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Journal of Hospitality, Leisure, Sport & Tourism Education

journal homepage: www.elsevier.com/locate/jhlste

Tourism and hospitality in Brazil: A model for studies of education competencies

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ARTICLE INFO

Keywords:

Tourism and hospitality
Education competencies
Student skills
Undergraduate
Higher education

ABSTRACT

The objectives of this research are to discuss a number of evaluation models of education competencies and to propose an evaluation model of education competencies for Tourism and Hospitality (T&H) students. The approach is quantitative with a descriptive element. Data were collected through a survey of T&H students in Brazil. At the end of the data collection, the number of valid questionnaires totaled 412. We analysed the data using structural equation modeling (SEM). The results supported the hypotheses, as the proposed model explained 41.5% of the factors that influenced T&H students' engagement. The education competencies presented in this study involve education interdisciplinarity, teamwork, student skills, and student engagement in T&H. The study is part of the emerging literature on education competencies. In particular, it contributes to an understanding of the process of identifying and developing the skills that are required for T&H professionals. It could be used with benefit by educational planners when proposing curricular updates, and business managers when hiring T&H workers.

1. Introduction

The education competencies that are demanded by the Tourism and Hospitality (T&H) industry have been developed in a competitive environment, and can be used to measure individuals' potential and ability in this area (Bennett & Rundle-Thiele, 2002). Examples of studies aimed at understanding the process of developing these competencies can be found in the fields of nutritional knowledge (Holli, Calabrese, & Maillat, 2003), management (Musekamp & Pearce, 2015), and health (Scott & Heitmann, 2018). However, the subject is under-researched in T&H, where related studies tend to concentrate on career analysis and employability skills (Breit & Demets, 1996; Kay & Russette, 2000; Nelson & Dopson, 2001; Raybould & Wilkins, 2005). More recent work in T&H has continued in this vein, addressing changes in the market and professional profiles and the consequent need for career and learning adaptation (Gross & Manoharan, 2016; Lugosi & Jameson, 2017), though some theoretical efforts have been made (Dredge, Airey, & Gross, 2015).

The present study is descriptive and uses quantitative methods and tries to take a practical and theoretical approach, with the objective of proposing a model of analysis of education competencies in T&H that can be applied in the field. Scales were adapted to analyse relationships and results and to validate a model for the identification of inherent and developed competencies among T&H students. Traditionally, studies on education competencies were written by researchers involved in medicine, nursing, occupational therapy, psychology, and psychiatry. The scales developed by Luecht, Madsen, Taugher, and Petterson (1990)—the Interdisciplinary

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<https://doi.org/10.1016/j.jhlste.2020.100299>

Received 1 August 2020; Received in revised form 24 November 2020; Accepted 3 December 2020

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Education Perception Scale (IEPS)—and Parsell and Bligh (1999)—the Readiness for Interprofessional Learning Scale (RIPLS)—have been used to develop an instrument for application in T&H education in Brazil.

According to data from the Ministry of Education of Brazil, which were documented by the National Institute of Studies and Educational Research Anísio Teixeira – INEP (2017), institution subordinated to the Ministry of Education responsible for research on elementary to higher education in Brazil, there were approximately 8.3 million university students enrolled in more than 33,000 higher education courses in 2017, of whom 0.69% (57,387 students) were enrolled on 485 T&H courses (representing 1.45% of the total). These T&H courses are classified into two sub-areas: (a) hospitality, restaurants and food services, with courses in gastronomy (186) and hospitality (48); and (b) travel, tourism, and leisure, with courses in events (37) and tourism (213). The present research was conducted with this context.

The travel and tourism sector accounted for approximately 7.7% of GDP in Brazil in 2019, with revenues greater than \$139.9 billion dollars, according to figures from the World Travel & Tourism Council (WTTC, 2020, pp. 1–20). It is regarded as economically relevant, and the training of qualified professionals should be considered as strategically important for its development. Leal and Padilha (2005) and Sogayar and Rejowski (2015) emphasized that T&H in higher education is of recent origin, and, as Dredge et al. (2015) stated, it has to undergo didactic-pedagogical changes to meet current market demand and these changes should accommodate education competencies. This is, in part, a justification for the present research.

The theoretical structure that underpins the study comprises educational interdisciplinarity (IE), teamwork, student skills, and engagement. These are identified as the four constructs that, together with the dimensions and indicators, comprise the analytical model and the hypotheses. The research methodology is explained in terms of the procedures, the sample, and the measurement items. Finally, the results are described and analysed using evaluative tests that confirm the validity and reliability of the model, as well as the guiding research hypotheses.

As part of its contribution to the literature, the present study highlights the importance of educational team activities as a way of solving complex theoretical and practical problems that require the application of interdisciplinary knowledge, critical thinking, and recognition of co-workers and their respective competencies. The didactic-pedagogical structure in T&H can thus be reconfigured to help in the development of competencies such as interdisciplinarity, teamwork, leadership, communication, self-motivation, self-confidence, and mutual respect. These will guarantee greater graduate employability and, consequently, better labor market performance.

2. Theoretical framework

2.1. Educational interdisciplinarity (EI)

The disciplinary status of knowledge is a recurring theme in T&H scientific literature about scientific maturity, higher education, and curriculum space. Among the many concepts that seek to characterize the disciplinary status of higher education in T&H, interdisciplinarity stands out in the scientific literature. Rhoten, Mansilla, Chun, and Klein (2006, p. 3) consider that interdisciplinarity education is

“a mode of curriculum design and instruction in which individual faculty or teams identify, evaluate, and integrate information, data, techniques, tools, perspectives, concepts, and or theories from two or more disciplines or bodies of knowledge to advance students’ capacity to understand issues, address problems, appraise explanations, and create new approaches and solutions that extend beyond the scope of a single discipline or area of instruction.”

Thus, the concept of educational interdisciplinarity, despite challenging conventional disciplinary paradigms in higher education, proposes solutions to the problems in T&H through collaboration with different areas of knowledge. The results of interdisciplinary educational projects are recognized as having the potential to generate new concepts, methods, and knowledge of relevance to T&H (Crouch & Perdue, 2015; Oviedo-García, 2016).

Some examples that can help the occurrence of educational interdisciplinarity can be of two natures: curricular and pedagogical. As for the curricular examples, it is possible to list, according to the results found by Afifi, Atef, and Al Busaidi (2018), Mrnjavac, Pavia, and Vujić (2012) and Filep, Hughes, Mostafanezhad, and Wheeler (2015): the proposal of curricular components that involve more than one area of knowledge and departments (e.g. Tourism and Hospitality Legislation, HR Management for Tourism & Hospitality, etc.), designing courses and preparing related materials jointly with lecturers from other disciplines, offering practical activities and supervised internships. In turn, regarding pedagogical examples, it is possible to list, based on the results of Ro and Choi (2011) and Schmelzkopf (2002): the diversification in the areas of instruction of the teaching staff and technical-pedagogical team, meetings and training with the teaching staff to raise awareness of the importance of interdisciplinarity, the use of innovative pedagogies such as participatory and active learning, and problem solving situations involving collaboration and cooperation between students.

Intercultural and technological experiences are other means of supporting educational interdisciplinarity in T&H courses. They both rely on one another to offer both face-to-face and internet-mediated knowledge exchange and professional practice and may be categorized as a collective global cooperative study unit. It should be noted that the domain of new technologies for solving problems related to professional activity and self-learning is increasingly recognized by employers because it provides a broader and more critical scope about their roles as professionals and their contributions to organizations and society (Ali, Murphy, & Nadkarni, 2018).

The benefits of an interdisciplinary and active education include, most prominently, the development of communication, problem-solving, and teamwork skills (Kalargyrou & Woods, 2011; Thomas & Busby, 2003), as well as the development of competencies such as self-confidence, leadership, listening, proactivity, self-determination, autonomy, and highly cultivated interpersonal relationships

(Buzinde et al., 2018; Kalargyrou & Woods, 2011; Thomas & Busby, 2003).

Therefore, educational interdisciplinarity requires collaboration between different areas of knowledge inside and outside the classroom if an appropriate set of skills and competencies for T&H college students is to be developed. Interdisciplinarity is needed alongside teamwork and student engagement therein. Hence, the first hypothesis relates interdisciplinarity to teamwork.

H1. T&H students' perception of educational interdisciplinarity (EI) has a positive effect on their perception of teamwork.

2.2. Teamwork

According to Wang (2013) and Curran, Sharpe, Flynn, and Button (2010), teamwork in higher education can be understood as the ability of a person to relate to a designated group that is established with the objective of solving problems, professional or educational challenges, the resolution of which is obtained through communication and technological resources and generic performance skills such as leadership, interpersonal relationship, and creativity. Teamwork is considered to be a fundamental competency in higher education as it provides students with a holistic and critical view of problems, as they consider the various points of view of different team members (Morosan, Dawson, & Whalen, 2017).

Previous research with undergraduate and graduate students in T&H conducted by Sonnenschein, Barker and Hibbins (2018), Coghlan (2015), Dwesini (2017) and Lin, Kim, Qiu, and Ren (2017) contribute with practical examples of how the team work can be carried out: use of active methodologies, active learning and active participation, especially mediated by technology (both gadgets and the internet), supervised internships, intervention and monitoring in the formation of working groups and their respective goals and challenges, monitoring socialization and interaction of the participants of the working groups.

Georgiadou and Iasonos (2015) noted that teamwork demands respect, acceptance, recognition of diversity, and the valuing of the competencies of each team member. In addition, teamwork practical experiences provided by the curriculum enhance intercultural sensibility (Lin et al., 2017), communication skills, time management, self-confidence, collaboration, and professionalism (Dwesini, 2017).

Teamwork is a fundamental competency to be developed in T&H students, since it promotes the development of emotional, communication and management skills, and because being able to participate successfully as part of a group is considered an essential attribute by employers in the sector. The second hypothesis relates teamwork to the perception of engagement.

H2. Teamwork has a direct positive effect on T&H students' perception of engagement.

2.3. Student skills

In the context of higher education, T&H competencies can be understood as a collection of knowledge (cognitive skills), skills and abilities (functional competencies), attitudes and behaviors (social competencies), and motivations and peculiarities (emotional competencies or meta competence) required for individual or organizational success. In the T&H higher education curriculum, competencies are the product of the interaction between three main stakeholders, namely: academics, students, and sector managers (Mahmoud, 2018). Oktadiana and Chon (2017) highlighted the contribution of managers and employers to the configuration of skills that are expected to be developed in students' training. Different perspectives can construct different competencies depending on the hold each participant has over the curriculum.

Research results (Nyanjom & Wilkins, 2016; Yap, Ineson, Alexieva, & Tang, 2015) have suggested that interpersonal and leadership competencies are those most expected by employers (and these are the ones that T&H emphasize); management and technological competencies are not so sought after. Bilgihan, Berezina, Cobanoglu, and Okumus (2014) even observed that T&H students fail to learn technological skills.

As for interpersonal competencies, cooperation, communication (written and oral), interculturality, emotional control, courtesy, politeness, responsiveness, trust, and proactivity stand out as those most in demand (López-Bonilla & López-Bonilla, 2014; Sucher & Cheung, 2015; Wan, Hsu, Wong, & Liu, 2017). Communication skills are stressed, particularly orthography and grammatical adequacy in written communication and mastery of other languages (especially English). Other skills listed as desirable include commitment to work, honesty, responsibility, discipline, bargaining power and conflict resolution, networking, and time management (Wan et al., 2017).

Finally, it should be noted that competencies seem to be more developed in a context beyond the theoretical and traditional teaching-learning model, for example in supervised professional practice (such as internships), as these provide for cooperative learning among students (Stansbie, Nash, & Chang, 2016).

In view of the foregoing considerations, it is understood that cognitive, functional, and social skills (and their variations) must be developed harmoniously in T&H students so that they can succeed in their profession. Hence, the third hypothesis proposed requires an analysis of the relationship between student skills and teamwork.

H3. Student skills have a direct positive effect on T&H students' perception of teamwork.

2.4. Student engagement

Work engagement is the use of the employee's personal resources for company tasks. Thus, engaged employees become more committed and motivated, and are able to perform their duties as well as non-specified functions. Moreover, they are less likely to leave

the company, which reduces turnover. For employees to engage with their assigned role, they must be physically, cognitively, and emotionally equipped to perform their tasks effectively and productively, and to a high standard generally (Zhong, Wayne, & Liden, 2015).

The concept can be transposed into the educational context, where it implies reduced dropout, increased student achievement, and employability (Rich, Lepine, & Crawford, 2010; Uludag, 2016). Teachers are in some ways the educational equivalent of human resources managers. They play an important role in engaging students throughout courses, showing them how best to apply their learning (Odio, Wells, & Kerwin, 2014; Tucker & Clarke, 2014).

Although teachers play a key role in the teaching–learning process, Wang (2013) and Chen, Shen, and Gosling (2018) have stressed the importance of the students' own motivation in their academic activities. This may be determined in part by emotional engagement, or the enthusiasm to study (Johnes, 2006); the support of family members and close friends (Babakus, Yavas, & Karatepe, 2017; Wang, 2016); and physical engagement, or hours spent studying. Jepson and Ryan (2018) argued that cognitive engagement, self-efficacy, and the ability to focus on and learn from activities generate academic motivation, improved learning, and success.

González, Sánchez, and López-Guzmán (2016) also addressed the issue of engagement and employability, stating that graduate students engaged in professional T&H activity are able to establish better relationships with clients and their teams, and are more satisfied with their jobs.

Engagement—emotional, physical, and cognitive—plays a fundamental role in T&H education, since it provides students with benefits relevant to their professional success, i.e., higher quality work and greater productivity, better customer relationships, and job satisfaction. The fourth hypothesis explores the relationship between educational interdisciplinarity (EI) and student engagement. The fifth combines student skills and engagement.

H4. T&H students' perception of educational interdisciplinarity (EI) has a positive effect on their engagement.

H5. Student skills have a direct positive effect on T&H students' perception of engagement.

This study proposes a model (Fig. 1) to analyse the inherent and developed competencies of T&H students in Brazil. It is based on two instruments for the behavioral analysis and study of attitudes of health professionals and students (Luecht et al., 1990; Parsell & Bligh, 1999). The proposed relationships were defined through a literature review, and the aim was to propose a four-dimensional model incorporating educational interdisciplinarity, student skills, teamwork, and engagement.

3. Methodology

3.1. Research procedure

The present study seeks to propose a model of identification and analysis of inherent and developed T&H student competencies. The study participants were undergraduate T&H students with masters and/or doctoral courses at a post-graduate level *stricto sensu* in Brazilian colleges. The institutions that were chosen had better infrastructure and knowledge of T&H. Courses in 11 universities across all regions of the country were researched.

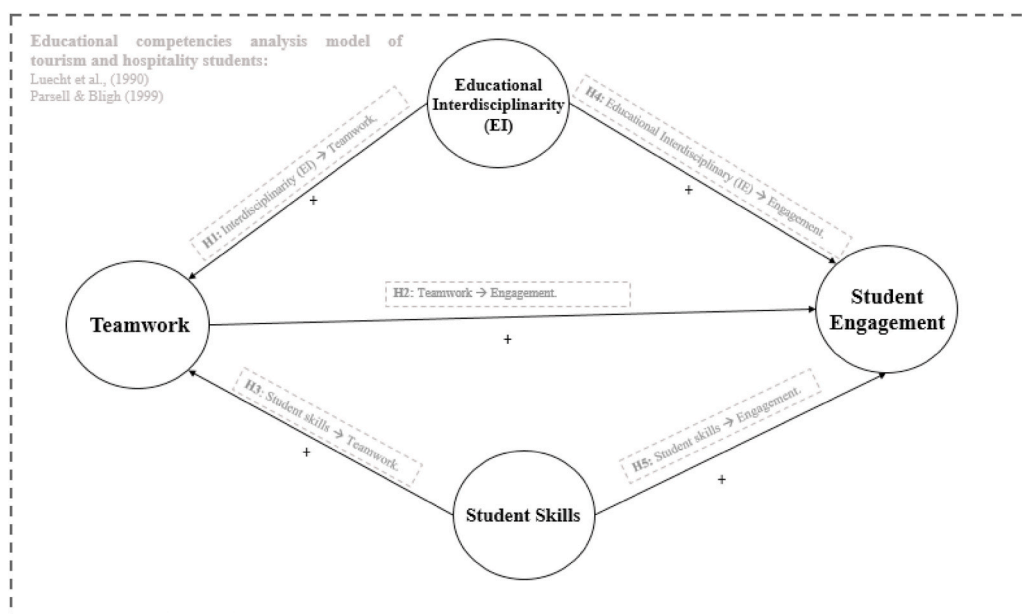


Fig. 1. Proposed conceptual model.

A descriptive quantitative approach was used. The data were collected using Google Docs during the second half of 2018. This tool was chosen because it makes the process of data collection relatively straightforward. The questionnaire contained seven demographic questions and 25 statements from the IEPS and RIEPS (Luecht et al., 1990; McFadyen, Maclaren, & Webster, 2007; Parsell & Bligh, 1999) on a 7-point Likert scale, where (1) meant strong disagreement and (7) full agreement (Table 2). Approximately 450 responses were collected; incomplete or outlying surveys were discarded, leaving a final sample of 412.

The structural equation modeling (SEM) technique was applied using SmartPLS 3.0 software (Ringle, Wende, & Becker, 2015). Structural equation modeling provides the appropriate and most efficient estimation technique for a series of separate and estimated simultaneous multiple regression equations (Fig. 1; Hair, Black, Babin, Anderson, & Tatham, 2010, p. 36). It consists of a family of statistical models that seek to explain the relationships among multiple variables (Hair et al., 2010, p. 543).

Internal consistency, reliability, convergent validity, and discriminant validity were evaluated. Goodness of fit was checked for the overall suitability of the research model. After this rigorous validation procedure, the research hypotheses were tested. All analytical procedures were performed using Smart PLS 3.0 software.

3.2. Research sample

The survey gathered 412 valid replies from students on four types of T&H courses, the majority of whom were majoring in tourism or tourism management (67.50%) and attending private educational institutions (55.83%). Those at public institutions constituted 43.93% of respondents, which is consistent with the reality in this field in Brazil. The students' socio-demographic profile varied with regard to age and income. In the case of the age, 32.8% were between 20 and 25, 20.1% were 20 or younger, and 20.1% were between 31 and 40. Of these, 32.8% had an annual income of up to US\$3,583, and 23.8% earned between US\$3584 and US\$7166. The majority of the sample were married (76%) and female (70.9%). Most respondents were located in the south-east region (38.3%), where the greater number of T&H courses are found (Table 1).

Table 2 shows the results from the model. It illustrates the totality of the factors in student engagement and teamwork. The effect is classified as established by Arsham (1988): strong ($p \leq 0.01$), moderate ($0.01 \leq p < 0.05$), suggestive ($0.05 \leq p < 0.10$), or small or no actual evidence ($0.10 \leq p$).

3.3. Measurement items

The four constructs were selected from previous studies (Luecht et al., 1990; McFadyen et al., 2007; Parsell & Bligh, 1999) and adapted to accommodate the context of the proposed objective. The model included 30 variables (Table 2) for latent constructs—educational interdisciplinarity, student skills, teamwork, and engagement—using a 7-point Likert scale between (1) for strong

Table 1
Descriptive statistics.

Age group	n	%	Individual annual income*	n	%
20 years or less	83	20.1%	Up to US\$ 3583	135	32.8%
21–25 years	135	32.8%	US\$3584 –US\$ 7166	98	23.8%
26–30 years	63	15.3%	US\$7167–US\$14,333	79	19.2%
31–40 years	83	20.1%	US\$14,333–US\$28,666	45	10.9%
41–50 years	26	6.3%	US\$28,667–US\$46,583	19	4.6%
51–60 years	17	4.1%	More than US\$46,584	13	3.2%
More than 60 years	5	1.2%	No income	23	5.6%
Total	412	100%	Total	412	100%
Region you live in	n	%	IES type	n	%
Midwest region	14	3.4%	Community	1	0.24%
North-east region	78	18.9%	Private	230	55.83%
North region	1	0.2%	Public	181	43.93%
South-east region	158	38.3%			
South region	88	21.4%			
(void)	73	17.7%			
Total	412	100%	Total	412	100%
Course	n	%	Marital status	n	%
Events	4	1.0%	Married	66	16.0%
Gastronomy	50	12.1%	Separated or divorced	9	2.2%
Sports and leisure management	2	0.5%	Single	313	76.0%
Hotel or hospitality management	35	8.5%	Stable union	23	5.6%
Tourism and hospitality	43	10.4%	Widow	1	0.2%
Tourism and tourism management	278	67.5%			
Total	412	100%	Total	412	100%
Gender	n	%			
Feminine	292	70.9%			
Masculine	120	29.1%			
Total	412	100%			

Note. *US\$1.00 = BR\$3.72.

Source: Survey (2019)

Table 2
Constructs, dimensions, and indicators.

CONSTRUCT/DIMENSION/INDICATOR	Load	Cronbach's alpha	(CR)	(AVE)	Rho_A
IE – INTERDISCIPLINARY EDUCATION		0.826	0.877	0.588	0.831
<i>Competence and autonomy</i>					
IEPS-COMP.AUT1 - People in my profession are well trained.	0.799				
IEPS-COMP.AUT2 – People in my profession are very positive about their goals, objectives, contributions, and achievements.	0.774				
IEPS-COMP.AUT3 – People in my profession rely on each other's professional judgment.	0.768				
<i>Perception of real cooperation</i>					
IEPS-PERC.COOP.REAL1 – People in my profession are able to work closely with individuals in other professions.	*				
IEPS-PERC.COOP.REAL2 – People in my profession are willing to share information and resources with other professionals.	0.748				
IEPS-PERC.COOP.REAL3 – People in my profession have good relationships with those in other fields.	0.745				
TEAMWORK		0.794	0.865	0.617	0.812
TRAB.EQP1 - Learning from other students will help me become a more effective member of a team.	0.763				
TRAB.EQP2 - Shared learning with other students increases my ability to understand professional problems.	0.799				
TRAB.EQP3 - Shared learning will help me think positively about other professionals.	0.829				
TRAB.EQP4 - For small group learning, students need to trust and respect each other.	*				
TRAB.EQP5 - Teamwork skills are essential for all students to learn.	*				
TRAB.EQP6 - Shared learning helps me understand my own limitations.	0.747				
ENGAGEMENT		0.851	0.890	0.576	0.854
<i>Physical engagement</i>					
ENG.FIS1 – I feel like I put a lot of energy into my work.	*				
ENG.FIS2 – I try to work hard to do well in my job.	0.718				
ENG.FIS3 – I work as hard as I can to complete my assignments.	0.704				
<i>Emotional engagement</i>					
ENG.EMO1 - I feel enthusiastic about my work.	0.804				
ENG.EMO2 - I feel interested in my work.	0.818				
ENG.EMO3 - I feel proud of my work.	0.792				
<i>Cognitive engagement</i>					
ENG.COG1 - At work, I pay close attention to what I'm doing.	*				
ENG.COG2 - At work, I'm focused on my activities.	*				
ENG.COG3 - At work, I pay close attention to my activities.	0.708				
STUDENT SKILLS		0.707	0.836	0.629	0.720
HAB.ESTUD1 - I consider myself able in relation to my reading and writing skills.	0.779				
HAB.ESTUD2 - I consider myself fully competent to carry out the activities related to my field of study.	0.837				
HAB.ESTUD3 - My teachers consider me fully competent to carry out the activities related to my field of study.	0.762				
HAB.ESTUD4 - I consider my social behavior appropriate to my field of study.	*				

Note. *Variable excluded.

disagreement and (7) for strong agreement.

4. Results

4.1. Measurement model

The evaluation of the proposed model regarding its validity and reliability was elaborated from several tests. Reliability was tested using Cronbach's alpha, Rho_A and composite reliability (CR), adopting the minimum value of 0.700 for its acceptance (Hair et al., 2010). All three tests had a value higher than the minimum suggested (Table 2). To test convergent validity, the mean extracted variance (AVE) was calculated, and the respective factor loads of each variable were analysed: the acceptable minimum limit of the AVE was 0.50 and 0.700 for factorial loads (Hair et al., 2010). The said AVE standard was met (Table 2), and after the first round, factor loads with less than 0.700 were withdrawn one at a time and another round was applied. Variables IEPS-PERC.COOP.REAL1, TRAB.EQP4, TRAB.EQP5, ENG.FIS1, ENG.COG1, ENG.COG2 and HAB.ESTUD4 (Table 2) were removed, since the loads were less than required. These results indicated that the measurement model had good convergent validity. Thus, the hypothetical measurement model was considered reliable and significant, so it could be used to test the structural relationships between the constructs. The estimation of the structural model was carried out by means of the maximum likelihood estimation method and a correlation matrix as input data.

The discriminant validity of latent variables measures the degree to which two similar concepts are distinct and is proven when the square roots of each variable are superior to the correlation between them and the other latent variables of the models (Fornell & Larcker, 1981). The model met the assumption (Table 3).

4.2. Structural model

For the data analysis, the model was initially verified when the average variance extracted (AVE) and Cronbach's alpha and CR corroborated the discriminant validity. The convergent validity of the confirmatory factor analysis should be corroborated by item reliability and the construct and also by the AVE (Hair et al., 2010). As Table 2 shows, estimates of construct reliability ranged from 0.707 to 0.890, which exceeded the critical value of 0.7, indicating a satisfactory estimate. The mean variances extracted from all constructs ranged from 0.576 to 0.629, which was above the suggested value of 0.5. These values indicated that the measurement model had good convergent validity. Therefore, the hypothetical measurement model was considered reliable and significant, so the structural relations between the constructs could be tested.

Validity and reliability were therefore established for the proposed model, since results exceeded criteria. Fig. 2 shows the final T&H educational skills model. This model was responsible for 41.5% of the students' perception of engagement, an acceptable value in the social sciences according to Oliveira, Silva, Rodrigues, and Borges (2014).

The results of the structural model evaluation were consistent with Hair et al. (2010). Bootstrapping (5000 samples, unilateral Student *t*-distribution with (*n*-1) degrees of freedom) was used to generate standard errors, *t* statistics, and 95% confidence intervals.

Results from the evaluation of the hypothetical structural model (Table 4) provided evidence that supported hypotheses H1 (perception of EI have a direct positive effect on students' perception of teamwork); H2 (teamwork has a direct positive effect on students' perception of engagement); H3 (student skills have a direct positive effect on students' perceptions of teamwork); H4 (students' perception of EI has a positive effect on their engagement); and H5 (student skills have a direct positive effect on students' perception of engagement). Hence, the hypotheses were confirmed through SEM.

While the results supported all the hypotheses, it is important to note that quantitative analysis can conceal perceptions, though its objective is not to identify the subjective aspects. Thus, the data may represent features that are beyond the reach of numerical analysis. The present study seeks to guide and not delimit this analysis. The proposed hypotheses are considered in more detail below.

There were indications that hypothesis H1 (perceptions of EI have a direct positive effect on students' perception of teamwork) was supported by the results (Table 2). Thus, it could be affirmed that students associated EI with teamwork, confirming the suppositions of Morosan et al. (2017), Sonnenschein, Barket, and Hibbins (2018), and Jepson and Ryan (2018). Furthermore, students understood that teamwork could influence the recognition of their work colleagues (Babakus et al., 2017).

Hypothesis H2 (teamwork has a direct positive effect on T&H student engagement) was confirmed. The studies of Dwesini (2017) and Sonnenschein et al. (2018) emphasized the importance of teamwork as a differentiator and motivator for T&H professionals, and showed that engagement can improve students' problem-solving abilities by improving their focus and team performance (Jepson & Ryan, 2018; Wang, 2016).

Hypothesis H3 (student skills have a positive effect on teamwork in the field of T&H) was confirmed, corroborating the results of Dwesini (2017), Sonnenschein et al. (2018). These authors affirmed that a multidisciplinary view can contribute to problem resolution. There is also the perception that young people enter the labor market prepared for new technologies, so companies need to be aware of this new reality and capitalize on such knowledge (Georgiadou & Iasonos, 2015; López-Bonilla & López-Bonilla, 2014; Stansbie et al., 2016).

Hypothesis H4 (students' perception of EI has a positive effect on their engagement) was also confirmed. Schmelzkopf (2002) stated that the search for solutions related to the work environment can emerge from multidisciplinary views, while Afifi et al. (2018) argued that the use of practical methodologies can contribute to the development of EI. The sense of belonging provided by students' involvement in work activities begets engagement, and this relationship can be developed during higher education and in everyday activities (Babakus et al., 2017; Wang, 2016).

Therefore, the present study's hypotheses were statistically supported, as was initially thought to be likely. The research approach could be adapted for other countries or fields (e.g., social, educational, economic, or cultural); cross-sectional studies are also recommended, which could provide an overview of the competencies developed by T&H students across the Brazilian regions.

5. Discussion

Interdisciplinary teaching and learning practices and the various education competencies developed during T&H courses enable students to work as part of a team and to engage in their respective tasks (Ro & Choi, 2011). Education projects focused on interdisciplinarity, especially teamwork, provide a broader view of the reality of the phenomena being studied, since they allows students to use their skills in solving problems with their colleagues. Students are able, in addition to developing leadership and communication skills (Kalargyrou & Woods, 2011), to recognize and respect the importance of each team member's individuality, generating a

Table 3
Discriminant validity*.

	Engagement	Student skills	IE	Teamwork
Engagement	0,759			
Student skills	0,571	0793		
IE	0,369	0331	0,767	
Teamwork	0,456	0353	0,352	0785

Note. *Fornell–Larcker Criterion.

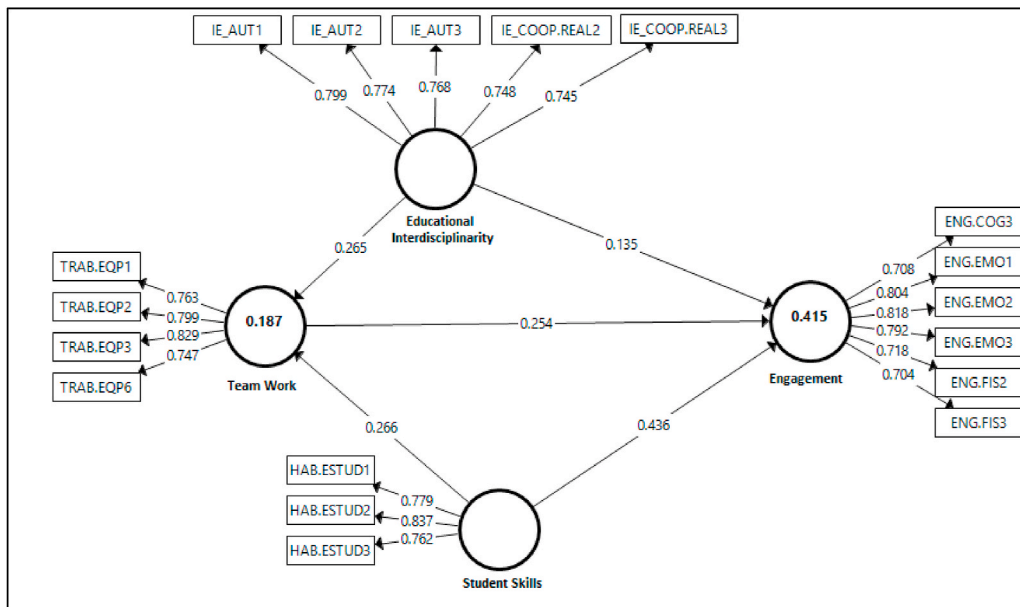


Fig. 2. Tourism and hospitality education competencies.

Table 4
Evaluation of the hypothetical structural model.

Hypothesis	T Statistics (O/STDEV)	P Values	Observed effect	Result (Hypothesis)
H1 – Educational interdisciplinarity - > Teamwork	5468	0.00	Strong	Supported
H2 – Teamwork - > Engagement	5435	0.00	Strong	Supported
H3 – Student skills - > Teamwork	5089	0.00	Strong	Supported
H4 - Educational interdisciplinarity - > Engagement	4826	0.00	Strong	Supported
H5 – Student skills - > Engagement	10,545	0.00	Strong	Supported

Note. R² = 0,415.

cohesive and harmonious educational context that stimulates engagement and improves teamwork (Georgiadou & Iasonos, 2015; Luoh, Tsauro, & Tang, 2014).

Students’ engagement can be increased by the use of interactive and interdisciplinary teaching and learning methodologies (Huang, Backman, Chang, Backman, & McGuire, 2013; Thomas & Busby, 2003) that cultivate a teamwork environment. Students’ enthusiasm and motivation in academic activities, whether these be curriculum- or extracurricular-based, must be encouraged (Buzinde et al., 2018). Students who are engaged in their courses have a better chance of being hired after graduation, will be more committed to their role, and will enjoy more fruitful relationships with clients (González et al., 2016).

Ro and Choi (2011), Hall, Hill, Appleton, and Kozub (2009), and Dwesini (2017) argued that active methodologies such as internships, tutorials, interdisciplinary projects, theoretical/practical classes, group work, and so on provide the ideal teaching–learning environment for the development of all the constructs considered in the present study. These methodologies are focused on the theoretical and practical aspects of T&H; they not only acknowledge the current state and complexity of the field, but also constitute the critical and reflexive training that is necessary for the formation of competent professionals.

6. Conclusions and contributions

The present study aimed to propose a model for the identification and analysis of the education competencies inherent to and developed by T&H students in Brazil. Studies on education competencies have traditionally been developed by health researchers (in medicine, nursing, occupational therapy, psychology, psychiatry, and so on). For the present study the IEPS (Luecht et al., 1990) and RIPLS (Parsell & Bligh, 1999) were used as the basis of an instrument of analysis (Table 2). This was tested in several environments, and its effectiveness was proven.

In a competitive and dynamic environment, the development of education competencies demanded by the market benefit both employee and employer; young professionals so equipped will be more employable and more likely to reach their goals. Regardless of whether they are involved in operational or strategic activities, organizations are currently guided by aims and objectives. The present study can aid these processes by making a contribution to the improvement of academic curricula, though, since the professional training cycle takes a few years of study, the effect of curricular changes will not be immediately apparent.

Therefore, the present study achieved its purpose in adapting and testing a scale, analysing relationships and results, and proposing a model for identifying the education competencies that are essential for the successful development of T&H professionals.

6.1. Academic contributions

The first of these is in the present study's suggestions for improving academic curricula to meet market needs and students' learning. Institutions should understand that academic curricula must be updated and tailored to the needs of the market, since a significant part of what they deliver is composed of obligatory and fundamental disciplines. They must remain attentive to changes in demand, as well as to the evolution of teaching and learning styles. Nowadays, technologies and resources are available that offer complementary and differentiated training, in contrast to the standard model of teaching and learning, where the teacher is the sole knowledge provider.

The second contribution to highlight is the study's methodological approach and subsequent analysis of current T&H education. It is necessary to understand the relationships between the different factors that make up the complex teaching and learning process to ensure professional engagement. A strategy has been proposed that addresses educational interdisciplinarity, teamwork, and education competencies with the aim of identifying how these contribute to or influence engagement. The range of factors could be extended to examine how this engagement might be developed.

Finally, the study's strategy and findings, particularly with regard to its analysis of the factors related to student engagement and teamwork, can be applied to research in other areas (e.g., health).

6.2. Practical contribution

The present study's practical contributions can be divided into two categories: (a) professional training, and (b) the formation of more cohesive and goal-oriented teams. The labor market increasingly demands that college students have practical training and a high level of professional competence; at present, they often receive theoretical training only while at university, and practical skills are acquired after they enter the job market.

The results indicate that combining theoretical knowledge with the development of practical skills contributes to the professional growth of students and the formation of professionals who can integrate into their work groups, who show an awareness of their interdependence, and who consistently contribute to the achievement of better results and best practice.

Educational Interdisciplinarity as presented by Boix-Mansilla (2005, p. 16) is the "capacity to integrate knowledge and modes of thinking in two or more disciplines to produce a cognitive advancement - eg explaining a phenomenon, solving a problem, creating a product, raising a new question - in ways that would have been unlikely through single disciplinary means", therefore, its practical applications are diverse.

In this way, the practical applications of Interdisciplinary Education can be summarized in seven points listed by Afifi et al. (2018): First, ability to solve complex problems, such as in gastronomy, where professionals need to know chemistry and physics to use ingredients and perform culinary preparations. Second, investigating multidimensional areas that can hardly be addressed by a single discipline, such as social and environmental issues and customer service are examples of interactions between different areas of knowledge and need to be analysed in an integrated approach. Third, in understanding international relations in tourism, political, ethnic and social conflicts need to be understood in their complexity and thus require a professional with this competence. The fourth point includes the fact that many educational institutions see education as isolated clusters of knowledge and their interaction with other areas is not stimulated, thus forming professionals limited to their area of study, therefore curricular changes are necessary aiming the interdisciplinarity. The fifth point is the encouragement of team work, therefore interrelating with the construct of Teamwork that we consider fundamental for the success of the professional in this area. The last two relevant points presented by Afifi et al. (2018) is to analyse controversial themes and propose new interpretations, that is, rethink the traditional mental model and create innovative products and solutions, these last two points complement each other and they force students to leave their comfort zone to think differently and propose solutions.

6.3. Limitations and Recommendations

The present study has a number of limitations, the first of which is geographical. Brazil has specific characteristics that have to be taken into account, and institutions tend to focus on their immediate regions (e.g., the south-east includes São Paulo and Anhembi Morumbi; and the south encompasses the Rio Grande do Sul, University of Caxias do Sul and Santa Catarina, University of the Vale do Itajaí). As a consequence of Brazil's territorial extension, sociodemographic aspects such as culture, remuneration and job expectations, tend to change according to each region of the country. In addition, while the authors tried to extent the sample so that all regions were surveyed and the demographic characteristics of the participants were balanced, the north was under-represented.

Applying this research to all regions and gathering data for analysis from more courses is therefore recommended, so that future samples can be more diverse. Another important suggestion would be the application of multigroup analysis (MGA), so that particular segments can be examined (e.g., age, gender, course, country, and so on).

CRedit authorship contribution statement

Claudio José Stefanini: Conceptualization, Methodology, Software, Formal analysis. **Mirian Rejowski:** Writing - review &

editing. **Rafael Cunha Ferro**: Writing - original draft.

Declaration of competing interest

We have no conflict of interest to declare.

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