃: Employability has a direct positive effect on expectations.

The study of the relationship between image and expectations is not new in the service context (Cassel & Eklof, 2001; Johnson et al., 2001; Kurtz et al., 1997). In the educational framework, this variable has been shown to have a considerable impact on students' satisfaction and loyalty regarding the HEI (Belanger *et al.*, 2010; Brown & Mazzarol, 2009; Martensen et al., 2000). Hence, the following hypotheses are proposed:

H₄: The image of the HEI has a positive and direct effect on expectations;

H₅: The image of the HEI has a positive and direct effect on satisfaction;

H₆: The image of the HEI has a positive and direct effect on loyalty.

The effect of expectations on satisfaction has been unclear, specifically positive in some cases, negative in other cases and even non-significant (Eskildsen, Martensen, Gronholdt & Kristensen, 2000; Kristensen, Martensen & Gronholdt, 1999, 2000). Then, the following hypothesis can be put forward:

H₇: Expectations have a direct effect on satisfaction.

The quality variable was split into the quality of "hardware", for the non-human elements (e.g. study programmes and courses), and the quality of "software", for the human elements (teaching and administrative staff), following the works of Chiandotto et al. (2007), Chitty and Soutar (2004) and Kristensen et al. (1999). In the studies of Anderson and Sullivan (1993) and Kristensen *et al.*, (1999), expectations have proved to have a positive effect on satisfaction via perceived quality of human elements. Zeithaml (1987) added that the influence of the quality of non-human elements (hardware) on satisfaction happens through perceived value. Moreover, perceived quality of human elements was considered by Kristensen et al. (1999) as the most important determinant of satisfaction. Thus, the additional hypotheses are proposed:

H₈: The effect of expectations on satisfaction is positive and mediated by quality of human elements;

H₉: The effect of perceived quality of non-human elements on satisfaction is positive and mediated by perceived value;

H₁₀: Perceived quality of human elements has a positive and direct effect on satisfaction.

Perceived value is expected to have an influence on students' satisfaction with the attended HEI, as they tend to expect the time and money invested in education to pay returns. In previous studies this relationship has confirmed value to have a direct and positive impact on satisfaction (Alves & Raposo, 2007; Fabra & Camisón, 2009; Martensen et al., 2000). Thus, we hypothesize:

H₁₁: Perceived value has a direct and positive impact on satisfaction.

Finally, loyalty, as the only consequent variable of satisfaction, has been studied as an important element that informs on topics such as the reputation of the institution, the students' intention to recommend it and their intention to re-enrol for postgraduate studies (Butt & Rehman, 2010; Hennig-Thurau, Langer & Hansen, 2001). Accordingly, a final hypothesis is proposed:

H₁₂: Satisfaction concerning the HEI attended has a positive and direct effect on loyalty to the institution.

With the exception of H₈ and H₉, all the hypotheses suggest a direct effect between the latent variables. Besides a direct effect, all the hypotheses except H₇ propose a positive effect between the variables. H₈ and H₉ are mediation hypotheses. H₈ will verify if the indirect effect of expectations on satisfaction is significant and positive. The same rationale applies to H₉.

Methodology

Sample and questionnaire

The target population for this study were tourism and hospitality graduates working in the tourism sector in two Portuguese tourism regions, located at the centre of the country: West region and Leiria Fátima region. These are neighbour regions with similar characteristics in terms of tourism demand and supply. To find the target population size, 207 individuals, private and public companies operating in the tourism sector were asked (by phone) about the number of tourism and hospitality graduates they were employing. Subsequently, using a 95% of confidence and a margin of error of 3%, a sample of 174 individuals was defined. To assure that the sample is representative, this study used the cluster sampling method. According to this method, a random sample of companies employing graduates in the two regions was selected. Then, all graduates of these companies with an HE degree in tourism or hospitality were invited to participate in the study. From those, 166 validly responded to the questionnaire prepared for this study (by email or by personal delivery and pickup). Data were collected between January 2010 and June 2010. The response rate equals 80.2% of the target population and 95% of the target sample. Moreover, the sample size meets the requirements for PLS-PM analysis.

The questionnaire considered the original ECSI questionnaire's structure and was divided into two major parts. The first part dealt with graduates' background, and the second part was divided into seven sections, each related to the constructs presented in the research model (employability, image, expectations, quality, value, satisfaction and loyalty), described by two to nine items measured on a five-point Likert scale. Table 1 presents the items measuring each construct. They are the same used by the previous studies that employed the ECSI model in the HE sector (Alves & Raposo, 2007b; Brown & Mazzarol, 2009; Chiandotto et al., 2007; Chitty & Soutar, 2004; Martensen et al., 2000; Mason et al., 2009; Yorke, 2004).

Employability was measured using seven items, based on different studies that mainly focused on measuring the time period between graduating and entering the labour market, the partnerships and liaisons established with enterprises and employers and the monitoring provided by HEIs to students in the process of finding a job (Campostrini & Gerzeli, 2007; Harvey, 2001; Knight & Yorke, 2003; Schomburg & Teichler, 2006; Smith, Clegg, Lawrence & Todd, 2007). The remaining constructs used the indicators previously validated by other authors using the ECSI questionnaire, mainly in the education field (Brown & Mazzarol, 2009; Chiandotto et al., 2007; Chitty & Soutar, 2004; Johnson et al., 1995; Martensen et al., 2000; Ostergaard & Kristensen, 2005).

Data analysis

The global model was previously estimated by partial least squares path modelling (PLS-PM). All the measures in the model are reflective. PLS-PM allows estimating and testing the hypothesised relationships involving the latent variables as well as analysing the extent to which they are properly measured by their indicators (Chin, 1998; Chin & Newsted, 1999; Davcik, 2014). This method is particularly suitable for estimating complex structural equation models with small sample sizes (Vinzi, Chin, Henseler & Wang, 2010). Moreover, PLS-PM has been chosen to test national satisfaction indexes (IPQ, 1999). In this study the software SmartPLS 3.0 was applied to obtain the results (Ringle, Wende & Becker, 2015). Firstly, the global measurement model was evaluated; then, the FIMIX-PLS approach was applied to identify HE consumer segments (Hahn et al., 2002; Rigdon et al., 2010; Ringle et al., 2010; Sarstedt, 2008). The potential unobserved heterogeneity was uncovered by FIMIX-PLS within the structural relationships of the global model. Hence, the results from this technique allowed us to

test the research hypotheses for the global model (with the total sample) as well as for each segment. The segment number was decided based on the comparison of different model performance indicators (Akaike information criterion (AIC), Bayesian information criterion (BIC), consistent AIC (CAIC), corrected AIC with the penalty factor of three (AIC3) and normed entropy statistic (EN)) (Sarstedt, Becker, Ringle & Schwaiger, 2011). The mixing proportions, the a posteriori probability of segment membership for each observation and the segment-specific estimates for the structural relationships and for the regression variances were estimated (Henseler, Ringle & Sinkovics, 2009). The significance of the indirect effects was assessed by the Bias-Corrected and Accelerated Bootstrap procedure (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002; MacKinnon, Lockwood & Williams, 2004).

Results

Sample description

The distribution of the characterization variables of the respondents is presented in table 6 (column "overall sample"). The obtained data show that our sample comprised 127 females (76.5%) and 39 males (23.5%) and the mean age of the respondents was 29.0. Regarding their education and training, all the respondents held a bachelor degree in the tourism area, which was an assumption of the study. More than 70% graduated in "tourism" (72.9%) and the remaining individuals in "tourism and hospitality management". A masters' programme was attended by 13.3%, and 1.8% attended a PhD programme. Furthermore, as far as work experience is concerned, for the majority of the respondents (70.5%), their job at the time of the survey was not their first job, and when asked about the links between that job and the scientific area of their BSc, 93.4% answered positively. Lastly, on the subject of income, 66.7% of the respondents received monthly between €451 and €900, 29.0% received from €901 to €1350 and 4.3% received more than €1,350.

Indicators' description and test to common method bias

Table 1 lists the items used to measure each latent variable, the percentages in each level of the scale, as well as the mean and standard deviation for each item. The results for the items related to employability show that the ones that gathered the highest values of agreement correspond to the relevance of training to performing the job functions (Emp 4) and its importance to the possibility of career progression (Emp 5). Concerning image, the indicators with the higher percentages in the categories of agreement are those that reflect the perception of the respondents in relation to the attended HEI, considering it to be a good institution at which to study (I1) and characterizing the HEI as innovative and forward looking (I2). The indicators linked to the variable expectations with the answers of highest agreement are those related to the curriculum of the attended course (E1), the scientific knowledge of the teachers (E3) and the preparation for job and career (E7). As for the indicators used to measure the concept of quality, the one with the highest percentage of agreement are related to the scientific knowledge (Q2). Value is distinguished from the previous variables as being the one with a higher concentration of responses alluding to disagreement. Therefore, the ease of obtaining a good job seems not to reward the amount paid for education, according to the students' answers (V1 and V2). The concept of satisfaction was measured by five indicators, and the overall satisfaction of the respondents with the service provided by the HEI was the attribute with the highest percentage of agreement (S1). In relation to loyalty, approximately 60% of the respondents expressed the intention to recommend the attended HEI (L3), and nearly half would choose the same institution to attend post-graduate training (L5).

Still as a preliminary analysis, the Harman's (1967) single-factor test was implemented in order to test potential common method bias (CMB). This test was considered relevant in our research since all items were measured by the same person and, in such cases, bias may result from the covariance between the predictor and criterion variables (Podsakoff, MacKenzie & Podsakoff, 2003). Moreover, our study uses an instrument with constructs all measured with the same scale, which can be itself a source of CMB, since it is more likely that respondents keep some consistency in their responses. SPSS was used to perform the test, as suggested by Roni (2014). This implied running an exploratory factor analysis with all items loaded into one common factor. According to this test, if the total explained variance for a single factor is lower than 50%, CMB is not affecting the data set. In our study, the common factor solution produced a total variance of 35.6%, meaning that CMB is not influencing our results.

Table 1
Statistics for items and latent variables (own elaboration)

Latent variables and indicators	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly agree (%)	Mean (std. deviation)	Loadings
Employability ($\alpha = 0.844$; CR = 0.882; AVE = 0.519)							
Emp1. Globally, the HEI attended allows individuals to find their first job within six months of graduation	5.4	14.5	36.1	38.6	5.4	3.24 (0.96)	0.622*
Emp2. Globally, the HEI attended interacts with the tourism industry sector.	1.2	12.0	27.7	53.0	6.0	3.51 (0.83)	0.708*
Emp3. Globally, the HEI attended prepares students for the transition to the job market	1.8	21.8	23.0	47.3	6.1	3.34 (0.95)	0.814*
Emp4. Globally, the degree programme is directly linked and relevant to the successful performance of professional duties	0.6	12.7	17.5	58.4	10.8	3.66 (0.86)	0.768*
Emp5. Globally, having a bachelor's degree raises the expectation of professional enhancement	0.0	8.4	23.5	56.6	9.6	3.64 (0.84)	0.605*
Emp6. Globally, the HEI attended enhances the adequacy of the studies with respect to the employment requisites	3.0	16.3	31.3	45.2	4.2	3.31 (0.90)	0.724*
Emp7. Globally, the HEI attended matches the tourism industry sector demands.	1.2	15.7	31.9	44.0	7.2	3.40 (0.88)	0.778*
Image ($\alpha = 0.823$; CR = 0.871; AVE = 0.533)							
I1. Generally, this is a good HEI at which to study	0.6	4.8	12.7	63.9	18.1	3.94 (0.74)	0.805*
I2. The HEI attended shows and encourages innovation	1.2	8.4	21.7	52.4	16.3	3.74 (0.87)	0.793*
I3. The HEI attended has a trustworthy academic status	3.0	10.8	33.7	42.2	10.2	3.46 (0.93)	0.674*
I4. The HEI attended offers its students educational achievement	0.0	11.4	28.3	52.4	7.8	3.57 (0.79)	0.802*
I5. The HEI attended supports its graduates	6.0	22.9	28.3	36.1	6.6	3.14 (1.04)	0.622*
I6. The HEI attended contributes dynamically to the society development	0.6	5.4	27.1	59.0	7.8	3.68 (0.72)	0.661*
Expectations ($\alpha = 0.857$; CR = 0.889; AVE = 0.535)							
E1. Teachers' pedagogical methods	0.6	6.0	35.5	55.4	2.4	3.53 (0.68)	0.733*
E2. Teachers' scientific knowledge	0.6	4.8	35.5	53.0	6.0	3.59 (0.71)	0.680*
E3. HEI facilities	9.0	25.9	38.0	22.9	4.2	2.87 (1.00)	0.694*
E4. HEI support functions	4.2	22.3	45.8	24.7	3.0	3.00 (0.87)	0.727*
E5. Overall quality of services in general.	2.4	6.6	51.2	38.0	1.8	3.30 (0.73)	0.780*
E6. Preparation for coming job and career	1.8	9.0	32.5	42.2	14.5	3.58 (0.91)	0.720*
E7. Services received considering the initial expectations	0.0	6.0	40.4	45.8	7.8	3.55 (0.73)	0.781*

Table 1 Continued

Latent variables and indicators	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly agree (%)	Mean (std. deviation)	Loadings
Quality of human elements ($\alpha = 0.893$; CR = 0.949; AVE = 0.903)							
Q1. Teachers' pedagogical methods	0.0	6.0	36.1	48.8	9.0	3.61 (0.74)	0.958*
Q2. Teachers' scientific knowledge	0.6	4.2	35.5	50.0	9.6	3.64 (0.74)	0.942*
Quality of non-human elements ($\alpha = 0.839$; CR = 0.880; AVE = 0.550)							
Q3. Overall quality of the service provided	0.0	5.4	49.4	37.3	7.8	3.48 (0.72)	0.766*
Q4. Courses' curricula	1.2	12.7	44.6	36.7	4.8	3.31 (0.80)	0.659*
Q5. Organization and functioning of the HEI	3.0	7.8	58.4	27.7	3.0	3.20 (0.75)	0.800*
Q6. HEI facilities (library, computing services, tutorials ...)	5.4	21.7	41.6	24.1	7.2	3.06 (0.98)	0.767*
Q7. Non-teaching staff and services	1.8	12.7	58.4	25.3	1.8	3.13 (0.72)	0.748*
Q8. HEI building	15.1	26.5	30.7	21.7	6.0	2.77 (1.13)	0.702*
Value ($\alpha = 0.882$; CR = 0.927; AVE = 0.809)							
V1. The value paid for this course at this HEI is rewarded by the way employers face and look for its graduates	6.6	31.9	34.3	25.3	1.8	2.84 (0.94)	0.897*
V2. The value of the education received is rewarded by the easiness of finding the first job	11.4	27.1	31.9	27.1	2.4	2.82 (1.03)	0.915*
V3. The value paid for this course is rewarded by the overall service provided	6.6	20.5	35.5	33.7	3.6	3.07 (0.97)	0.886*
Satisfaction ($\alpha = 0.887$; CR = 0.917; AVE = 0.690)							
S1. Globally, I am satisfied with the services provided by the HEI attended	0.0	10.2	18.1	65.1	6.6	3.68 (0.75)	0.874*
S2. My expectations regarding overall experience received were totally satisfied	0.0	17.5	13.9	60.2	8.4	3.60 (0.87)	0.818*
S3. As an employee fully integrated in the labour market, the HEI attended satisfies my need for advanced studies	3.6	21.7	34.9	36.7	3.0	3.14 (0.91)	0.737*
S4. The HEI attended can be considered as an ideal HEI	7.2	26.5	41.0	22.3	3.0	2.87 (0.94)	0.840*
S5. The services offered and acquired skills reward the choice of this HEI	3.6	14.5	29.5	45.8	6.6	3.37 (0.94)	0.875*
Loyalty ($\alpha = 0.850$; CR = 0.893; AVE = 0.628)							
L1. If I had to choose an HEI to graduate, I'd choose the same	7.2	13.3	25.3	41.6	12.7	3.39 (1.09)	0.878*
L2. If I had to choose a course again, I'd choose the same	5.4	14.5	23.5	42.2	14.5	3.46 (1.08)	0.625*
L3. I intend to recommend the HEI attended	4.8	6.6	28.3	49.4	10.8	3.55 (0.94)	0.879*
L4. I intend to recommend the course I've attended	4.8	9.6	30.7	44.6	10.2	3.46 (0.97)	0.778*
L5. If I choose to continue studying, I'll do it at the HEI attended	7.2	9.0	35.5	40.4	7.8	3.33 (0.99)	0.774*

Evaluation of the measurement model

Regarding the measurement model, quality assessment is verified since the composite reliability measures (construct reliability (CR) and Cronbach's alpha coefficients (α)) are above the recommended thresholds for all the latent variables (CR > 0.7; α > 0.7) (Fornell & Larcker, 1981; Hair, Ringle & Sarstedt, 2011). These reliability values can be found in table 1. This table also shows the loadings for

the global model resulting from the PLS estimation procedure. The loadings are all higher than 0.6 and are significant at 1% significance level, implying that the items are individually reliable (Chin, 1998).

Moreover, the measurement model was assessed concerning convergent validity and discriminant validity. Convergent validity is verified when indicators' loadings are statistically significant. In the case of our model, table 1 shows that this result is confirmed for all items (all loadings with $p < 0.01$). An average variance extracted (AVE) exceeding 0.5 is another indication of convergent validity (Dillon & Goldstein, 1984), and that occurs regarding the seven latent variables of our model. Discriminant validity was first assessed using the criterion of Fornell and Larcker (1981), which requires that the AVE for one construct must exceed the squared correlations between that construct and all the others. This analysis indicates adequate discriminant validity, apart from some punctual situations regarding the construct satisfaction (Table 2). However, a complementary analysis of discriminant validity, based on the cross-loadings, indicates that all items' loadings surpass their cross-loadings, suggesting adequate discriminant validity also in this construct.

Table 2
Correlations among latent variables*

Constructs	1	2	3	4	5	6	7	8
1. Employability	0.721							
2. Expectations	0.219	0.731						
3. Image	0.723	0.360	0.730					
4. Loyalty	0.706	0.270	0.729	0.792				
5. Quality human elements	0.398	0.378	0.479	0.462	0.950			
6. Quality non-human elements	0.557	0.452	0.709	0.609	0.541	0.742		
7. Satisfaction	0.723	0.361	0.817	0.809	0.513	0.709	0.831	
8. Value	0.669	0.321	0.547	0.605	0.318	0.494	0.635	0.899

*Diagonal values correspond to the squared value of AVE for each latent variable in order to assess the Fornell-Larcker Criterion.

Evaluation of the structural model and results from FIMIX-PLS

The FIMIX-PLS algorithm was repeated for a different number of segments. The joint consideration of AIC3 and CAIC statistics suggested a two-segment solution (Sarstedt & Ringle, 2010), in which the measurement model was identical across the latent segments (i.e., invariance in the measurement model). Segment 1 is the smaller, comprising 25.9% of the overall graduate group. Assessing the structural model in PLS-PM implies assessing the path estimates signal, their statistical significance, the R^2 for the endogenous latent variables and the GoF measure. An overview of the quality assessment measures is presented in table 3. Since the FIMIX-PLS algorithm was applied, the results are presented for the global model and for each segment as well.

The R^2 values of the endogenous latent variables in segment 1 are greater than those in the global model, indicating that the explained variance has really been improved for the segment 1 model. In this segment, loyalty, satisfaction and image have high values of R^2 , indicating that all the determinants have a strong influence on these constructs. Segment 2 shows more moderate R^2 values for loyalty, satisfaction and image, although the other constructs have higher values of R^2 than in the global model. However, the values of the average R^2 remain greater than those of the global model (with the exception of value), confirming that FIMIX-PLS plays an important role in uncovering the unobserved heterogeneity of the global structural equation model. Similarly, the GoF measure (Tenenhaus, Esposito Vinzi, Chatelin & Lauro, 2005) in the segments is greater than that in the global model; thus, its higher value represents better path model estimations than in the global model.

Table 3

Measures of quality assessment of global and FIMIX-PLS segment-specific models

	Global model	Segment 1 model	Segment 2 model	Average R ²
N (%)	166 (100%)	43 (25.9%)	123 (74.1%)	
R ²				
Image	0.523	0.819	0.449	0.634
Expectations	0.133	0.382	0.505	0.444
Quality of human elements	0.143	0.344	0.476	0.410
Value	0.244	0.175	0.283	0.229
Satisfaction	0.754	0.954	0.721	0.838
Loyalty	0.668	0.796	0.612	0.704
GoF	0.479	0.591	0.549	

SmartPLS 3.0 produces the path estimates and corresponding statistical significance for both to direct and indirect path coefficients, allowing us to test the twelve research hypotheses. These results are presented in Tables 4 and 5 for the global model and the two segment-specific models. Table 5 presents the standardised estimates for the direct, indirect and total effects related to the hypotheses H₈ and H₉. Each indirect effect, with the symbol b in the table, is obtained by multiplying the direct effects involved in the hypothesis (with the symbols d and e). H₈ and H₉ are validated or not depending on the sign and significance of these indirect effects. The total effects, with the symbol c in the table, are the sum of the direct effect and all indirect effects between two constructs (in our case, only those represented in the table). The multiple-group comparison results provide evidence of varying relationships among constructs for the two segments. The t-tests confirm that the segments are different in all the structural relationships.

Comparing the significance and strength of the structural coefficients, the results show that all the relationships hypothesized in H₂, H₅ and H₁₂ are positive and significant in the three models; however, they are the strongest in the segment 1 model and the weakest in the segment 2 model. The results regarding the influence of employability on image (H₂) show that it strongly affects image in the two segments. These results follow those obtained by Duarte et al. (2010), Landrum et al. (2010) and Soutar and Turner (2002) and for H₅ the empirical studies that have shown the impact that image has on students' satisfaction (Belanger et al., 2010; Brown & Mazzarol, 2009; Martensen et al., 2000). As for H₁₂, the obtained results follow the same patterns as those found by Butt and Rehman (2010) and Hennig-Thurau et al. (2001), making loyalty an effective consequent variable of satisfaction.

The influence of employability on satisfaction (H₁) is significant and positive in the global model and in the segment 2 model, confirming the adequacy and relevance of the study of employability as far as tourism higher education is concerned, specifically when it comes to understanding students' satisfaction with the service provided by HEIs. The path estimate involved in H₃ is significant only in the segment 1 model. However, in the three models, it is negative, implying that H₃ is not validated in any case. This may be due to students' lack of understanding of the labour market, their misunderstanding of the concept of employability or their lack of awareness of the importance of employability issues for the process of entering the professional arena. Both segments should be of concern to HEIs in their education programmes, as employability has been shown to be an important antecedent of image, which must be worked from a marketing perspective to enhance the institution's reputation concerning the preparation of employable students.

As in the global model, the segment 2 results show that the stronger the HE image that graduates have, the stronger their expectations of and loyalty towards the HE, verifying H_4 and H_6 , respectively. These results are in accordance with previous studies (Belanger et al., 2010; Brown & Mazzarol, 2009; Cassel & Eklof, 2001; Johnson et al., 2001; Kurtz et al., 1997; Martensen et al., 2000). Expectations do not influence satisfaction in any model, i.e., H_7 is not validated. The nature of the influence of expectations on satisfaction is also not very consensual in the results obtained by Martensen et al. (2000), Eskildsen et al. (2000) and Ostergaard and Kristensen (2005). In short, the results obtained for H_7 did not allow us to conclude that the respondents considered in this study lead to results different from those obtained in other studies applied in other contexts.

The coefficients associated with hypotheses H_{10} and H_{11} have a positive signal, as expected considering the previous research, and are significant in segment 1 for H_{10} and H_{11} , and also in the global model for H_{11} . Once again, the courses' or the HEIs' specificities may explain the different behaviour of segment 2 with regard to these relationships, but more research is necessary to explain this result.

Contrarily to the global model and segment 2 results, the expectation of the graduates of segment 1 negatively affects satisfaction with HE through the quality of human elements (table 5). However, H_8 states that this relationship is significant but positive. So, H_8 is not verified in any model. This aspect must be explained by the specific characteristics of the attended courses but really deserves more research attention. Nevertheless, in the global model and segment 1 model, the quality of non-human elements affects satisfaction positively through value, confirming H_9 and following the previous empirical studies by Chiandotto et al. (2007), Chitty and Soutar (2004) and Kristensen et al. (1999).

Concerning the main influences on satisfaction and loyalty, the findings of the two-segment solution can be summarized as follows: (1) In segment 1 image and value are the core determinants of satisfaction (with path coefficients of 0.710 and 0.441, respectively) (table 4). Loyalty is strongly influenced by satisfaction (path coefficient of 0.774). (2) Segment 2 has image and employability as the main drivers of satisfaction (path coefficients of 0.349 and 0.241, respectively) as well as the quality of non-human elements through value (total effect estimate of 0.258) (tables 4 and 5). Satisfaction, in turn, jointly with image, influences the loyalty towards the HEI (path coefficient of 0.604 and 0.211 respectively).

Table 4
Standardized path coefficient for the global model and FIMIX-PLS segment results

Hypotheses	Structural paths	Global model	Seg 1 model	Seg 2 model
H_1	Employability -> Satisfaction	0.147*	-0.172	0.241**
H_2	Employability -> Image	0.723**	0.905**	0.670**
H_3	Employability -> Expectations	-0.087	-0.598**	-0.120
H_4	Image -> Expectations	0.423**	-0.022	0.785**
H_5	Image -> Satisfaction	0.448**	0.710**	0.349**
H_6	Image -> Loyalty	0.205**	0.130	0.211*
H_7	Expectations -> Satisfaction	-0.003	-0.094	0.127
H_{10}	Quality of human elements -> Satisfaction	0.090	0.206**	-0.012
H_{11}	Value -> Satisfaction	0.178**	0.441**	0.080
H_{12}	Satisfaction -> Loyalty	0.641**	0.774**	0.604**

** $p < 0.05$; * $p < 0.10$.

Table 5

Direct, indirect and total effects related to H₈ and H₉: standardised estimates

Hypotheses	Effects	Global model	Segment 1 model	Segment 2 model
H ₈	Expectations->Satisfaction			
	Direct ^a	-0.003	-0.094	0.127
	Indirect ^b (via Quality of human elements (QHE))	0.034	-0.121**	-0.008
	Total ^c	0.031	-0.215**	0.119
	Expectations -> QHE	Direct ^d	0.378**	-0.587**
QHE -> Satisfaction	Direct ^e	0.090	0.206**	-0.012
H ₉	Quality of non-human elements (QNHE) -> Satisfaction			
	Direct ^a	0.174**	-0.045	0.216**
	Indirect ^b (via Perceived value (PV))	0.088**	0.184**	0.042
	Total ^c	0.262**	0.139	0.258**
	QNHE -> PV	Direct ^d	0.494**	0.418**
PV -> Satisfaction	Direct ^e	0.178**	0.441**	0.080

** $p < 0.05$; * $p < 0.10$; b = d × e; c = a + b

Segments' profile

Table 6 presents the distribution differences across and within segments. The results show significant differences only in the graduates' BSc and type of HEI frequented, which indicate that these variables might be discriminant variables of the segments. It is important to note that, contrary to segment 2 and the whole sample, segment 1 has a great percentage of "hospitality management" graduates and more graduates who attended the university.

The main characteristics of the graduates' segments are summarized as follows. The two segments reveal similar percentages when it comes to gender, age, and the actual job being the first job. As for education and training, segment 2 presents closer results to those obtained for the whole sample as far as the attended course is concerned. All the other items related to this topic are quite similar in the two segments when compared with the entire sample. Moreover, the items related to work experience reveal that both segments' answers are equivalent to those of the sample, except for the net income, which tends to be higher in segment 1, namely in the category €901 to €1,350.

Table 6

Characteristics of HEI consumers' segments

Variables	Categories	Segments		Overall sample	Pearson Chi-square test
		1	2		
Gender (%)	Female	69.8	78.9	76.5	1.466 df = 1; p = 0.226
	Male	30.2	21.1	23.5	
Age (mean)		29.6	28.8	29.0	0.802 ^(a) df = 164; p = 0.424
Net household income (monthly) (%)	451€ to 900€	59.5	69.2	66.7	2.838 df = 2; p = 0.417
	901€ to 1,350€	38.1	25.8	29.0	
	More than 1,350€	2.4	5.0	4.3	
BSc (%)	Tourism	60.5	77.2	72.9	4.535** df = 1; p = 0.033
	Tourism and hospitality management	39.5	22.8	27.1	

Table 6 Continued

Variables	Categories	Segments		Overall sample	Pearson Chi-square test
		1	2		
HEI type	Polytechnic institutes	76.7	78.5	78.0	5.925* df = 2; p = 0.052
	Schools and higher institutes	9.3	17.4	15.2	
	Universities	14.0	4.1	6.7	
MSc student (%)	Yes	18.6	11.4	13.3	1.446 df = 1; p = 0.229
	No	81.4	88.6	86.7	
PhD student (%)	Yes	2.3	1.6	1.	^(b)
	No	97.7	98.4	98.2	
The actual job is the first job (%)	Yes	30.2	29.3	29.	0.014 df = 1; p = 0.905
	No	69.8	70.7	70.5	
The actual job is in the same area of the BSc (%)	Yes	93.0	93.5	93.4	0.012 df = 1; p = 0.915
	No	7.0	6.5	6.6	
Months (mean) between concluding the BSc and entering the labour market		3.74	2.99	3.2	0.887 ^(a) df = 163; p = 0.376

^(a) T statistic of independent sample t-test; ^(b) Not possible to verify the assumptions of the Chi-square test.

** Significant at the 0.05 level; * Significant at the 0.1 level.

Discussion and conclusion

Theoretical implications

This study reinforces the relevance of the ECSI model in the explanation of satisfaction and loyalty in HE in tourism. Indeed, the results of our empirical study have shown that the ECSI model allows an accurate analysis of graduates' satisfaction, indicating its flexibility when applied to the educational field. Image, quality, expectations and value have been confirmed, directly or indirectly, to be determinants of graduates' satisfaction and loyalty as its main consequence. Image, in turn, revealed to be the most important antecedent of satisfaction. The contribution of the current study is to explore the integration of employability into the ECSI model, by identifying and characterizing segments of graduates regarding the relations among its constructs. As demonstrated in this study, employability, shows empirical relevance in the ECSI model, due to its significant impact on image, globally, and in both segments. This later segmentation approach is a novelty of this study. This means that other institutions willing to use this model to assess their consumers' satisfaction and loyalty must not ignore that not all consumers behave in the same way, and that, in each context, specific segments may behave differently in the ECSI model. In this sense, this study provides insights on how to test these sources of heterogeneity and how to find and characterize the resulting segments. Once aware of the variables differentiating the segments, adequate marketing strategies can be proposed to target these segments.

Managerial implications

Satisfaction should therefore be analysed as a multi-dimensional concept, and the image of HEIs should be enhanced, as this is the precedent that has the greatest impact on it. Regarding image, the results indicate that it is strongly influenced by employability, which reveals that HEIs should also invest their efforts primarily in these two dimensions, image and perceived employability, to obtain the satisfaction and loyalty of their immediate consumers, the students. Quoting Harvey (2010, p. 7), "a degree may once have been a passport into graduate employment: it was indicative of a level of

knowledge and intellectual ability. However, as a result of organizational changes and the expansion in the numbers of graduates, this is no longer the case". Given this reality, and considering the results found, HEIs should make a commitment to ensuring the qualification of human resources in accordance with the actual needs of the tourism industry and somehow guarantee students' understanding of the importance of developing employability skills and their development as employable individuals and as relevant advertisers of the institution to the outside market.

Considering the European educational framework and the need to qualify students for the tourism industry, the obtained results stress the importance of employability in higher education. The practical implications that result from this study may be reflected in and stimulated with the adoption of different strategies that will enhance students' employability skills. The introduction of mobility programmes within the scope of the Erasmus Programme, the opportunity to carry out professional internships on national and international placements and the introduction of contents within the programme that promote employability skills such as communication, human relations, computing, time management, team working, job-taking initiative and direction and motivation skills, among others, are some of the options that have been and may be put into practice by HEIs when trying to ensure proper embracement of this issue. Clear and transparent communication of these practices to the overall community should also be considered as a strategy to promote HEIs as well as to provide more students with a clear understanding of the importance of becoming employable.

Moreover, these institutions should not ignore the fact that there are two segments of graduates with different responses in the ECSI model. These segments differ mainly with respect to the BSc obtained and the type of HEI attended. Consequently, future marketing communication strategies must be aware of these discriminant variables and consider them when targeting these segments. For example, promotional materials that better explore each type of course specificity and employability opportunities should be prepared for each segment, including visual materials to improve the image of the HEIs and the expectations of potential new students. Another possible strategy is to strengthen the link between the academic context and the industry, with more signed protocols, considering the specific characteristics of each BSc and type of HEI at which the courses can be attended. This would allow greater proximity between the companies that are potential employers of each segment of graduates and the corresponding type of HEI, increasing the potential for high levels of employability and, thus, satisfaction and loyalty towards the institutions. Since the relationships between constructs are weaker in segment 2, the communication strategy as well as the protocol efforts would probably require higher investments to improve the image of the institutions as well as the students' expectations. This strategy should also enable to improve the perception of the quality of human elements that students have, with potential positive effects on satisfaction and loyalty.

Limitations of the study and further research

Some limitations can be associated with this study, including the fact that it cannot be generalized to other countries, despite this being a normal feature of such a study. Indeed, HE in tourism and the employability conditions are not the same in different countries, which means that the same model tested in different geographical contexts can lead to different findings. The view of unemployed graduates or those who have not found a job in the tourism industry would also be interesting to compare with the findings. In addition, the relatively small sample size has impeded the model estimation using the traditional covariance based SEM approach. This latter approach would have been beneficial with regard to the model overall fit measures, since the lack of global goodness-of-fit measures is still considered a drawback of PLS-PM (Hair, Sarstedt, Pieper & Ringle, 2012). So, future studies with larger

samples, allowing the use of covariance based SEM, would be desirable since global goodness-of-fit measures permit to compare alternative models, with more or less latent variables and items, which would improve the comprehension of this thematic. A final limitation of our study is the use of an instrument where all items are measured by the same respondent and using the same scale, which can be sources of common method bias. Although the Harman's (1967) test shows that CMB is not a concern in our study, further research, including replications of our model in different contexts, is desirable in order to refine the instrument design and data collection procedures. Examples of these improvements include using a counterbalance question order in the questionnaire, measures from different sources, and the enhancement of the scale items (Podsakoff, MacKenzie & Podsakoff, 2012).

Regarding the results obtained for both segments, they emphasize the importance of an institutional image's management and subsequent analysis of higher education students so that institutions may reflect on the heterogeneity of their main consumers and outline strategies that will reach different public targets. Therefore, further research is required to improve the characterization of the identified segments, specifically concerning the aspects that have a potentially discriminant power between segments, for interpretation purposes and to gain additional insights. Other significant opportunities for further research within this topic include trying to gain a deeper understanding of the reasons for the existence of a segment of students to whom employability does not increase satisfaction, as this information will certainly represent an important asset for institutions and for developing a set of guidelines for HEIs or education policy to deal with these reasons.

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